



Speaking With *One* Voice
Civil Rights Virtual Symposium

HONORING THE PAST, SHAPING THE FUTURE

MAY 17-18, 2017

Innovation and Emerging Technologies To Advance Universal Transportation



Your Speakers

- Moderator: Peggy Griffin, Regional Civil Rights Officer, Federal Transit Authority, detailed to Departmental Office of Civil Rights
- Presenter: Rik Opstelten, Office of Mobility Innovation, Federal Transit Administration
- Presenter: Ben Schutzman, Director of Transportation Innovation, Massachusetts Bay Transportation Authority



Purpose of the Session

- Promote awareness and begin a discussion of technological changes that are reshaping how transportation is provided, helping to ensure everyone can travel independently.
- Provide an overview of research, demonstration projects, and a discussion of successes and challenges with mobility on demand demonstration projects.



RIK OPSTELTEN

FTA Office of Mobility Innovation

Overview

Building Universal Mobility Means:

- Advancing Mobility on Demand
- Developing Accessible Transportation Technologies
- Keeping an Eye to the Future
- Ensuring Input

What is Mobility on Demand?

An **integrated and connected multi-modal** network of **safe, affordable, and reliable** transportation options that are **available to all**



- User-focused
- System Optimized
- Data and Technology Driven

Trends: What's Driving MOD?

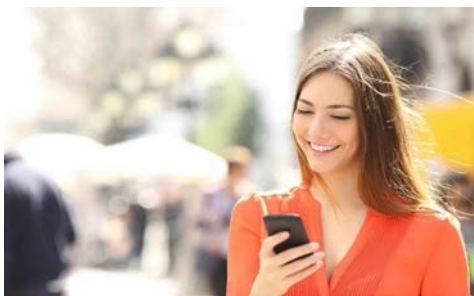


Societal Trends

- American population getting larger, older

Technological Trends

- Technology is Transforming our Communities and our Demands



Mobility and Environmental Trends

- Being Stuck in Traffic is Costly, Frustrating
- People and Communities Seek Alternative Means of Getting Around



MOD Program Goals

- Explore New Approaches to Mobility
- Prepare the Industry to Delivery Innovative Solutions
- Enable solutions that are connected, equitable and effective

Through:

- MOD Foundational Research
- MOD Performance Metrics
- MOD Sandbox Demonstrations and Evaluations
- MOD Accelerator
- Stakeholder Engagement & Outreach
- Policies and Practices

MOD Sandbox Program

Demonstration Program to Explore MOD Models

- **Explores** innovative approaches to integrate MOD solutions with public transportation
- **Empowers** project teams to deliver high-quality, seamless and equitable mobility options
- **Informs** the MOD program on how to approach MOD

Opportunities Identified by MOD Sandbox Awardees

1 Affordable mobility options for work or social activities

2 Address first mile/last mile and low density area service gaps

3 Reduce vehicle miles traveled and congestion while not reducing number of personal trips

4 Increase the utilization of existing investments in public transit/parking facilities

5 Increase mobile ticketing adoption and usage

6 Increase usage of integrated mobility apps to reduce travel and wait times

7 Increase mode share of non-single occupancy vehicle options

8 Increase access to MOD, including low-income users

9 Improve safety, security, and satisfaction of riders

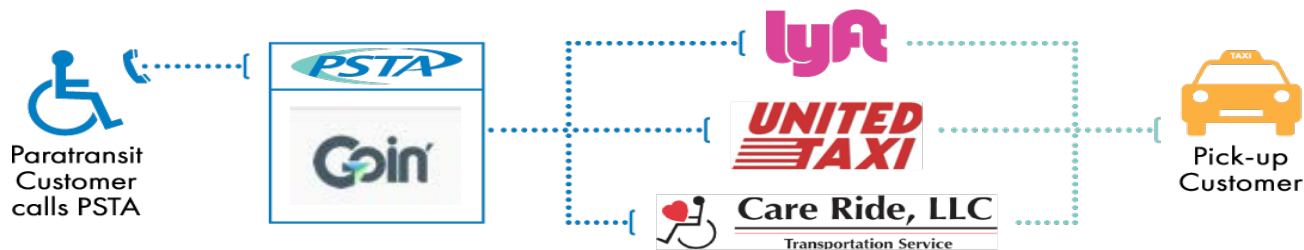
10 Decrease response times and cost of paratransit services for people with disabilities

