FTA RESEARCH

FEDERAL TRANSIT ADMINISTRATION

Private Providers Forum

National Capital Region Transportation Planning Board

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FTA Strategic Transit Automation Research (STAR) Plan

U.S. Department of Transportation
Federal Transit Administration

Danyell Diggs
Office of Research, Demonstration, and Innovation

Automation Benefits in Public Transportation

- Improve safety
- Increase efficiency and productivity
- Potentially reduce costs
- Increase traveler convenience and comfort through improved service frequency, flexibility and reliability
- Expand service hours and area
- Increase overall customer satisfaction

Transit Automation Research Goals

- **Conduct enabling research** to achieve safe and effective transit automation deployments
- **Identify and resolve barriers** to deployment of transit automation
- **Build awareness** to socialize automation for transit stakeholder community
- **Demonstrate market-ready technologies** in real-world settings
- **Leverage technologies** from other sectors to move transit automation industry forward

STAR Plan Scope

- Transit bus operations
  - "Bus" is defined broadly
    - Passenger capacities
    - Traditional and novel vehicle designs
  - Lessons learned from automation in rail, light-duty vehicles, commercial vehicles, and aviation considered

- Full range of automation (SAE Levels 1-5)
  - Does not include driver assistance systems without an automation aspect (e.g., driver warnings and alerts)

