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Mobility-On-Demand: The Future of Transportation

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Ride-hailing services such as
Uber and Lyft have been largely
viewed as a threat to public
transportation agencies, stealing
customers and much-needed
revenue. These fears are not
unfounded. An October report by
the University of California, Davis
Institute of Transportation
Studies found that urban ridehailing passengers decreased
their use of public transit by 6%.



Photo: VIA

However, rather than fight ride-hailing services, Bob Sheehan, project manager for Multimodal ITS Research and Deployment for the Intelligent Transportation Joint Program Office (ITS JPO), encouraged agencies to explore "emerging technology solutions and different business approaches."

His department, which operates under the U.S. Department of Transportation (DOT), is focusing on promoting mobility-on-demand — the integration of ridesharing and ride-hailing services with transit operations.

RELATED: PSTA expands partnership with Uber, Lyft

User experience, more options

During a webinar with Uber, Lyft, ride-sharing app VIA, and various industry officials and stakeholders, Sheehan touted the success of public-private partnerships as the future of transit.

The focus of these partnerships, Sheehan said, should be on user experience and providing travelers with more options.

"We want, and are focused on, this system from a traveler's perspective, not how effective the highway or the transit services being provided, [but] how effective is the trip for the user?



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"Travelers are seeing a benefit, they have more options, hopefully more reliable options, more efficient options," he said. "And public transit providers, hopefully, they're providing more economical service and providing more productive and more efficient service."

From the ride-hailing side, Uber's Paige Tsai says her organization recognizes its potential to help connect underserved metro areas, reduce parking demand, and alleviate other factors that inhibit mobility and connectivity.

"While Uber's mission is quite simple, as we've grown, we've quickly realized that we have the opportunity to work with companies, organizations, cities, and governments alike to help tackle some of the challenges facing our cities today, in terms of transportation," she explains.

Tsai, who is part of the San Francisco-based Policy Research and Economics team, stresses Uber's role in filling the first-mile, last-mile gap.

Based on data obtained from Uber trips taken in Philadelphia and San Francisco, Tsai estimates that as much as 30% of Uber trips in a city can be to and from public transit stations. When Los Angeles' Metro added 12 new stops and extended the existing Gold and Blue Lines, Uber pickups decreased at previous terminal stops and increased where the new terminals are located.

"As we suspected... people were previously using the Expo Line or the Gold Line to get as far as they could on their commute home, but when these new options were available, they continued on their journey and then continued to use Uber to fill that last mile gap," Tsai says.

Similarly, Paul Davis, transportation and partnership manager for Lyft, says that his company's 2014 "Friends with Transit" campaign launched after data showed 25% of Lyft rides were starting and ending near major transit centers.

Simulator 'visualizes' microtransit service

Transit technology company Transloc recently released its MicroTransit Simulator, a tool that helps municipal governments and transit agencies visualize what microtransit would look like in their city.

The simulator uses an algorithm to run various microtransit scenarios with available vehicles, Elaine McVey, Transloc's data science lead, said in a video on the company's website.

"Compared to the need to make educated guesses about what might happen and then run a system and see how that works out, being able to see that before you start running a service is really revolutionary," McVey said.

RELATED: Transloc announces microtransit challenge winners

The simulator helps to answer the uncertainty of what new modes of transit will look like and how to run service that is different than fixed routes. The end report includes information on metrics, such as rider experience, wait time, ride duration, cost, and vehicle miles.

McVey said that the simulator will help transit companies and cities mitigate risks before starting a service and show them how to design service to reach certain performance levels.

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"Now, transit agencies have an opportunity to be able to provide a different kind of service that complements their existing fixed-route service in a way that wasn't possible in the past."



system for the City of Arlington, Texas.

has increased public transit ridership.

City partnerships

Based on this information, Lyft has been partnering with cities across the U.S. to provide firstmile. last-mile solutions.

In Dublin, Calif., Lyft and Uber are working with the Livermore-Amador Valley Transit Authority (LAVTA) to subsidize Lyft Line and UberPOOL rides that start In December, VIA partnered to create a microtransit and end within city limits. The partnership is helping alleviate traffic and parking congestion at

the city's rail station, which connect commuters with San Francisco, Oakland, San Bruno, and other Bay Area destinations. By entering the promo code "GODUBLIN" on the app, riders only pay the cost difference of the ride after \$5. Christy Wegener, LAVTA's director of planning and operations, explains that the partnership, which resulted from a 2015 study on the agency's fixed-route service,

"We made some healthy choices for the fixed-route network, and in doing so, we left some holes in our service area," she says. "So, the partnership has provided us a cost-effective way to provide transportation to people who used to have a bus, and we've been able to take those resources and reallocate them into frequency on major arterials, which has resulted in more rides."

LAVTA's subsidized rides also include trips taken with a local taxi service, which can accept cash-only payments.

RELATED: LAVTA testing driverless vehicles, partners with TNCs

Tsai also cites a partnership with Summit, N.J., where city officials were considering building a second parking garage near the city's train station in hopes of decreasing parking demands. Rather than spending millions on a new parking structure, the City and Uber partnered to give commuters with parking passes free rides to and from the station.

"There is no single approach that we take to these partnerships," Tsai says. "We really like to hear from the transit agency what problems they're trying to solve and what solutions Uber can bring using our technology."