11 Incorporate shared modes and accessible trips in trip planning

12 Establish best practices and standards for MOD demonstrations

Pinellas County, FL

- Work to create efficient, cost-effective, flexible and responsive paratransit service
- Serving those who use wheelchairs, and who don't
- PSTA provided the most appropriate option for each rider through a dispatch system



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Pierce County, WA

Problems

- Transit's usefulness limited by geography, time, etc.
- Parking overcapacity

Solution

A three-pronged strategy to connect riders with:

- First and last mile connections
- Rides home outside span of service
- Rides to and from park and ride lots and Sounder stations to alleviate congestion

Next Steps

- Identify a set of **performance metrics** to assess the success of the MOD deployments.
- Conduct comprehensive **independent evaluation** (IE) of the MOD Sandbox Demonstration projects
- Continue **Stakeholder Outreach and KTT** to inform the transportation community on the activities of the MOD program, **elicit stakeholder feedback**, and promote **technology transfer**
- Prepare **MOD Sandbox 2.0**

Accessible Transportation Technologies Research Initiative (ATTRI)

Supporting Independent Travel by
Through Technology

Challenges and Opportunities



76% people with disabilities say adequate transportation is important to their job search
29% consider it a significant problem in accessing jobs ^[1]

Targeted Populations



Persons with Disabilities



Veterans with Disabilities



Older Adults

Types of Disabilities



Vision



Mobility



Hearing



Cognitive

Enabling Technologies

**ITS,
Wireless &
Sensors**

**Connected
Vehicles**

**Automated Vehicles/
Personal Mobility**

**Robotics,
Artificial
Intelligence**

**Accessible
Data**

Developing Solutions



Foundational Considerations

**Standard
Accessible
Data Platform**

**Universal
Design
Standards**

**Integrated
Payment**

**Leverage
Existing
Technologies**



Smart Wayfinding & Navigation Systems

- Wayfinding and navigation systems for indoor and outdoor use
- Wearable technologies
- Community navigators



Pre-Trip Concierge & Virtualization

- Pre-trip and in-route traveler information
- Connected travelers
- Virtual caregiver



Robotics & Automation

- Assistive and collaborative robotics to enhance mobility
- Ability to plan and execute trips, associated services
- Transformative transportation alternatives



Safe Intersection Crossing

- Intersection crossing assistance for all travelers
- Pedestrians interface with traffic signals, vehicles and nomadic devices
- Guidance, notifications and alerts for optimization

ATTRI Application Development



Title: Accessible Transportation Technology Research Initiative (ATTRI) Application Development

Description: Development of applications in three areas:

1. Smart Wayfinding and Navigation Systems
2. Pre-Trip Concierge and Virtualization
3. Safe Intersection Crossing.

Award Expected: Very Soon

Title: Disability and Rehabilitation Research Projects (DRRP) Program: Accessible Transportation

Description: Development, prototyping, demonstration, and evaluation of accessible transportation technologies in automation and robotics

