

The Optimization of Publicly Regulated e-Hailing Demand Response Transit/Microtransit: Lessons from 6 U.S. Programs

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and Innovative Transportation Services
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Presented by:

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April 16, 2019

Public transit is

**the first & longest-standing shared-use
mobility mode**

the backbone of shared-use services

**the lifeline & pipeline to the global economy,
cities, jobs, & everyday activities**

Socio-economic disadvantage populations



The Rise of the Shared-Use e-Hailing Economy

2009

Ridesourcing/Rid(e)-hailing



2013

Transportation Network Companies



2014

Ride-splitting

uberPOOL

LYFT LINE
Your daily ride

2014

Microtransit



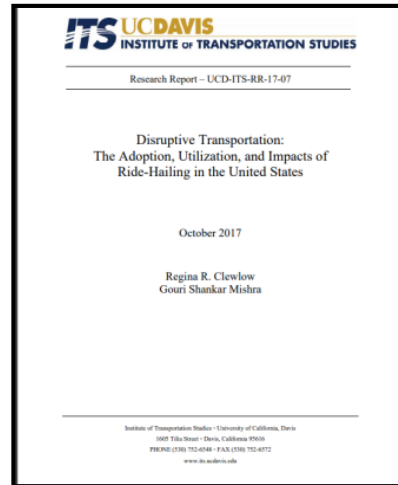
2018

Ride-splitting 2.0

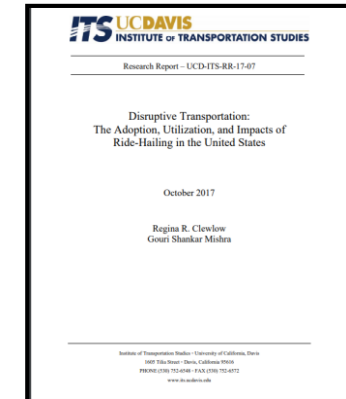


Growing Discourse: E-Hailing services are

Complementary to public transit



Competitive to public transit



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Volume 90, February 2018, Pages 12-21

Enhancing urban mobility: Integrating ride-sharing and public transit

Milja Stiglic *✉, Niels Agatz ✉, Martin Savelsbergh ✉, Mirko Gradisar *✉

<https://doi.org/10.1016/j.cor.2017.08.016>

Highlights

- Integrating ride-sharing and public transit can significantly enhance urban mobility.
- Efficient ride-matching technology for an integrated system can be developed.
- Driver willingness to accommodate more than one rider is critical for success.

Is Uber a substitute or complement for public transit?*

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University of Toronto Naval Postgraduate School

Joseph Price
Brigham Young University and NBER

June 13, 2018

Abstract

How Uber affects public transit ridership is a relevant policy question facing cities worldwide. Theoretically, Uber's effect on transit is ambiguous—while Uber is an alternative mode of travel, it can also increase the reach and flexibility of public transit's fixed-route, fixed-schedule service. We estimate the effect of Uber on public transit ridership using a difference-in-differences design that exploits variation across U.S. metropolitan areas in both the intensity of Uber penetration and the timing of Uber entry. We find that Uber is a complement for the average transit agency, increasing ridership by five percent after two years. This average effect masks considerable heterogeneity, with Uber increasing ridership more in larger cities and for smaller transit agencies. Finally, we find suggestive evidence that Uber is reducing commute times for those riding public transit, but increasing traffic congestion.

*We are grateful for helpful feedback from Jonathan V. Hall, who works for Uber and should not be considered one of the authors of this paper. We thank Will Stroup, Ash McMillin, Peter Mannes, Marley Gundersen, Jessica Park, and seminar audiences at the University of Toronto, Washington University in St. Louis, ETL Zurich, University of Southern California, Cal State Long Beach, International Transport Economics Association, University of Toronto/University of British Columbia Summer Conference, Urban Economics Association, and the Canadian Political Science Association. This research was supported by the Social Sciences and Humanities Research Council of Canada. We received excellent research assistance from Michael Gannon, Matthew Wylie, Marc-Antoine Schmitt, Tanner Eastmond, and Mona Balash Abadi. The authors declare that they have no relevant or material financial interests that relate to the research described in this paper.

