FTA RESEARCH

FEDERAL TRANSIT ADMINISTRATION

Mobility Innovation
FTA Research Approach

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Federal Transit Administration

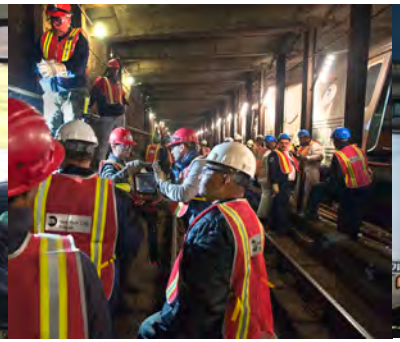
MOD
MOBILITY ON DEMAND

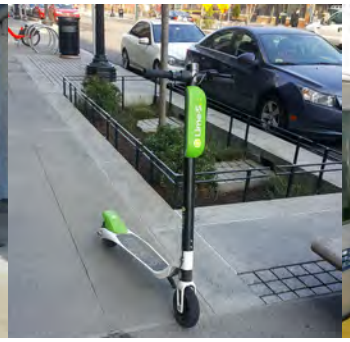
Background

- Overview of FTA Research
- The “Complete Trip”
- The Mobility on Demand Vision
- FTA Mobility Innovation Portfolio
- Integrated Mobility Innovation (Upcoming)

FTA Research Mission

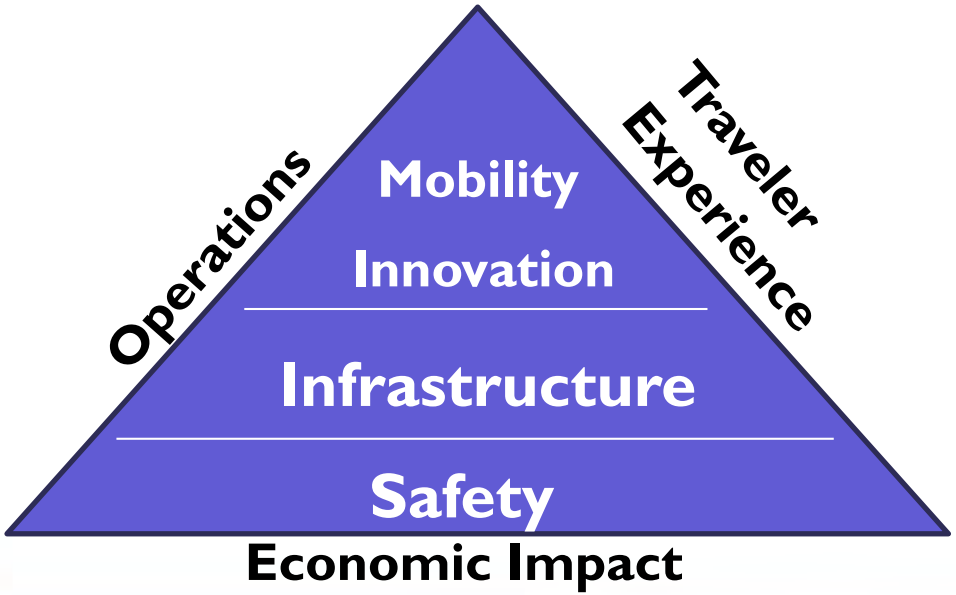
To advance public transportation innovation by leading research, development, demonstration, deployment, evaluation, and implementation practices and technologies that enhance effectiveness, increase efficiency, expand quality, promote safety, and ultimately improve the transit rider's experience




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 ?

The Complete Trip

5. Arrival at Destination

Andy safely arrives at his destination, while the **pre-trip concierge application** plans his return trip home.

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.

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Integrated Mobility

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

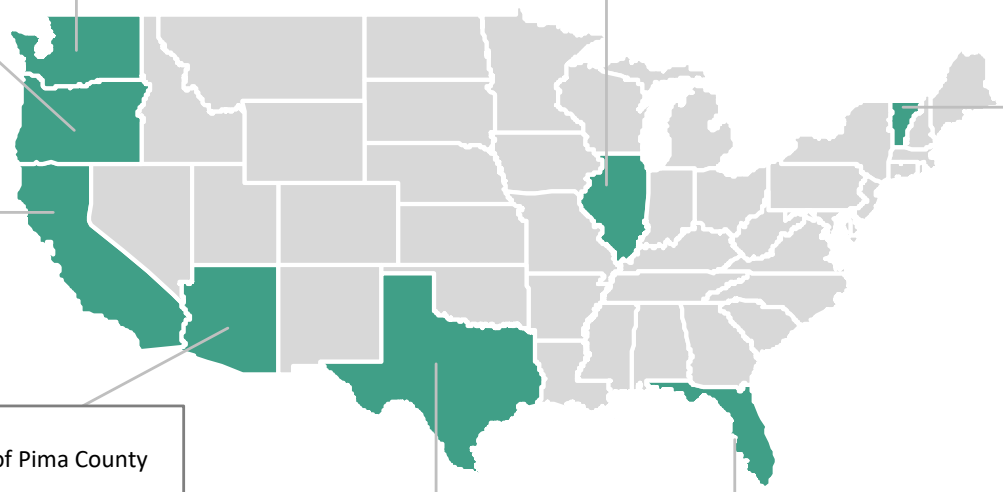
WASHINGTON
Pierce Transit

ILLINOIS
Chicago Transit Authority

OREGON
Tri-County Metropolitan Transp. District

VERMONT
Vermont Agency of Transp.

CALIFORNIA
City of Palo Alto
Los Angeles County Metro. Transp. Authority
San Francisco Bay Area Rapid Transit District



ARIZONA
Regional Transportation Authority of Pima County
Valley Metro Rail, Inc.

TEXAS
Dallas Area Rapid Transit

FLORIDA
Pinellas Suncoast Transit Authority

11 Projects: $7,931,080

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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.