STAR Plan

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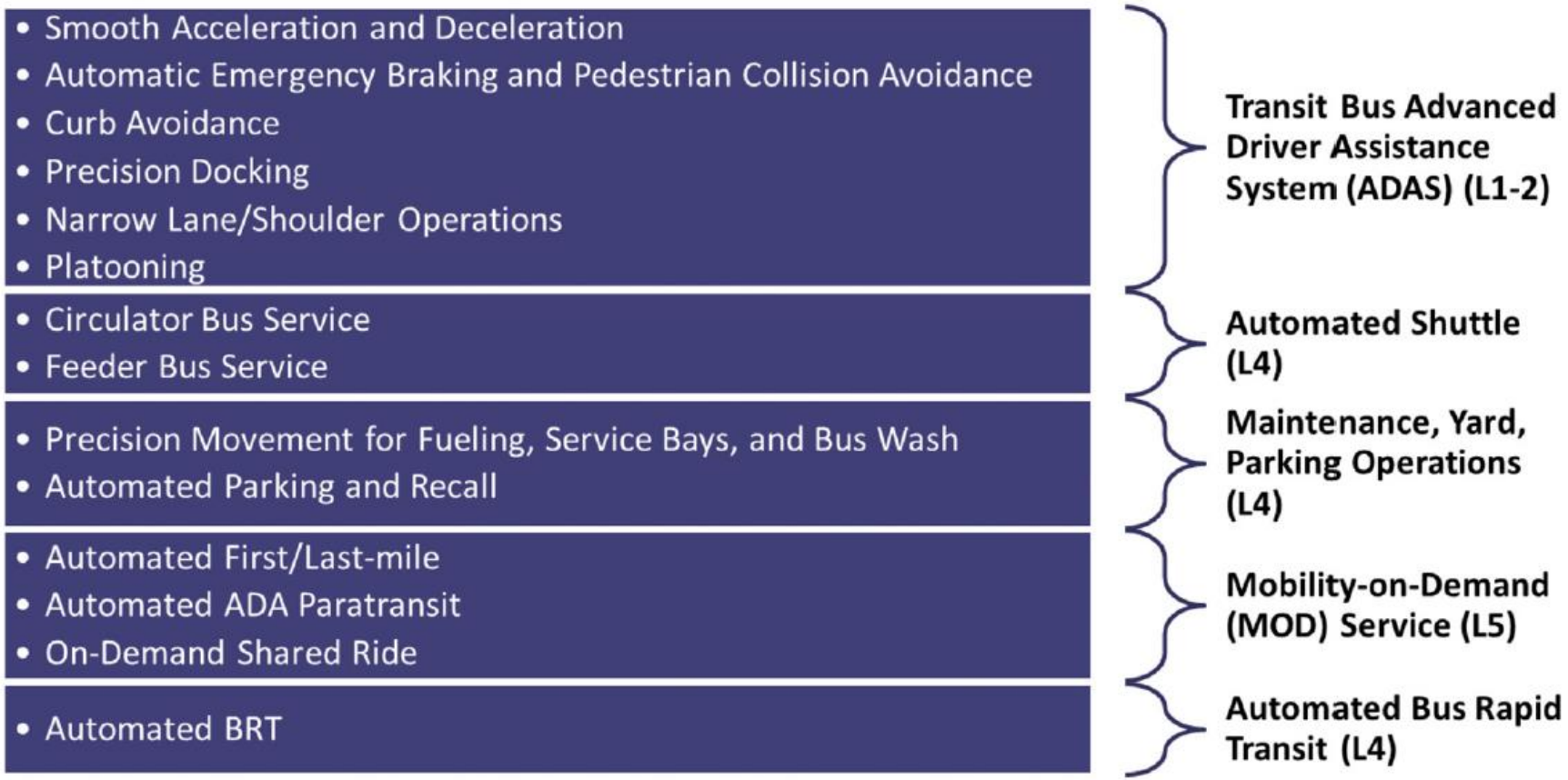
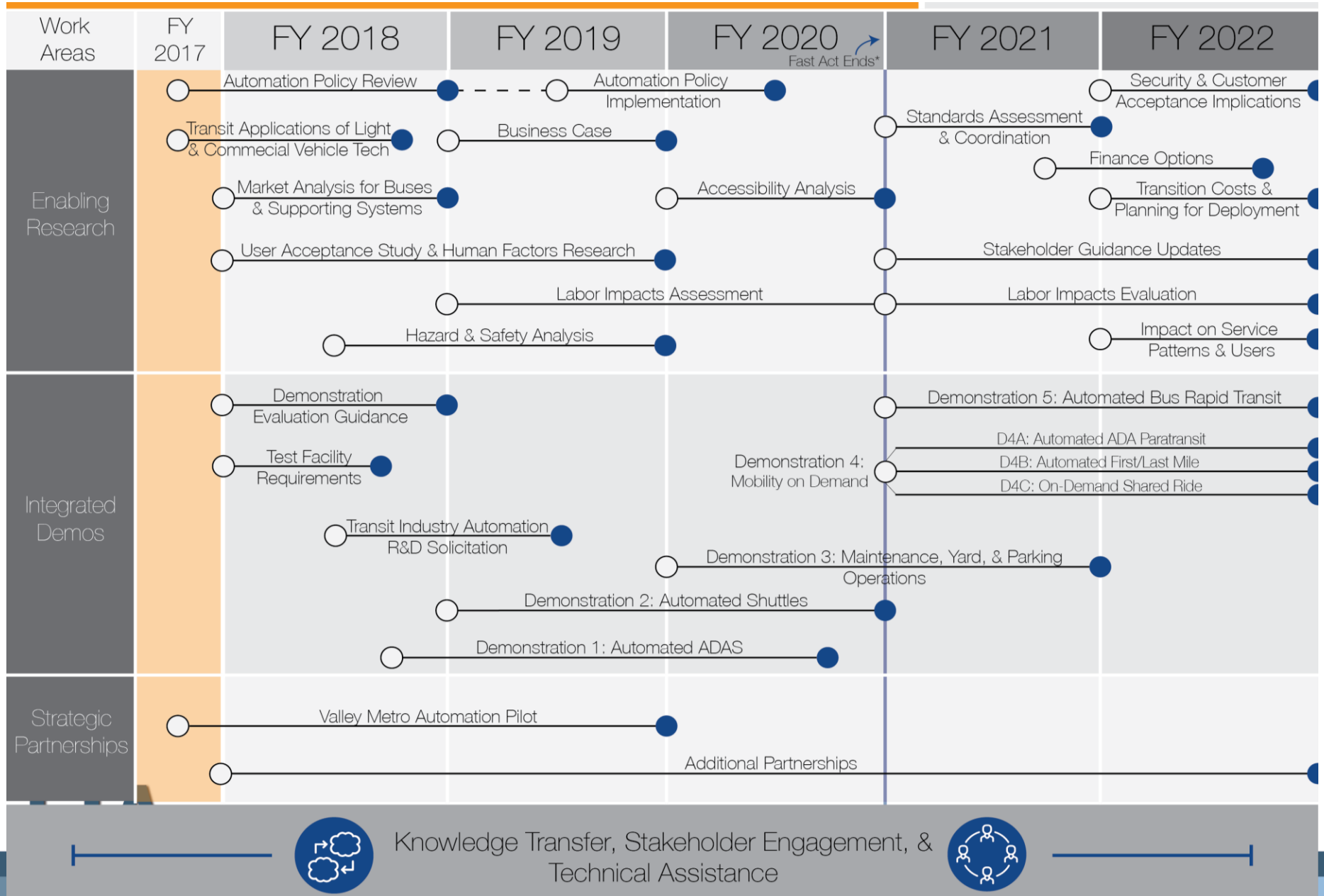
Transit Automation Research Webpage: https://www.transit.dot.gov/automation-research

