



Modernizing the WVU Personal Rapid Transit System (PRT)

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West Virginia University

- Morgantown
 - Population 50,000
 - One hour South of Pittsburgh
 - Economic base
 - Mylan Pharmaceuticals
 - National Institute of Occupational Safety & Health
 - West Virginia University
 - Nationally 10th lowest unemployment (2009)
 - Highest percentage of major arterial lanes with LOS “D” and below for Small Urban Cities
 - Roadway system topographically constrained

WVU Campus

- Divided Into three campuses
 - Downtown Campus
 - Evansdale Campus
 - Health Sciences
- Campus Population
 - 29,500 Students
 - 4,500 Faculty and Staff
- Three mile separation between campus extremes
- Elevation change of 600 feet between Downtown and HSC
- Effectively limits walking and biking as alternatives

Personal Rapid Transit (PRT)

PRT As Defined By The Advanced Transit Association (ATRA):

- Direct Origin-to-Destination Service
- A mode of transit that is designed to move people in small groups directly from their origin to their destination
- Operates like a transit taxi or an express bus
- Also known as a Automated Guideway Transit (AGT)
- Vehicles use an exclusive guideway on fully connected network



History of the PRT

- WVU PRT designed by Boeing
 - Phase I started construction in 1972
 - Service in 1975 with phase II completed 1978
- Total project cost \$125 million (1970 dollars)



Overview

- 4.5 miles of parallel heated guideway with 10% grades
- 5 stations from Downtown to Health Sciences
- 71 electric powered vehicles
- 20 passenger capacity
- 11,000 lbs. empty weight
- 3 phase, 575 volt electric power



The PRT Experience

- Highest single day ridership over 32,000 trips
- Average weekday of 15,000 trips
- 85% student, 8% F/S, 7% general public
- System can accommodate 6,700 passengers/hour
- 80 million accident free passenger milestone this week
- Integral part of mobility network
- Cost per trip \$2.01 – only New York and Boston lower for fixed guideway operations
- WVU icon



Stations

- Five fully automated stations
- Video surveillance and communication
- Payment by cash or pass
- Convenient to major campus destinations and city center
- ADA accessible



Systems Technology

- Three dispatching modes to minimize cost, trip time and wait time
- Fully automatic computer controlled - reduce manpower
- Presence detection – vehicle location & status
- Collision avoidance



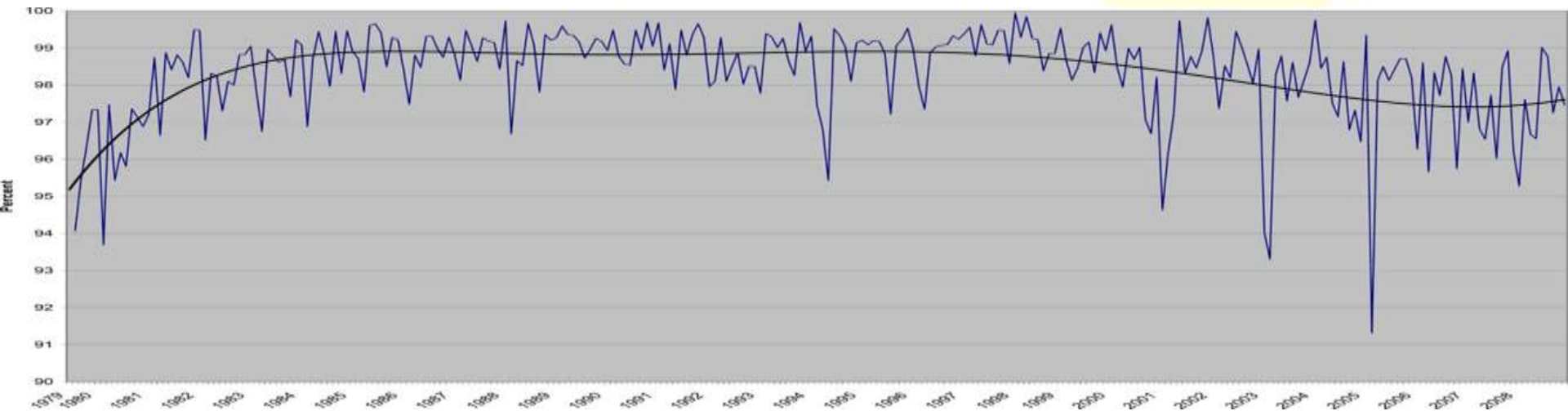
Reliability

- 38 years of passenger service
- Over 100,000 hours of operation
- Nearly 22 million vehicle-miles
- Over 60 million passengers carried
- PRT has maintained 99% service reliability



The Need for Modernization

- Age of the system (38 years)
- Continual decline in reliability
- Current reliability rate in 90% range not satisfactory
- Outdated technology with no vendor support
- Dwindling/No market availability for parts
- Boeing built the system then left
- Viewed by students as antiquated and unreliable



PRT Modernization Plan

- Phase 1
 - Onboard vehicle computer control system
 - Propulsion project
 - Estimated cost \$15,000,000
- Phase 2
 - Replacement of automated train control system
 - Replacement of Four substations and electrical gear
 - Hospital Tunnel Repair
 - Estimated cost \$52,580,000
- Phase 3
 - Vehicle replacement project
 - Infrastructure inspection and repairs
 - Estimated cost \$37,500,000

Nearing
Completion

April 2014 to
August 2016

January 2015
to July 2018

QUESTIONS?

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