TCRP
RESEARCH REPORT 196

Private Transit: Existing Services and Emerging Directions

Transit Cooperative Research Program

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UBER ECONOMICS
Evaluating the Monetary and Nonmonetary Tradeoffs of TNC and Transit Service in Chicago, Illinois

BY JOSEPH P. SCHWIETEMAN* & MALLORY LIVINGSTON | MAY 10, 2018

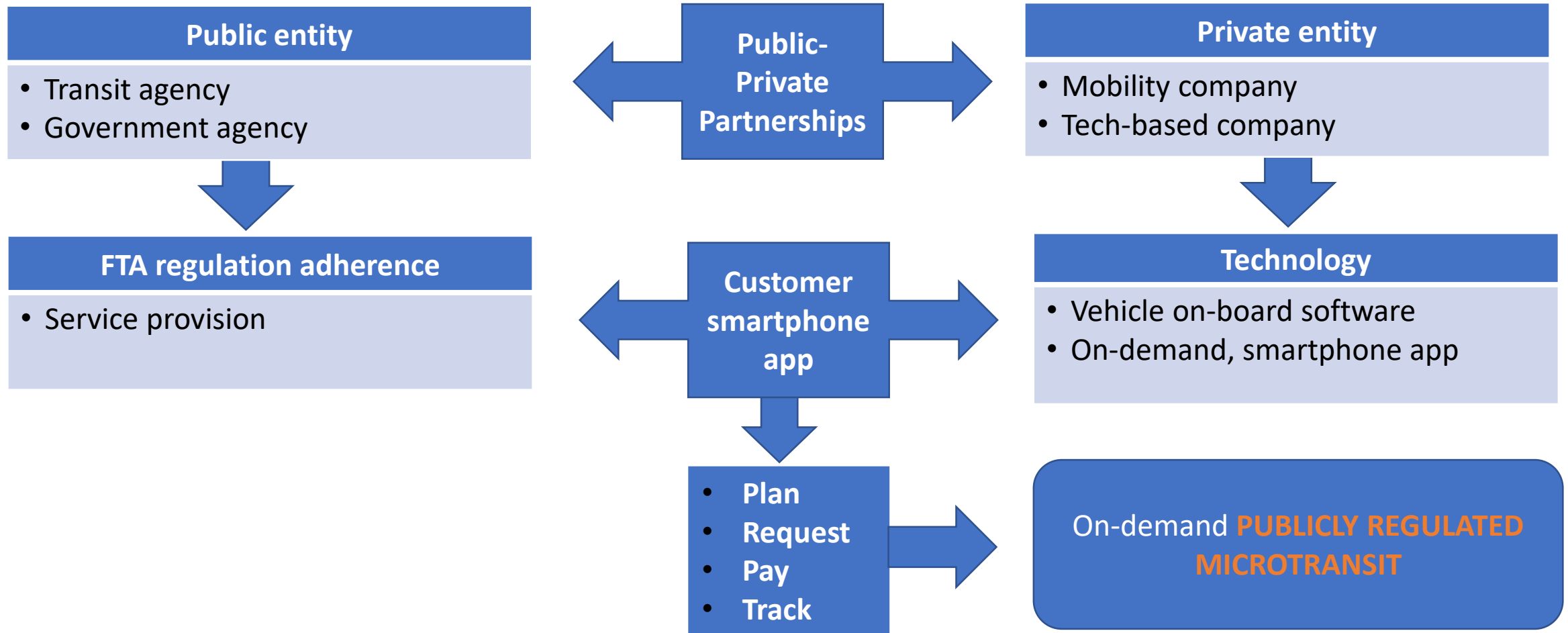
CHADDICK INSTITUTE
FOR METROPOLITAN DEVELOPMENT

DEPAUL UNIVERSITY

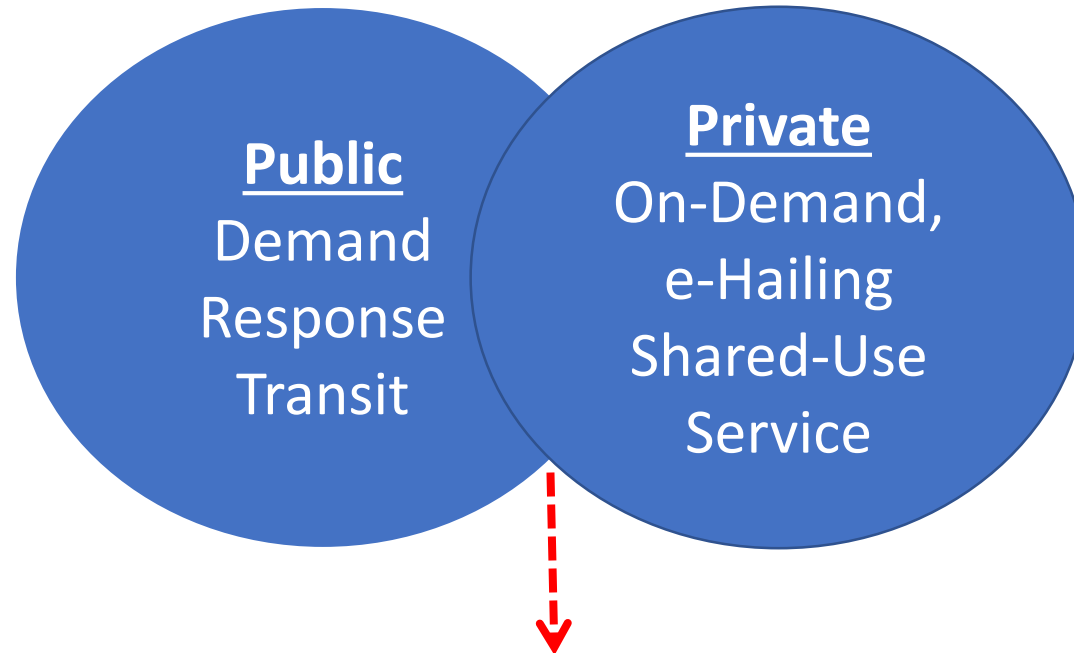
SPRING 2018 | CHADDICK INSTITUTE POLICY SERIES

Public Transit Operators Response

Publicly Regulated e-hailing Demand Response Transit (Microtransit)



Purpose of Study & Research Question



Publicly regulated e-hailing Demand Response Transit

Research question

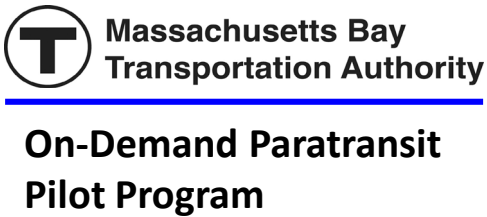
- What variables should public entities consider when integrating an e-hailing DRT program into their service delivery operations?

Case Study

Model 1: Public transit agency regulated & operated



Model 2: Public transit agency regulated & private company operated (TNC or taxi)



Model 3: Municipal government regulated & private tech company operated



Microtransit On-Demand (MOD) Framework

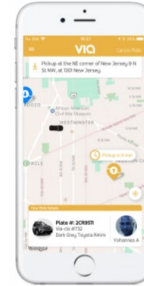
1. Approach to Public-Private Partnerships
2. Geo-Fenced Zone: Service Area Characteristics
3. Geo-Fenced Zone: Service Area Provision
4. Fare Structure
5. Federal Civil Rights Compliance

