

Viability of Modern Automated Rapid Transit Applications

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Some Definitions

Automated Rapid Transit (ART) similar to Personal Rapid Transit (PRT)

Primary Features of ART:

- Automation
- Fast service
- Transit advantage
- Not necessarily “personal,” but close



What ART Looks Like



Characteristics of ART Systems

- Separate guideway: elevated, underground, at grade
- Fully automated: electric-powered, electronic controls
- Non-stop O/D trip: off-line stations
- High-speed service: 25-30 mph
- Low wait time: less than 2 minutes
- Headways/frequency: about 30 seconds/120 veh/hr
- Small vehicles: 4-6 passengers, low weight
- Eco-friendly: no local emissions, low energy use/land space



ART Niche Applications

Within and between activity centers:

- Downtowns
- University and hospital campuses
- Airports
- Shopping centers



Activity centers characterized by:

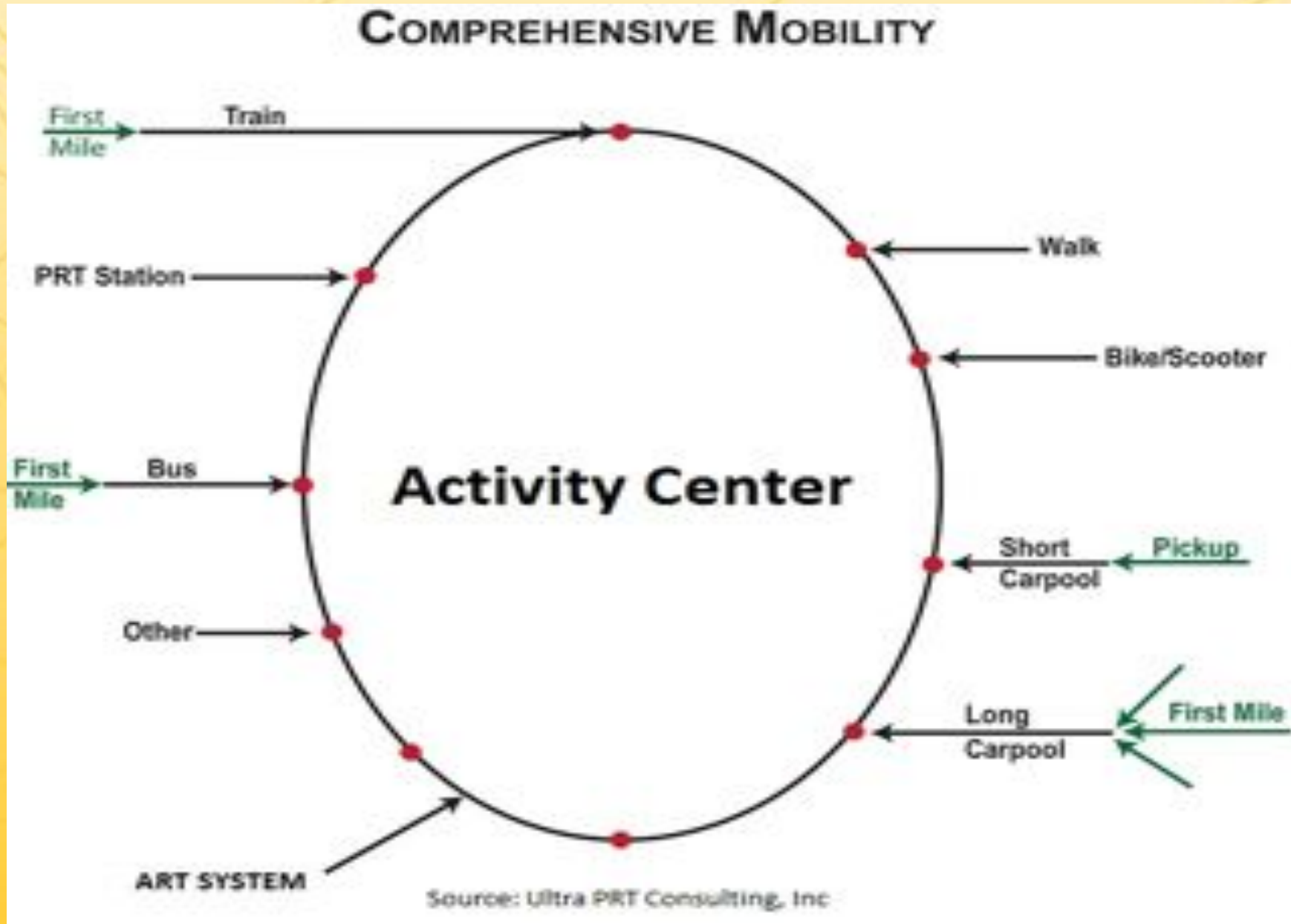
- Lack of distribution system from transit stations & stops and from parking facilities
- Limited circulation system for medium to long trips

Why ART?

ART can overcome shortcomings of current transportation systems:

- Traditional transit: ART closes last-mile/first-mile service gap
 - Collection/feeder to stations/stops at beginning of trip
 - Distribution from stations/stops at end of trip
- Auto: Distributes trips from parking to jobs; reduce cost of parking and congestion/delay
- Walking: Accommodates trips over one-fourth of a mile
- Bicycling: Overcomes adverse weather/age impediments

Providing Comprehensive Mobility



Current and Planned ART/PRT Systems

Heathrow Airport ULTra PRT (UK)

- Initial stage: 4 km, 21 vehicles, two stations (parking and terminal)
- Open to public service Spring 2011, 22 hours per day
- Fare is part of parking fee
- Tested with 164 vehicles per hour (656 passengers/hour)



Current and Planned ART/PRT Systems

Masdar City, Abu Dhabi, 2getthere System (Dutch)

- Initial stage: 1.2 km, 5 stations (2 stations for freight)
- Open to public Fall 2010—Eco-friendly transportation
- Passengers: 18,000 per day in February (up from 10,000 in December)
- Average vehicle occupancy: 1.8
- Reliability: 99.7% vehicle availability; 99.2% system availability (U.S. transit: 97.5%)

Current and Planned ART/PRT Systems

Other systems being considered:

- Sweden (finalist city being selected) (VECTUS)
- Suncheon City Coastal Wetlands Park (VECTUS)
- Amristar, India (ULTra PRT)
- Mineta Airport, San Jose (Feasibility Study)
- Ithaca, New York (Feasibility Study)
- Minnesota (Exploratory Interest)



Major Concerns/Impediments to ART Implementation

- Negative Perceptions about system capacity, technology, safety and security
- Concerns about accuracy of estimated capital and operating costs
- Risk-aversion: tendency to continue to do what is “known and proven”
- Reluctance to invest public funds
- Feeling that private sector should invest
- Intrusion on the built environment—visual impact

What's Next?

- Address concerns raised---with good data
- Demonstrate system benefits
- Concerns and benefits can be addressed, initially, by a feasibility study
- If ART proves feasible, build a real-world demonstration project that more fully addresses concerns and benefits
- Need for securing a combination of private and public funds for feasibility and demo project

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