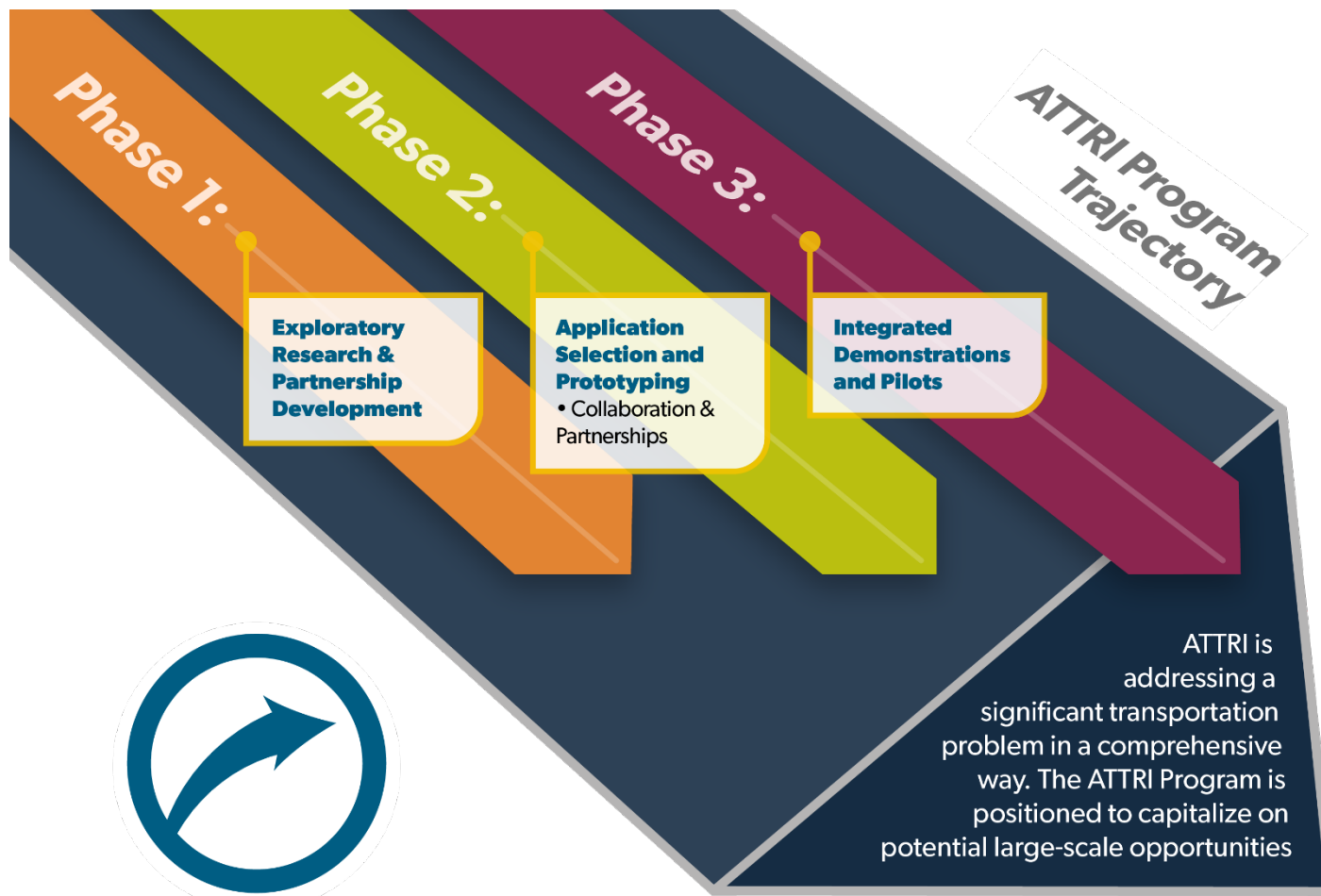
Hitting the Street: FHWA Innovative Roadway Design and Accessibility Research Project

Purpose

- Adapting Street Design to Needs
- Synthesize current guidance
- Highlight innovative practices
- Document key design challenges
- Use a collaborative, problem solving approach