Paratransit rides

In providing underserved areas with transit options, both Lyft and Uber partnered with the Massachusetts Bay Transit Authority (MBTA) to bring on-demand paratransit rides to Boston. The rides are subsidized by MBTA (the agency pays up to \$13) and the rider pays only a \$2 flat fare. Launched over a year ago, Massachusetts Gov. Charlie Baker expanded the service in February of this year.

In the five months following, over 10,000 trips were completed, Tsai says. While there has been an increase in trips, the cost-per-trip has been reduced "dramatically" due to the on-demand service, she adds.

In October, Lyft announced a partnership with software company Trapeze Group. Transit agencies using Trapeze's software can schedule rides on the Lyft platform in advance of the trip date. While announcing the partnership, Trapeze officials said that allowing transit agencies to schedule rides through the Lyft app will help reduce operational costs while increasing ride availability.

Davis says that accessibility is important to Lyft, and that they work to ensure transit partners offer wheelchair accessible vehicle services (WAV).

Combining first-mile, last-mile solutions and WAV services, Lyft works with Marin, Calif.-based NGO Whistlestop to provide rides to the community's seniors. The agency covers the additional cost of paratransit rides to ensure that they cost the same, while increasing mobility.

"So, no partnership is alike," Tsai says. "But, we are learning a lot from each of these."

Carpool options

Worries over traffic congestion in large cities prompted both Uber and Lyft to offer riders a carpool option. The UberPOOL and Lyft Line algorithms match up riders whose destinations are near each other's and have them share the ride. The carpool option is cheaper for riders — Lyft boasts a discount of up to 60% — who now split the cost with strangers headed in the same direction. Both companies allow a rider to request up to two seats, with Lyft Line charging \$1 for the extra person.

Tsai said that UberPOOL, which is available in about 40 cities across the world, makes up 20% of rides where available. In cities where it's been an option the longest, such as San Francisco, the number hovers between 40% and 50%.

Similarly, Davis said Lyft Line rides comprise over

Social equity

During November's mobility webinar, the DOT's Sheehan challenged agencies to consider the social equity involved in transportation.

Requesting rides on Uber and Lyft typically requires a smartphone and linked credit or debit card, which might exclude underserved and disenfranchised communities.

Lyft has tailored its platform to be Title VI compliant when working with public agencies, Davis says. Users can set up accounts and pay for rides using prepaid cards and PayPal CASH accounts.

Those without smartphones can request rides via Lyft's concierge center, which can be integrated with the agencies existing call center; call representatives can also help the rider locate the pickup location.

In all of VIA's partnerships with public agencies, passengers can request rides through a call center, Louis Pappas, who works on VIA's public sector business development team, says.

The New York City-based ride-sharing company is also formatted for cash payments, he explains. It's up to the transit agencies to decide if they want to operate a cash system. While VIA partners with transit agencies across the county, it operates its consumer facing platform only in New York City, Washington D.C., and Chicago. There, users share ondemand rides, with pickup and drop off spots dubbed "virtual bus stops."

40% of Lyft rides where available.

"The idea of a virtual bus stop is to try and make that incrementally a little bit more efficient, so have you walk out to a place that reduces the need for a vehicle to deviate too

much to pick you up," Pappas says. "Our rides are fully dynamic, so we don't have any fixed routes. The routing updates in real time and all rides are shared."

Microtransit

Private ride-hailing and ridesharing companies are even stepping in to create transit systems in cities where it hasn't before been an option.

Take Arlington, Texas — whose claim to fame used to be being the largest city in the U.S. without a public transit system. In December, VIA launched microtransit operations, providing on-demand, shared rides to the city's 393,000 residents.



An MBTA pilot program with Uber, Lyft, and local taxi companies helps alleviate strain on paratransit.

MBTA

"So transit has been voted down in Arlington on a few different occasions," Zack Wasserman, VIA's head of business development, explains. "I think it's perceived as sort of an amenity, that's just too expensive for them to afford."

RELATED: LA Metro considering microtransit options

In partnering with the City of Arlington, VIA developed an on-demand, microtransit system, which launched in the downtown area and other small subsets of the city, including a train station that connects to Dallas.

Alicia Winkelblech, the City's assistant director of strategic planning, says the City believes VIA can provide a high-quality, effective service, before calling the microtransit provider a "great fit."

"They came to us to develop sort of this entirely on-demand, dynamic microtransit system that they will launch in lieu of creating a conventional, fixed-route service," Wasserman says. "We bring the technology... Then we also work with local drivers who will bring vehicles, and we'll be able to provide sort of a complete transit solution for the City of Arlington, at a much lower price point."

The company identifies people who currently drive for other transportation network companies and recruits them to also drive for VIA.

In addition to Arlington, VIA has incorporated its platform and drivers with the City of West Sacramento, Calif. VIA also allows transit agencies and cities to operate their own microtransit programs.

In Austin, Texas, VIA partnered with Capital Metro by giving the transit agency its technology and platform to build their own system. VIA has a similar partnership with Arriva, a transit contractor in the UK.

Tags: City of Arlington LA Metro Livermore Amador Valley Transit Authority Lyft MBTA microtransit paratransit rideshare social media Uber Via

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