Transit Automation Scenarios (Use Cases)



Strategic Transit Automation Research



RFC: Removing Barriers to Transit Bus Automation - Comments

- ADA and Accessibility
  - Non-driving functions must be addressed
  - Automation could improve access for seniors and persons with disabilities
- Workforce and Labor
  - Consideration for job loss and retraining
  - Could increase labor costs due to need for specialized skills
- Funding and Procurement
  - Buy America concerns
  - Useful life and spare ratio requirements questions

RFC Comments (continued)

- Equity
- Need for a human presence
- Human factors research
- Framework for collection, management, and sharing of data
- Cybersecurity
- Standards
- Definition of transit
- Impact on National Transit Database reporting
- Bus Testing

Integrated Mobility Innovation

Vision	Complete Trips for ALL users
Purpose	Integrate and Fund Mobility Innovations in: • Mobility on Demand • Transit Automation • Mobility Payment Integration
Leverages	• Accessible Transportation Technologies Research Initiative • Mobility Services for All Americans • And much more…

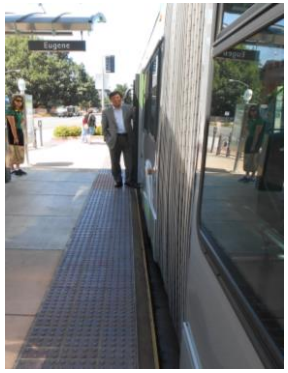
IMI Demonstration Program Funding

$15 Million total

$8 Million	Mobility on Demand Sandbox
$5 Million	Strategic Transit Automation Research
$2 Million	Mobility Payment Integration

NOTE: each application should choose one or more of the above areas of inquiry

Transit Automation Demonstrations



Automated Advanced Driver Assistance Systems (ADAS) – $3M

- Demonstrate market-ready or near market-ready advanced driver assistance technologies
- Automation SAE Levels 0-2 , partial transit automation in revenue service
- Must address human factors and bus operators experience and acceptance

Automated Shuttle - $2M

- Automation SAE Level 4, full transit automation in complex operating environments, preferably in revenue service
- Must address human factors, compliance with ADA, on-board attendant experience and acceptance, perceptions and acceptance by other road users
- Comply with the National Highway Safety Administration (NHTSA) Federal Motor Vehicle Safety Standards (FMVSS) or operating consistent with an exemption issued by NHSTA

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