ATTRI Program Trajectory



Considerations for the Future



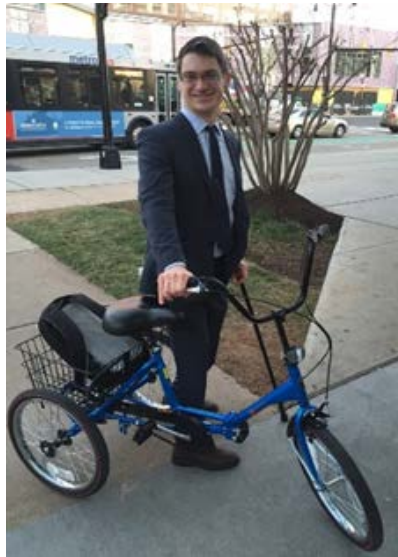
Changing Needs

- Technology adoption
- Changes in User Preferences

Changing Technology Landscape

- Automated Vehicles
- Augmented Reality
- Virtual Reality

Contact



Rik Opstelten

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On-Demand Paratransit Pilot

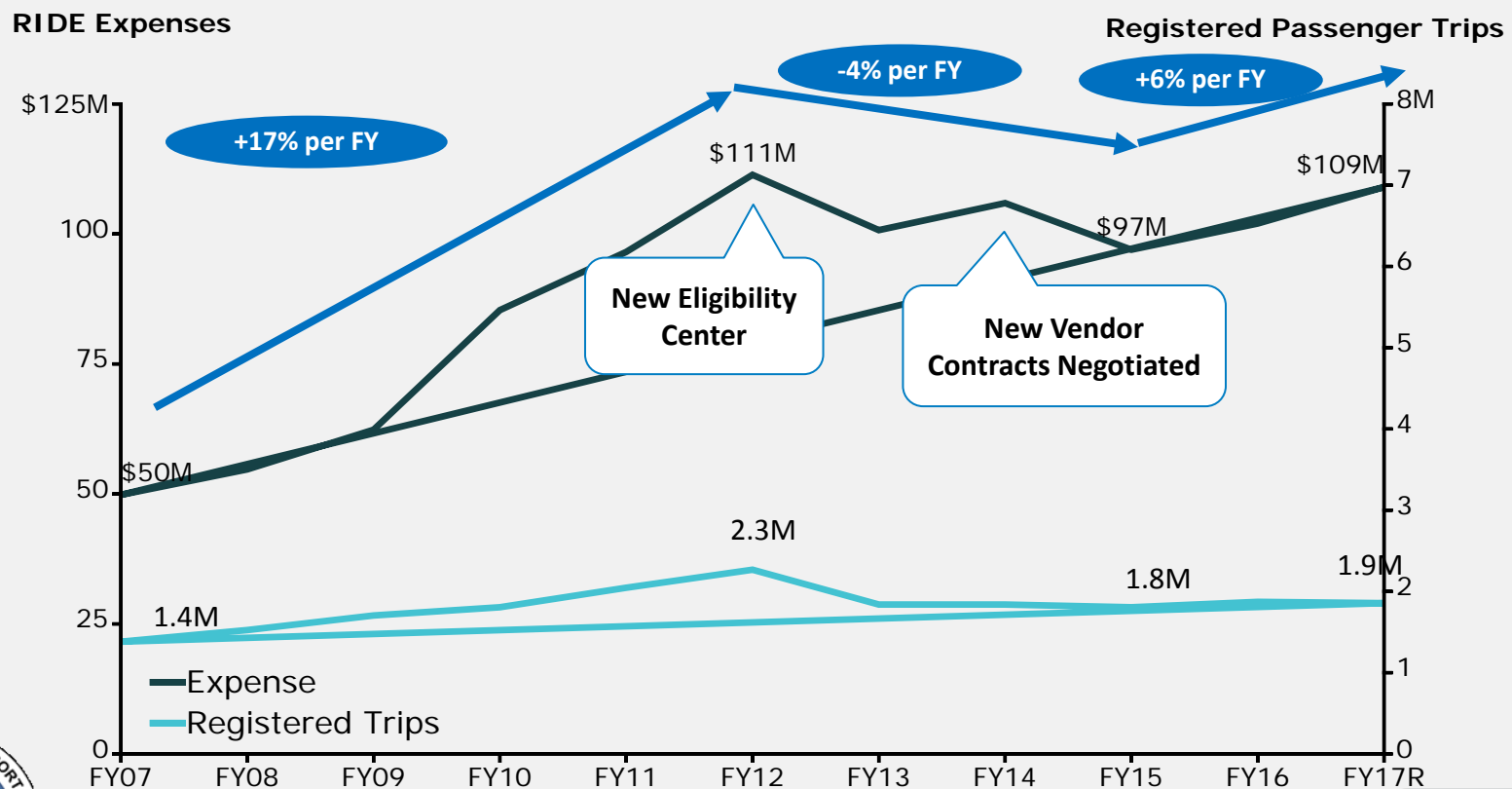
Ben Schutzman
MBTA





Growing Costs Despite Interventions

Despite earlier interventions, RIDE costs have continued to grow



On-Demand Paratransit Pilot

The on-demand paratransit pilot in partnership with Uber and Lyft was established in October 2016 to expand customer options and reduce costs



