INCREASING THE POTENTIAL OF BRT AND LRT CORRIDORS WITH AUTOMATED TRANSIT NETWORKS

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CORRIDOR CITIES TRANSITWAY (CCT)

- 1<sup>st</sup> phase, 9 miles, 14 stations
- 2<sup>nd</sup> phase, 6 miles, 4 stations
- 38 minutes trip time for first phase
- 6 minute headway during peak period
- 15 minute headway during off peak
- 15 minute headway for Universities at Shady Grove Service
ACCESSIBILITY VS. MOBILITY

- Universities at Shady Grove Service is a significant detour
- ≈1.4 miles and two additional stops for direct service
- ≈2.8 miles and four additional stops for Universities at Shady Grove Service
- Why choose between accessibility and mobility?
THE IDEAL TRANSIT BEST FRIEND WOULD:

- Assist in getting all types of passengers to transit quickly
- Enable a wide variety of land uses
- Seamlessly integrates with transit
- Increase transit ridership

What transportation technology can do all of this?

Automated Transit Networks (ATN)

Source: Ultra PRT, 2012
AUTOMATED TRANSIT NETWORKS (ATN)

- Fully automated
- Small vehicles, ~4 people/vehicle
- ~25 MPH
- Direct origin to destination
- 3 Second Headway
- Modern implementations in the form of personal rapid transit (PRT) at Heathrow, Masdar City, and Suncheon Bay
- Group Rapid Transit (GRT), similar to PRT but larger shared vehicles

Source: Ultra PRT 2012

Source: ATRA, 2012
LONDON HEATHROW PRT

- Built by Ultra Global PRT
- Completed in 09/2011
- Connects T5 to business parking lot
- 2.36 miles and 3 stations
- 21 vehicles
- Cost $38.2 million ($16.2 million/mile)
- 30 second wait time
- Operates successfully

Source: Ultra Global PRT, 2012
OTHER ATN

Masdar City PRT (2getthere)

Suncheon Bay (Vectus)
LIFE SCIENCES CENTER (LSC) ATN

- ≈4 lane miles, 6 stations
- This ATN increases mobility and accessibility
- Avoid two-way bus crossing of major arterial at two locations
- Shorter trip times for CCT riders who bypass LSC
- Allow uniform CCT headways
- Improve access for many (but not all) Life Sciences Center trips
CAMPUS BENEFITS

• LSC internal circulation
• Greater campus synergy
• Additional stations in the LSC will not impede quick service
• Parking does not need to be adjacent to buildings
• More public space, less space dedicated to parking
• Less traffic due to reduce parking circulation
HOW MUCH WILL THIS COST?

*Figure from ATRA IG*
According to Ultra Global PRT, the Heathrow system has a **reliability** of over 99%.

- **Increase land value**, the Heathrow PRT increased demand of the parking facility the PRT serves.
- **Less disruptive** to urban fabric.

Pictures from Goran Tegner.
ATN BENEFITS (2 OF 2)

- Gives developers more **flexibility in designing** communities
- **Decreased costs**
- **Encourages transit use**
- **Usable by all**
- **Increased coverage**

Pictures from Goran Tegner
• The 6 mile **Riverside-Locust Point-Fort Mc Henry Neighborhood Circulator** would serve the tourists, workers, and residents of the communities between Camden Yards and Fort McHenry.
The **National Harbor ATN** would help employees, residents, and visitors travel between the complex and the Washington Metropolitan Region.
ATN TAKEAWAYS

- ATN exists!
- ATN enhances traditional transit
- ATN gives developers freedom
- ATN encourages transit ridership
- ATN can complement BRT and LRT
- ATN is for everyone
- ATN’s cost is not prohibitive
ATRA INDUSTRY GROUP WEBINAR

• Titled ‘Public Transport Complemented’
• Speakers from PRT Consulting, 2getthere and ULTra Global PRT
• Topics include:
  • What are Automated Transit Networks (ATN)?
  • How can it best be used to enhance existing public transportation?
  • How current operational systems are performing.
• May 29th at 10:00 AM Eastern Time
SUMMER WORKSHOP
FRIDAY JULY 18, 2014

• Associated with the Automated Vehicles Symposium 2014 TRB AP020 (Emerging and Innovative Public Transport and Technologies) /AUVSI

• Sponsor by The National Center for Sustainable Transportation at University of California, Davis

• “In this hand-on, interactive workshop, participants will re-imagine the built environment enabled by new automated and autonomous vehicles. Small, eclectic teams of experts combining the expertise of a wide range of fields (city planning, infrastructure and architecture, car design, engineering, software and systems) will collaborate on scenarios.”
THANK YOU!
PLEASE CONTACT US WITH MORE QUESTIONS

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HOW MANY PEOPLE CAN ATN SERVE? (1/2)

- PRT (ATN) can keep up with LRT
  - Capacity can be enhanced
  - Network redundancy increases reliability of capacity

Figure 21 – Theoretical Versus Observed Transit Line Capacities
Source: TCRP Transit Capacity Manual, NYNJ Port Authority, Engineering Estimates
HOW MUCH WILL THIS COST? (1/2)

- As with most transportation projects, prices sensitive to location and capacity

- ATN can be less expensive because
  - Lighter vehicles => smaller infrastructure
  - No drivers
  - Service provided only when there is demand
  - Quicker trip (User cost)