Airport Shuttle Comparison
Podcars vs. Shuttle Buses

Peter Muller, P.E.
Agenda

• What is the problem with shuttle buses?
• Driverless shuttles
• Heathrow International Airport
• Greenville-Spartanburg International Airport
• Conclusions
What’s the problem with shuttle buses?

• Passenger service
  • Connect times
  • Reliability
  • Limited seats
  • Lifting/storing luggage
• Congestion
• Emissions
• Bus maintenance and operations
Available PRT Systems
Heathrow International Airport

- T-5 to Business Carpark
- 21 vehicles, 3 stations, 2.4 track-miles
- 1.2 M passengers since May 2011
Increased Occupancy & Revenue

• 2012 lot occupancy doubled over 2011
• Rate increased 20% June 2011
• Lot being expanded and rebranded
  • “Pod Parking”
Other Results

• Increased dwell time in departures
• Passengers love it - predictable
• Revenue from sponsorships
• Adjacent hotel use
  • 2,000 per month @ £5
• Replaced 70,000 annual bus trips
  • Reduced congestion
  • Reduced emissions
Greenville-Spartanburg Intl Airport
6 to 10 minute connect times
Growing Parking Demand

![Parking Demand Graph]

- **Existing Spaces**
- **Required Spaces**

*Graph showing the increase in parking demand from 2018 to 2047.*
Bus Solution

12 to 17 minute connect times
5 to 7 minute connect times
30-Year Life-Cycle Costs

- PRT: $181 M
- Bus: $198 M

PRT has lower costs
Parking Rates vs. Connect Times
Additional Charge vs. Time Saved

![Graph showing the relationship between additional daily charge and connect time saved.](chart.png)
Rates Used for Comparison

- PRT: $6.00 per day
- Bus: $5.00 per day
30-Year Parking Revenue

- PRT: $204 M
- Bus: $201 M

PRT has higher revenues

PRT based on $6.00/day
Bus based on $5.00/day
GSP Summary

• Shuttle needed to maintain high level of service
• PRT is preferred to bus
  • Higher level of service
  • Lower capital costs
  • Higher revenues
  • Obviates need for parking structure
  • No disruption of surface traffic
  • No on-site emissions
  • Breaks even at $6.00 daily rate
GSP Initial System

- Connects existing economy lot to terminal
- 21 vehicles
- 0.88 track miles
- 3 at-grade stations
- 1 elevated station
- Maintenance/storage facility
- Cost about $20 M
- Kickoff meeting next week for preliminary design
Conclusions

• PRT can provide a much higher level of shuttle service
• It is cost effective at small and large airports
• Key airport parameters
  • Shuttle lot with more than 1,000 spaces
  • Employee lot shuttle buses
  • And/or rental car shuttle buses
  • Air quality non-attainment a bonus
  • Hotel connection a possibility
Thank you