Approach to Public-Private Partnerships

- Partnerships



- Technological platform

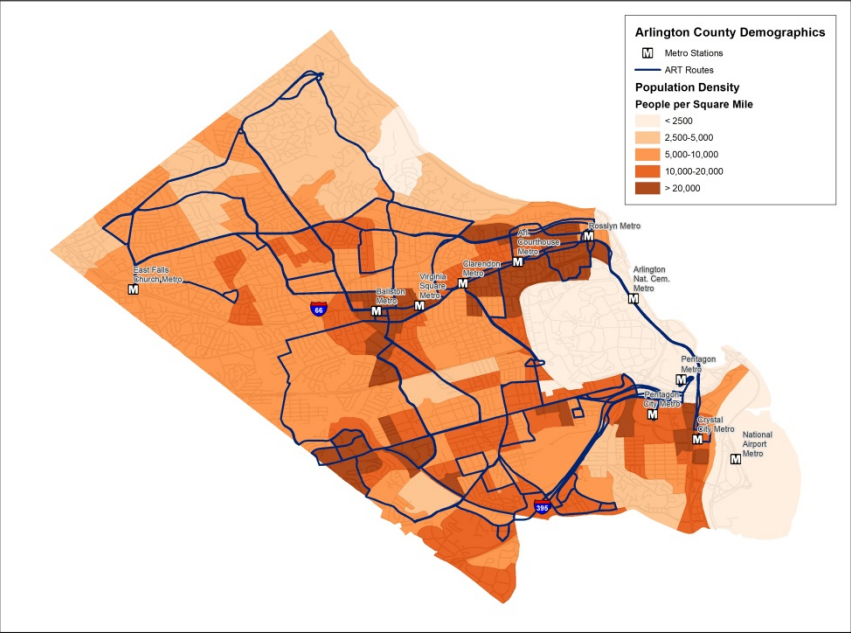


- Service delivery provider



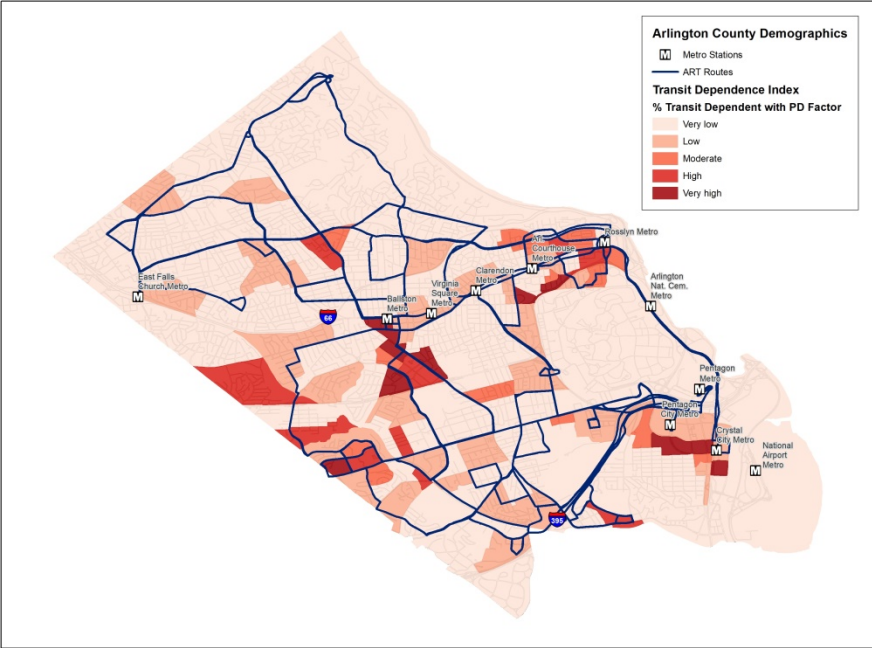
Geo-Fenced Zone: Service Area Characteristics