Improve **customer flexibility and mobility**



Test how to **convert trips from the RIDE** to on-demand options



Provide **equal or better service** at a **lower cost**



Identify the financial and operational **feasibility of the new model**

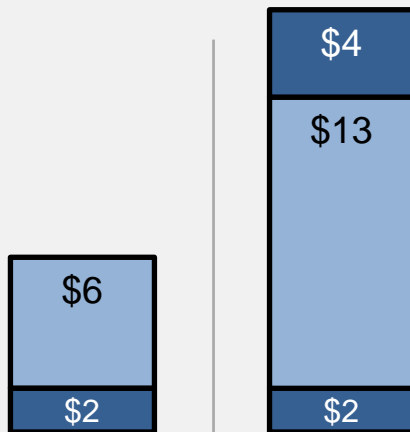


How the Pilot Works

The pilot has innovative pricing, modes, and ordering options

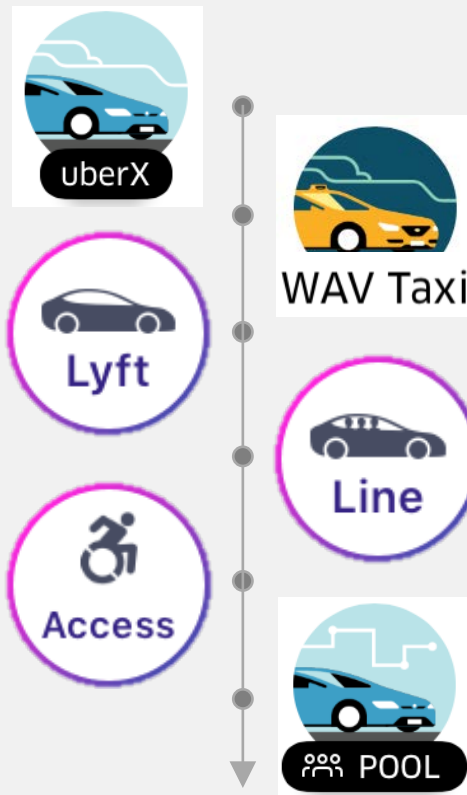
Pricing

Customer pays first \$2, MBTA pays next \$13, and customer pays remaining fare



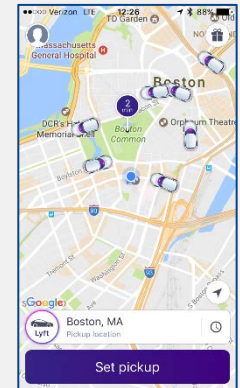
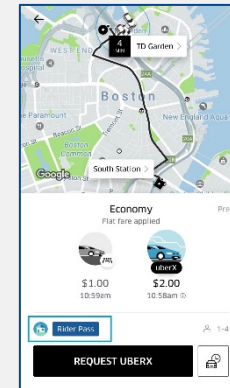
\$6	MBTA	\$13
\$2	Customer	\$6

Modes



Ordering Options

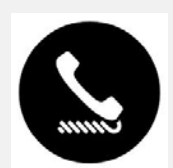
App-based



Provided Smartphone



Call Center Booking



Results to Customers

The pilot is designed to offer many new benefits to customers

To date, pilot customers have received...

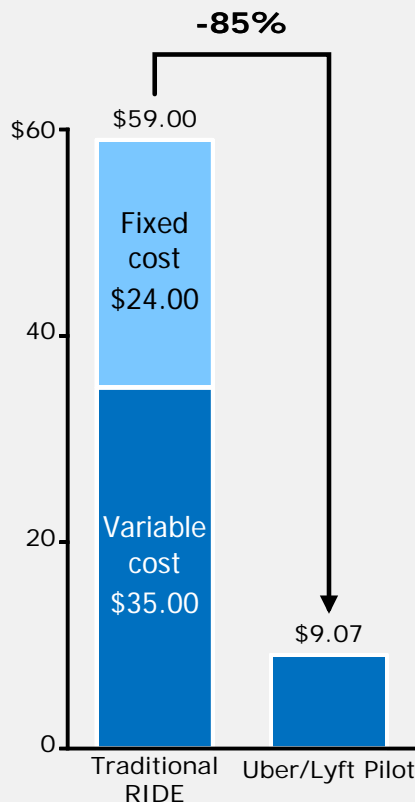
- Reduced Fares
- Lower Wait Times
- Same-Day Booking
- Faster Trips
- No Need to Share Rides
- Access to wheelchair accessible vehicles
- Options to book trips without an existing smartphone



