

Demand Response Transit / Microtransit:

A Guide for Implementing Flexible Transportation Services

Arlington County Department of Environmental Services
Transit Bureau

TPB Regional Public Transportation Subcommittee Meeting
September 24, 2019

- Fall 2016: County Board adopted the County's FY 2017-2026 Transit Development Plan (TDP);
- Flex concept was introduced in TDP with proposed service recommendations included four flex zones;
- Recommendations based on desire to provide service in areas of the County where fixed route service may not perform to soon-to-change service standards;
- Spring 2018: County staff applied and received award a TLC Grant to further determine feasibility of concept; and
- Fall 2018: County and COG began working with KFH Group on Zone-Based Demand Response Flex Service Study

- Data Collection and Analysis
- Proposed Parameters for Flex Service and Zones
- Fare Structure for service
- Service Standards
- Final Report

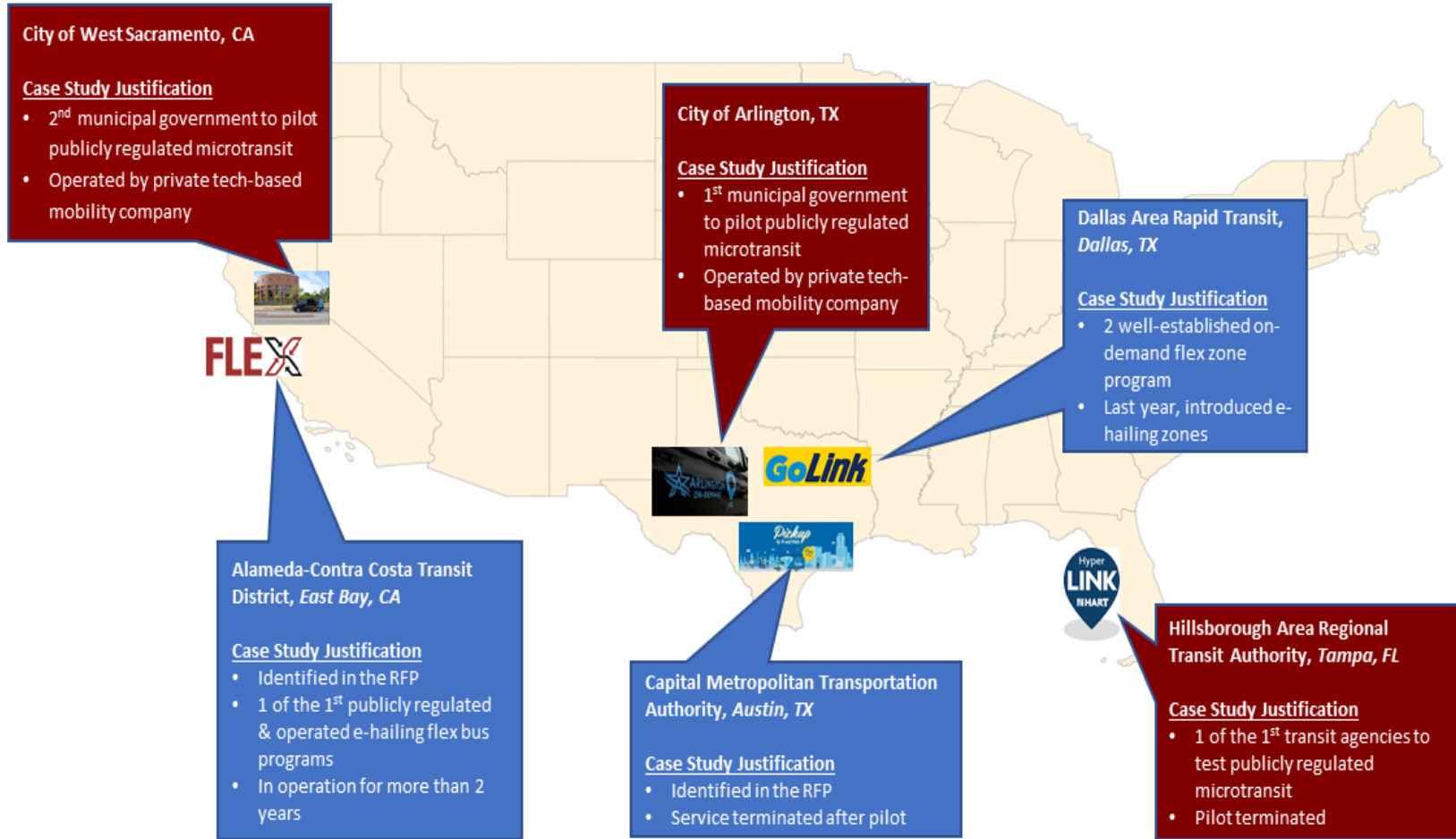
Model 1: Publicly Regulated and Operated e-Hailing Flex Bus