Low Population Density



Source: American Community Survey, 2017

Increase Access to/from Transit Deserts

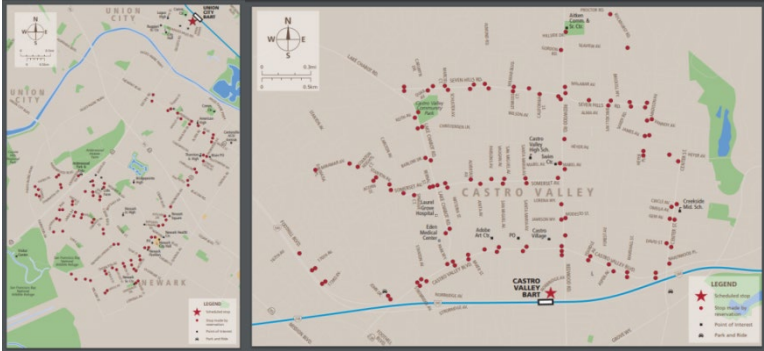


Source: American Community Survey, 2017

Geo-Fenced Zone: Service Area Provision

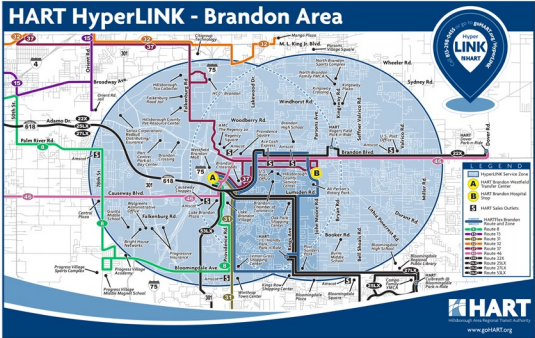
No exact same service provisions

AC Transit



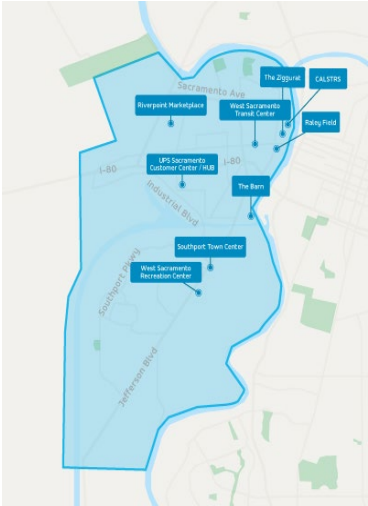
- 2 zones**
- 5 square miles
 - Designated bus stops

HART



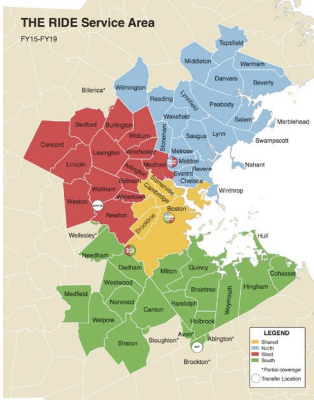
- 4 zones**
- 3 square miles (each)
 - Designated & virtual bus stops

City of West Sacramento



- Citywide - 1 zone**
- 21 square miles
 - Virtual bus stops

MBTA



Existing paratransit service area

Fare Structure

- **Fare Policy:**

Same as local bus fare

Premium fare

ADA: Subsidized portion of trip

- **Transfer Policy:**

No Free Transfers

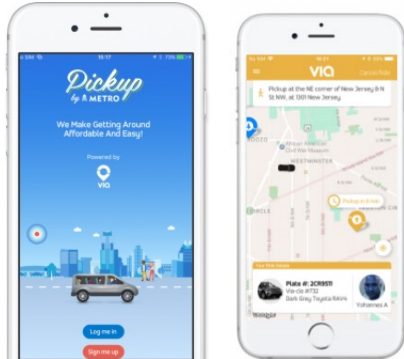
- **Special Fares:**

Free trips at start of program

Free trips for 1st time users

Discounted pass

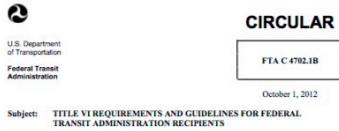
- **Payment:**



DEBIT/CREDIT CARD REQUIRED

Civil Rights Compliance

U.S. DOT, FTA Title VI



- PURPOSE:** The purpose of this Circular is to provide recipients of Federal Transit Administration (FTA) financial assistance with guidance and instructions necessary to carry out U.S. Department of Transportation ("DOT" or "the Department") Title VI regulations (49 CFR part 21) and to integrate into their programs and activities considerations expressed in the Department's Policy Guidance Concerning Recipients' Responsibilities to Limited English Proficient ("LEP") Persons (70 FR 74087, December 14, 2005).
- CANCELLATION:** This Circular supersedes FTA Circular 4702.1A "Title VI and Title VI-Dependent Guidelines for Federal Transit Administration Recipients," dated May 13, 2007.
- AUTHORITY:**
 - Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 20006 et seq.
 - Federal Transit Laws, Title 49, United States Code, Chapter 53.
 - 49 CFR § 1.51.
 - 49 CFR part 21.
 - 28 CFR § 42.401 et seq.
- WAIVER:** FTA reserves the right to waive any requirements of this Circular to the extent permitted by law.
- FEDERAL REGISTER NOTICE:** In conjunction with publication of this Circular, FTA published a notice in the *Federal Register* on August 28, 2012, addressing comments received during development of the Circular.
- AMENDMENTS TO THE CIRCULAR:** FTA reserves the right to update this Circular to reflect changes in other revised or new guidance and regulations that undergo notice and comment, without further notice and comment on this Circular. FTA will post updates on our

