Strategic Transit Automation Research

• Smooth Acceleration and Deceleration • Emergency Braking and Pedestrian Avoidance • Curb Avoidance • Precision Docking • Narrow Lane/Shoulder Operations • Platooning	Transit Bus Advanced Driver Assistance System (ADAS) Levels 1 and 2
• Circulator Bus Service • Feeder Bus Service	Automated Shuttle Level 4
• Precision Movement for Fueling, Service, Wash • Automated Parking and Recall	Maintenance, Yard & Parking Level 4
• Automated First/Last Mile • Automated ADA Paratransit • On-Demand Shared Ride	Mobility-on-Demand Service Level 5
• Automated Bus Rapid Transit	Automated Bus Rapid Transit Level 4

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Strategic Transit Automation Research

Integrated Demonstrations

- Transit operations and maintenance
- Fuel and emissions
- Service quality
- Safety
- Passenger experience, comfort

- Acceptance
- Accessibility
- Travel options and mode choice
- Fare collections
- Cost-effectiveness

FY 2018	FY 2019	FY 2020	FY 2021	FY2022
	Automated ADAS (L1, L2)			
	Automated Shuttles (L4)			
		Maintenance, Yard & Parking (L4)		
			Automated Paratransit (L5)	
			Automate First/Last Mile (L5)	
			On-demand Shared Ride (L5)	
			Automated Bus Rapid Transit (L4)	

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Transit Automation

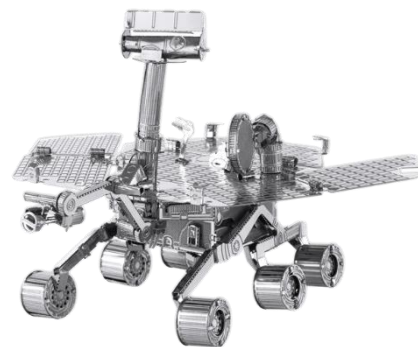| Level 0 None	Level 1 Driver Assist	Level 2 Partial	Level 3 Conditional	Level 4 High	Level 5 Full

Automated vehicle technologies have significantly advanced

Level 3 automation technology is becoming available

We are beginning to understand the technology

We are preparing for the future

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Transit Automation – Adolescent Years

Level 0 None	Level 1 Driver Assist	Level 2 Partial	Level 3 Conditional	Level 4 High	Level 5 Full

Automated vehicle technologies have significantly advanced, but still have lessons to learn

Level 3 automation technology is becoming available, but is still in limited deployment

We are beginning to understand the technology, but still need to understand the implications

We are preparing for the future, but are not yet prepared

We think we know more than we know, because we don't yet know what we don't know.

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LYNX Automated Vehicle Initiative

LYNX and its partners at MetroPlan, the City of Orlando and the Florida Department of Transportation are interested in identifying and understanding the implications of autonomous vehicle technology and its application in the Orlando metropolitan area to support current and future transit service initiatives and investments.

Purpose is to outline
- Partnerships
- Policies
- Technical issues
- Financial implications
- Infrastructure requirements
- Workforce needs

AUTOMATED

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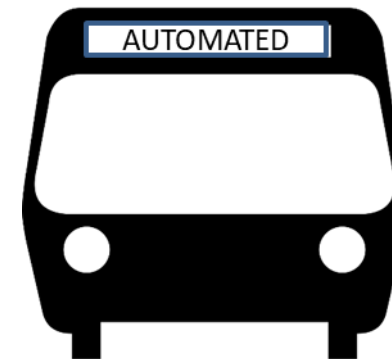
LYNX Automated Vehicle Initiative

Transit Automation – Issues to Explore

Compliance

- Americans with Disabilities Act (ADA): Federally funded transit services must provide assistance
  - Visual impairment
  - Mobility impairment
  - Cognitive impairment
- Title VI: Deployment of AV services must be equitable
  - Who gets AV and who doesn't?
  - Rotation of fleet
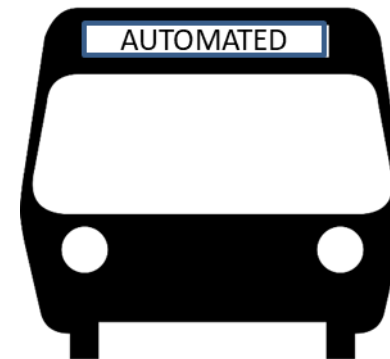
Transit Automation – Issues to Explore

Facilities, Operations & Staffing

- Electric vehicle charging stations: Siting and location of charging stations are needed for LYNX span of service
  - Where do we charge and how often?
  - How much power does it take to charge a fleet of buses?
- Maintenance requirements: AV will require new facilities, equipment, hardware and software to support new propulsion
  - Where do we get these skill sets?
  - Are future mechanics being trained for AV technology?
- Staff Training: New technology and operating platform will necessitate training and wholesale system integration with conventional fleets/services
  - Is AV in our job descriptions?
  - Does Human Resources understand how to recruit for employees in an AV environment?

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Strategic Transit Automation Research

Customer Experience

- Vehicle Capacity: Recent tests were completed in vehicles with capacity <12 passengers
- Customer Information: Who answer's questions about where the bus goes, where to get off, or if return bus service will be available?
- Fare Payment: How do customers use reduced fare?

X 8=

¿Cómo llego a Disney?

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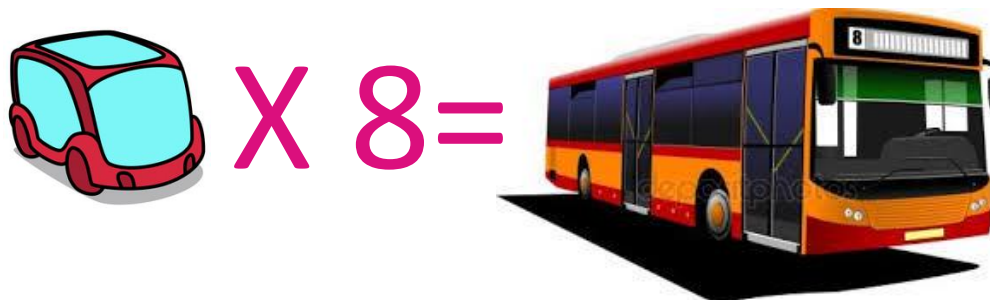
Transit Automation – Adolescent Years

We think we know more than we know, because we don't yet know what we don't know.

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