- In this model the public entity enters into a partnership with a tech-based company.
- The tech-based company is contracted to develop the vehicle onboard driver software and a customer smartphone app. The app allows public transit customers to plan, request, pay, and track the vehicle for on-demand, curb-to-curb service within a designated GFZ.
- The service is also available to the general public, and to ensure FTA Civil Rights compliance, the service must satisfy the FTA Circular 4702.1B (Title VI) and FTA Circular 4710.1 (Americans with Disabilities Act).
- The service is operated in-house by the public entity.

Model 2: Publicly Regulated and Privately Operated Microtransit

- Similar to the previous model the public entity also enters into a partnership with a private tech-based company.
- The tech-based company is then contracted to develop the vehicle onboard driver software and a customer smartphone app. The app allows public transit customers to plan, request, pay, and track the vehicle for on-demand, curb-to-curb service within a designated GFZ.
- The service is also available to the general public, and to ensure FTA Civil Rights compliance, the service must satisfy the FTA Circular 4702.1B (Title VI) and FTA Circular 4710.1 (Americans with Disabilities Act).
- With this model the tech-based company supplies the drivers and operates the service.

Case Studies for Analysis



Study compared and analyzed the approach of each case study on the following:

- Public-Private Partnerships
- Service Area Characteristics and Provision
- Fare Policy
- Civil Rights
- Service Standards

Tech-Based Partnerships

Technological Platform

Service Provider

Service Area Analysis

Variable	Publicly Regulated e-Hailing Flex Bus			Publicly Regulated Microtransit		
	AC Transit <i>FLEX</i>	CapMetro <i>Pickup</i>	DART <i>GoLink</i>	HART <i>HyperLINK</i>	City of Arlington <i>Via Rideshare</i>	City of West Sacramento <i>Via On-Demand Rideshare</i>
Population	<ul style="list-style-type: none"> Zone 1: 50,000 Zone 2: 33,000 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> 121,105 	<ul style="list-style-type: none"> 53,398
Population density	<ul style="list-style-type: none"> Zone 1: 9,300 Zone 2: 7,800 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> 4,844 	<ul style="list-style-type: none"> 2,597
Employment density	<ul style="list-style-type: none"> Zone 1: 1,814 Zone 2: 1,900 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> 3,345 	<ul style="list-style-type: none"> 1,483
Land use pattern	<ul style="list-style-type: none"> Suburban, low-density 	<ul style="list-style-type: none"> Suburban, low-density 	<ul style="list-style-type: none"> Suburban, low-density 	<ul style="list-style-type: none"> Low-density 	<ul style="list-style-type: none"> Suburban, low-density 	<ul style="list-style-type: none"> Low-density