U.S. DOT, FTA ADA



- PURPOSE:** This circular provides guidance to recipients and subrecipients of Federal Transit Administration (FTA) financial assistance necessary to carry out provisions of the Americans with Disabilities Act (ADA) of 1990, Section 504 of the Rehabilitation Act of 1973, as amended, and the U.S. Department of Transportation's implementing regulations at 49 CFR Parts 27, 37, 38, and 39.
- CANCELLATION:** This is a new circular. It does not cancel any existing directive.
- SCOPE:** This circular applies to all assistance authorized by the Federal Transit Laws (49 U.S.C. Chapter 53) and all programs administered by FTA.
- AUTHORITIES:**
 - Americans with Disabilities Act of 1990
 - Section 504 of the Rehabilitation Act of 1973, as amended
 - 49 CFR Parts 27, 37, 38, and 39
 - Federal Transit Laws, 49 U.S.C. 5301 et seq.
- WAIVER:** FTA reserves the right to waive any requirements of this circular to the extent permitted by law.
- FEDERAL REGISTER NOTICE:** In conjunction with publication of this circular, FTA published a notice in the *Federal Register* on October 5, 2015, addressing comments received during development of the circular.
- AMENDMENTS TO THE CIRCULAR:** FTA reserves the right to update this circular to reflect changes in other revised or new guidance and regulations that undergo notice and comment, without further notice and comment on this circular. FTA will post updates on our website at www.fta.dot.gov. The website allows the public to register for notification when FTA issues *Federal Register* notices or new guidance. Please visit the website and click on "sign up for e-mail updates" for more information.
- 49 CFR § 37.15 REVIEW:** The General Counsel of the Department of Transportation has reviewed this document and approved it as consistent with the language and intent of 49 CFR Parts 27, 37, 38, and/or 39, as applicable.
- ACCESSIBLE FORMATS:** This document is available in accessible formats upon request. To obtain paper copies of this circular as well as information regarding these accessible formats, call FTA's Administrative Services Help Desk, at 202-366-4865. Individuals with hearing impairments may contact the Federal Relay Service at 1-800-877-8339 for assistance with the call.

Theresa W. McMillan
Acting Administrator

Unbanked customers



No internet/ smartphone access



Reduced fare



Wheelchair accessible vehicles



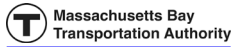
Program Status



- **Operational:** low ridership, no current plans to introduce new zones



- **Terminated** in July 2018 – low ridership & high operating cost
 - Replaced with fixed-route bus service (in one zone)



On-Demand
Paratransit
Pilot Program

- **Operational:** Almost three years – pilot program extended to July 1, 2019



- **Operational:** Almost 2 years - expanded service area last year



- **Operational:** December 2018, City Council approved 2nd year contract with Via



- **Operational:** Staff will present performance at end of 1-year pilot (May 2019) & recommend continuation or elimination

Key Takeaways

- **Public-Private Partnerships**

- Collaborate with private company to either develop, implement or operate program

- **Geo-Fenced Zone**

- Low-density areas – replacing FRB
- First Mile-Last Mile feeder service

- **Fare Structure**

- Same as local bus fare

- **Civil Rights Compliance**

- Alternatives for unbanked & no smartphone users
- Ensure wheelchair accessible vehicles

Further Research

- Utilization rates – ridership
- Performance – trip per hour/mile & operating cost per trip/mile/hour
- Transfer & Fare integration
- Who are the riders?
- Customer satisfaction – surveys (what are users saying about the service?)

Thanks!

Questions & Discussion