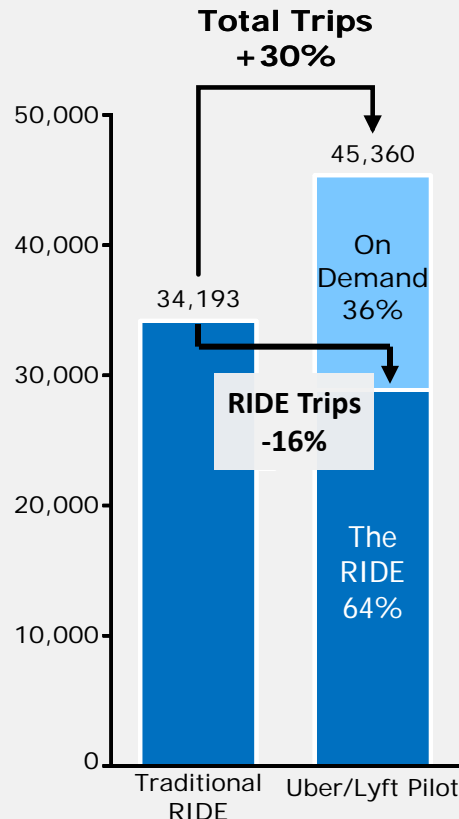
Improved Cost

Per trip costs have decreased by over 80%

Avg. MBTA Cost / Trip



Trips Taken



A reduction in more costly RIDE trips more than offsets an increase in total trips – producing a net savings to the MBTA



Decreased Trip Times

The pilot has saved customers over 6,700 hours of trip time

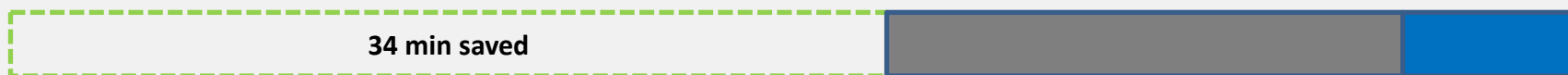
Taking a Trip

Promised Pick-Up 9:01AM	Actual Pick-Up 9:04AM	Drop Off 9:36AM	Appointment 10:00AM
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Average trip using The RIDE

Promised + Actual Pick-Up 9:35AM	Drop Off 9:55AM	Appointment 10:00AM
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Average trip using the On-Demand Pilot



Lessons Learned – Keys to Success

1. Involvement of high-level officials
2. Customer/advocate task force
3. Equivalent service for all customers
4. Multiple committed service providers
5. Access to data
6. Testing and iteration



Lessons Learned – Key Challenges

1. Creating clear channels for customer help and feedback
2. Controlling for latent demand of existing riders
3. Increasing adoption of customers with accessibility needs (technology and wheelchair accessibility)



Next Steps

Where does The RIDE go next?



Additional Mode of Transport

Provide another mode of service with a taxicab partnership and test pilot



Consolidation Call Center

Streamline multiple reservation and dispatch centers to one location



Dynamic Brokerage Model

Book most cost-effective trip customized to user needs through dynamic broker model

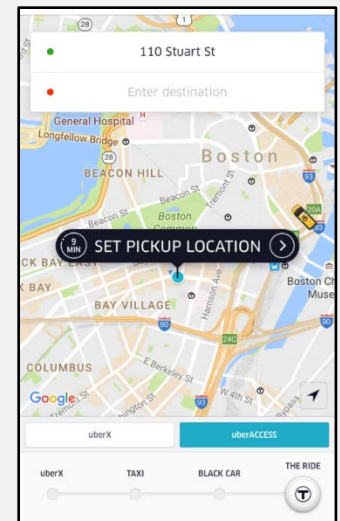


Questions



Summary and Key Points

- The RIDE is a MBTA program designed to provide **federally mandated complementary paratransit** transit service for those who qualify under the Americans with Disabilities Act (ADA)
- The RIDE's faces **high costs** to maintain **high-quality** services to the ADA-eligible population
- To decrease cost and increase efficiency, MBTA has **partnered with rideshare vendors** Uber and Lyft to provide transit service to paratransit customers through a rideshare pilot
- The Pilot has demonstrated strong results in **improved customer experience** and **decreased costs** to the MBTA
- Success from the Pilot can be attributed to **strong leadership and community support** and its **iterative design** and implementation



Thank you very much!

Request additional information or pose questions to the following:

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