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Service area	<ul style="list-style-type: none"> 2 zones 	<ul style="list-style-type: none"> 1 zone 	<ul style="list-style-type: none"> 6 zones 	<ul style="list-style-type: none"> 4 zones 	<ul style="list-style-type: none"> 1 zone 	<ul style="list-style-type: none"> 1 zone (citywide)
Square miles	<ul style="list-style-type: none"> Zone 1: 5.4 Zone 2: 4.2 	<ul style="list-style-type: none"> 7 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> 3 	<ul style="list-style-type: none"> 25 	<ul style="list-style-type: none"> 21
Bus stops	<ul style="list-style-type: none"> Designated 	<ul style="list-style-type: none"> Virtual 	<ul style="list-style-type: none"> Virtual 	<ul style="list-style-type: none"> Designated Virtual 	<ul style="list-style-type: none"> Virtual 	<ul style="list-style-type: none"> Virtual
Walking distance	<ul style="list-style-type: none"> Min: Curb Max: 2 blocks 	<ul style="list-style-type: none"> Min: Curb Max: Curb 	<ul style="list-style-type: none"> Min: Curb Max: 2 blocks 	<ul style="list-style-type: none"> Min: Curb Max: 2 blocks 	<ul style="list-style-type: none"> Min: Door Max: 2 blocks 	<ul style="list-style-type: none"> Min: Door Max: 2 blocks

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Service days/ hours	Weekdays • 6am-8pm	Weekdays • 7am-7pm Saturdays • 10am-5pm	Weekdays • 5am-8pm	Daily • 530am-1030pm	Weekdays • 6am-9pm Saturdays • 9am-9pm	Weekdays • 7am-10pm Saturdays • 9am-10pm
Reservations	• AC Transit website	• Pickup app	• GoLink app	• HyperLINK app	• Via app	• Via app
Wait times	• 15 min max	• 15 min max	NA	NA	• 12 min max	• 15 min max
First Mile-Last Mile Connections	<ul style="list-style-type: none"> • 2 Heavy Rail stations • Park & Ride • Amtrak • 9 major trip generators 	<ul style="list-style-type: none"> • 1 Light Rail Station • 6 major trip generators 	<ul style="list-style-type: none"> • Each connect to a Light Rail station 	<ul style="list-style-type: none"> • Connect local and express bus • 2 Transit Centers • 7 major trip generators 	<ul style="list-style-type: none"> • 1 Commuter Rail station • 10 major trip generators 	<ul style="list-style-type: none"> • 1 Transit Center • 9 major trip generators

Analysis: Fare Structure

Variable	Publicly Regulated e-Hailing Flex Bus			Publicly Regulated Microtransit		
	AC Transit <i>FLEX</i>	CapMetro <i>Pickup</i>	DART <i>GoLink</i>	HART <i>HyperLINK</i>	City of Arlington <i>Via Rideshare</i>	City of West Sacramento <i>Via On-Demand Rideshare</i>
Fare Policy	<ul style="list-style-type: none"> Same as local fare 	<ul style="list-style-type: none"> Free 	<ul style="list-style-type: none"> Same as bus local fare 	<ul style="list-style-type: none"> Bus base: \$2.00 \$1* \$3* 	<ul style="list-style-type: none"> Bus base: \$2.50 \$3.00 	<ul style="list-style-type: none"> Bus base: \$2.75 \$3.50
Special fares	<ul style="list-style-type: none"> Free 1st month 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> First 5 trips free 	<ul style="list-style-type: none"> ViaPass: \$15/week (4 trips per day) 	<ul style="list-style-type: none"> ViaPass: \$15/week (4 trips per day)
Transfer Policy	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
Regional fare integration	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> GoPass app 	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> No
Payment	<ul style="list-style-type: none"> Cash AC Transit pass Smartcard 	<ul style="list-style-type: none"> Pickup app 	<ul style="list-style-type: none"> GoPass app 	<ul style="list-style-type: none"> HyperLINK app 	<ul style="list-style-type: none"> Via app 	<ul style="list-style-type: none"> Via app

