Automated Bus Consortium
Automated small vehicle technology is proven
Appears feasible to transfer AV shuttle technology to full size buses
Vendors need a market to cost-effectively produce these buses
Concept: Joint procurement of 75-100 buses by 12 agencies
Goal of Automated Bus Consortium Project

Deploy full size, full speed automated (Level 4) buses:

• in a variety of geographies and applications to advance the industry understanding of the technology

• leverage the technology to improve safety, reliability, operating efficiency and customer experience.
Application of Transit Automation Technology (FTA Definitions)

**Bus Advanced Driver Assist Systems**

*SAE/NHTSA Levels 0-3*
- Accel & Decel
- Automatic Emergency Braking and Pedestrian Collision Avoidance
- Curb Avoidance
- Precision Docking
- Narrow Lane/Shlder Ops
- Platooning

**Automated Shuttles**

*SAE/NHTSA Level 4*
- Circulator Bus Service
- Feeder Bus Service

**Maintenance, Yard, and Parking Ops**

*SAE/NHTSA Level 1-4*
- Precision Movement for Fueling, Service Bays, and Bus Wash
- Automated Parking and Recall

**Mobility-on-Demand**

*SAE/NHTSA Level 4-5*
- Automated First/Last Mile
- Automated ADA Paratransit
- On-Demand Shared Ride

**Automated ART/BRT**

*SAE/NHTSA Level 4*
- Automated ART/BRT
- Shuttle Service
- Fixed & Express Route Service
Consortium Agencies

COMMITTED AGENCIES

• Dallas Area Rapid Transit (DART)
• Department Of Rail And Public Transportation (DRPT) / Hampton Roads Transit (HRT)
• Foothill Transit
• Long Beach Transit Authority (LBTA)
• Los Angeles County Metropolitan Transit Authority (LA METRO)
• Metrolink (Moline)
• Metropolitan Atlanta Rapid Transit Authority (MARTA)
• Michigan DOT/Planet M
• Minnesota DOT
• Pinellas Suncoast Transit Authority (PSTA)/FDOT)
• Washington Metropolitan Area Transit Agency (WMATA)
Conclusions on Technology Status

• Significant investment is being made in automation
• Industry appears able to produce an automated bus in the 2021/2022 time frame
• The technology needs a market
• Labor Partnerships important
• FTA has an interest in Automated Bus Deployment
• Federal, state, and local regulatory framework needs to be refined
One Program to Gain **Extensive Experience**

**Variety of Geographies**
- Cold weather
- Desert
- Hot and Humid
- Rainy

**Variety of Applications**
- Bus Rapid Transit
- Shuttle Service
- Arterial Rapid Transit
- Express Service
- Fixed-Route Service
- Point-to-Point

**Variety of Vehicle Options**
- New Vehicles
- Retrofit Kits for Existing Vehicles
- Zero Emissions Vehicles
- Traditional Propulsion Vehicles
Phased Approached from Feasibility to Implementation

1. PRELIMINARY DEVELOPMENT AGREEMENT
   - Service Visioning/Pilot Projects
   - National & Local Outreach
   - Vehicle and Infrastructure Technology
   - Financial Planning
   - Regulations
   - Implementation Strategy

2. COMPREHENSIVE DEVELOPMENT AGREEMENT
   - Procurement of Buses
   - Infrastructure Design
   - Technology Testing
   - Deployment/Construction
   - Evaluation
   - Next Steps
Potential Risks

- Passenger Acceptance/Security
- Labor Opposition
- Ability Of Technology Companies To Deliver
- Liability Insurance – Not Enough Experience With Automated Buses For Underwriting Risk
- Research And Development Program Costs
- Cybersecurity
- Other

RISK REGISTER WILL BE DEVELOPED
Potential Value of the Consortium

- Accelerate Technology Development and Deployment
- Reduce Planning and Procurement Costs
- Stimulate Technology Demand
- Shared Lessons Learned
Preliminary Development Agreement Products

PHASE 1A (6 MONTHS):
Create A Pilot Program Plan Based On Consortium And Industry Needs And Input

PHASE 1B (6 MONTHS):
Develop The Program Details For Each Agency’s Specific Pilot Route

PRELIMINARY DEVELOPMENT AGREEMENT

• Service Visioning
• Vehicle and Infrastructure Technology
• Financial Planning
• Regulations
• Implementation Strategy
• Go/No-Go
Service Analysis Workshops

- Minimum Pilot Service Requirements
  - Recommendations on 6 Pilot Projects
- Project Narrowing Criteria
  - Recommendations on 3 Pilot Routes
- Select 1 Pilot Project per Agency
- Industry Forum to Validate Pilot Program Goals and Feasibility
APPLICABILITY TO THE INTEGRATED HUB CONCEPT

• Presents an Image of Contemporary Customer Service

• Cost of Transit Service Not Proportional to Frequency or Length of Service

• Enables Mobility on Demand

• Improves Safety of Systems through Enhanced Connectivity

• Improves Environmental Quality
Thank You