Mobility Innovation
FTA Research Approach

Vincent Valdes, Associate Administrator
Office of Research, Demonstration and Innovation

U.S. Department of Transportation
Federal Transit Administration

MOBILITY ON DEMAND
Background

Overview of FTA Research

The “Complete Trip”

The Mobility on Demand Vision

FTA Mobility Innovation Portfolio

Integrated Mobility Innovation (Upcoming)
FTA Research Mission

To advance public transportation innovation by leading research, development, demonstration, deployment, evaluation, and implementation practices and technologies that enhance effectiveness, increase efficiency, expand quality, promote safety, and ultimately improve the transit rider’s experience.
Federal Public Transportation Law (49 U.S.C. §5312) Statutory Authority

- **Purpose:** To advance innovative public transportation research and development

- **Eligible activities promote “pipeline approach”** Innovation and Development; Demonstration & Deployment; Project Evaluation

- **Funding:** Highway Trust Fund ($28M total)
Public Transit is Being Disrupted

• **Traveler expectations have changed**
  – Smartphone payment, real-time information, 24/7 desire to be “connected”, point-to-point convenience

• **Private sector now in the market** – public transportation as business destination

• **Bus technologies** – electric drive and “drive-by-wire” capabilities require new maintenance models

• **New technologies impacting operations**
  – Worker track identification (safety)
  – Real-time surveillance (security)
  – Telemetrics (asset management)

• **Transit Automation could expand public transit marketshare**
Disruption Provides Opportunities

• Public transit can enhance economic development (TOD, value capture)
• Transit is cost-effective for riders
• Public/Private sector partnerships can increase access to rides
• Low and No Emission Bus market forecasting 400% growth
• Number of public transportation vehicles powered solely by electric battery has increased 210% since 2010 (NTD)
• Transit automation could drive even greater economic growth – 2 to 3% market share today; tomorrow?
1. Plan and Book a Trip
Andy uses a pre-trip concierge application.

2. Travel to Transit Station
An automated shuttle (rideshare service) is dispatched.

3. Ride the Bus
While on the bus, Andy receives direction on when to pull the Stop Request cord from his wayfinding and navigation application.

4. Cross the Street
As Andy approaches an intersection, his safe intersection crossing application communicates with the traffic signal.

5. Arrival at Destination
Andy safely arrives at his destination, while the pre-trip concierge application plans his return trip home.
Integrated Mobility

“COMPLETE TRIP” for All

FTA Policies and Regulations

Accessible Transportation Technologies Research Initiative (ATTRI)

Mobility Payment Integration (MPI)

Strategic Transit Automation Research (STAR)

Mobility on Demand Sandbox Demonstrations
Mobility on Demand (MOD)

MOD is a *vision* for an integrated network of *safe, carefree, and reliable* transportation options that are *available to ALL*
2016 MOD Sandbox Projects

11 Projects: $7,931,080
MOD Sandbox Use Cases

**Trip Planning/Payment Integration**
- Consolidates options for travelers to plan, book and pay for trips, often through mobile app

**First/Last Mile**
- Bridges gaps in the traditional transportation network by providing trips to and from transit connections

**Supplemental/Extended Service**
- Augments the traditional transportation network when transit service is insufficient or not available

**Flexible Pricing /Incentives**
- Strategies to influence traveler choice on when or how to travel using incentives or games

**Innovative Paratransit Services**
- Technologies and tools to enable more flexibility to plan, request, and pay for paratransit trips, greatly reducing booking and response times, and costs

**Parking Utilization**
- Strategies to help manage parking supply to optimize utilization and access to transit for more individuals
Lessons from the Sandbox

- **Public-Private Partnerships** can yield real success.
- **Inclusive planning** is key.
- MOD has the potential to facilitate **Complete Trips in many different communities.** Approaches vary based on context.
- **Data and Information** are critical to MOD impacts and making operational changes. Challenges exist around privacy, proprietary protection, and data accuracy.
- Business models must be **sustainable** for all project partners.
- **Flexibility** allows responsiveness and minimizes risk to project participants.
Mobility Payment Integration (MPI)

• **Challenge:** disparate payment systems across U.S. transportation modes; lack of geographic/modal continuity

• **Solution:** develop a national standard for integrated modal payment systems

• **Objectives:**
  - Leverage retail models (VISA/MasterCard) into public transportation systems
  - Increase adoption of single platform payment systems
Transit Automation Research

- **Challenge:** the safe, efficient and thoughtful adoption of automation in transit

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

- **Innovations** being developed and deployed: automated transit vehicles
Accessible Transportation Technology Research Initiative (ATTRI)

**Challenge:** Travelers of all abilities need to have accessibility to transportation options that fulfill their mobility needs

**Solution:** support engagement, technology scans and collaborations with private industry partners to explore technologies applicable to enhancing mobility for

**Innovations** being evaluated; wayfinding, concierge services, virtual reality, assistive technologies
Integrated Mobility Innovation

- Integrated Mobility Initiative (IMI)
- Objective: *Integrated* Demonstrations
  - Mobility on Demand Sandbox (Round 2)
  - Multimodal Integrated Payment Systems (MPI)
  - Transit Automation

*Source: Shared Use Mobility Center*
Towards a Mobility Network

Source: Ford Motor Co.