Analysis: Civil Rights Compliance

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Title VI analysis	<ul style="list-style-type: none"> Service Equity Analysis 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> NA
Reduced fares	<ul style="list-style-type: none"> <54% discount: Youth, Senior, Disabled 	<ul style="list-style-type: none"> Free 	<ul style="list-style-type: none"> DART Fare Policy 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> \$1.75 senior/disabled 	<ul style="list-style-type: none"> Senior: <50% Disabled: <50%
Customers with no smartphone or internet access	<ul style="list-style-type: none"> AC Transit Call Center 	<ul style="list-style-type: none"> CapMetro call center 	<ul style="list-style-type: none"> DART call center 	<ul style="list-style-type: none"> Transdev Call center 	<ul style="list-style-type: none"> Via Customer Call Center 	<ul style="list-style-type: none"> Via Customer Call Center
Unbanked customers	<ul style="list-style-type: none"> Pay cash onboard vehicle AC Transit pass Smartcard 	<ul style="list-style-type: none"> Pay cash onboard vehicle 	<ul style="list-style-type: none"> Pay cash onboard vehicle 	<ul style="list-style-type: none"> Pay cash onboard vehicle 	<ul style="list-style-type: none"> Cashless 	<ul style="list-style-type: none"> Cashless

- **Services have been well received by the community.**
 - Arlington, TX and West Sacramento have receive positive community feedback.
- **Services are appealing to a variety of population groups.**
- **Depending on the arrangement, operating costs versus other services may be cost neutral.**
- **But by other measures, services may not have performed as well.**
- **There are quality of life impacts beyond transportation.**
- **There are economic benefits from the services.**
 - City of West Sacramento also noted that Via Rideshare users were frequenting local businesses and participating in social activities more often as a result of having this service available.
- **Technology can lead to greater efficiency and on-time performance.**
 - AC Transit experience these improvements with their service.
- **The best application for DRT/Microtransit is in low-density, low-demand areas.**
 - AC Transit noted the importance of these services when trying to ensure coverage in low density areas. However without additional funding, expanding coverage may result in reduction of service elsewhere.

From Report to A Guide

- When TDP was adopted, the service recommendations for the FLEX concept were projected to take place later in the implementation phase (FY 2025-2026;
- It was based upon service that was anticipated to not meet standard and those services were being proposed for elimination sooner than the FLEX service would be implemented;
- TDP called for a service evaluation process that would give better clarity as to whether service adjustments or reductions were needed;
- Therefore the study transformed into a guide that will help identify neighborhoods that would benefit from FLEX service, after the service evaluation process was put in place for ART.

Service Evaluation Process

Why do we evaluate service?

Service Evaluation process based on established performance standards. Standards were updated through the following planning studies:

FY 2017-26 Transit Development Plan (Summer 2016); and

FY 2017 Master Transportation Plan Update (Winter 2017).

Both studies were presented through public outreach efforts and have been adopted by the Arlington County Board.

Local and State Funding Partners require County to evaluate and review service as part of annual processes.

County view Flex Concept as a possible service option in filling gaps and providing supplemental service to County citizens and commuters.



Ridership	<ul style="list-style-type: none"> Ridership patterns Passenger loads
Productivity	<ul style="list-style-type: none"> Passengers per revenue mile/hour/trip Revenue versus non-revenue hours/miles
Cost effectiveness	<ul style="list-style-type: none"> Cost per trip/passenger Subsidy per trip/passenger Cost recovery ratio
On-time performance	<ul style="list-style-type: none"> How service is operating compared to published schedules



- Step 1:** Conduct Ongoing Assessment of ART System Performance
- Step 2:** Identify Key Stakeholders and Conduct Renewed Community Outreach
- Step 3:** Identify Service Delivery Model and Determine
- Step 4:** Develop Geo-Fenced Zone Characteristics
- Step 5:** Determine Budget and Identify Funding Sources
- Step 6:** Develop Fare Structure
- Step 7:** Ensure Compliance with Federal Civil Rights
- Step 8:** Develop Program and Service Evaluation Measures

- Provide update to Transit Advisory Committee with presentation of FY 2019 Service Evaluation Report (Tentative – late fall 2019)
- Review current efforts in Montgomery County and other agencies
- After County Manager approval, present findings to Transportation Commission and conduct public outreach efforts.