RTA LAST-MILE MOBILITY PILOTS IN OAK BROOK AND BANNOCKBURN

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Contents

Background

The 2018-2023 Regional Transit Strategic Plan, *Invest in Transit*, articulates three overriding goals for the region – Deliver value on our investment, Build on the strength of our network, and Stay competitive. The third goal, Stay competitive, focuses on the vital role that transit plays as a part of the region's mobility network and promotes strategies to meet the evolving needs of riders. A component of this strategy is to test how technology and partnerships with new mobility providers can improve conditions for riders in traditionally difficult to serve transit markets, such as the last-mile of reverse commute trips.

As a part of this effort, the has RTA formed pilot partnerships with new mobility providers. Two of these pilots were focused on suburban commuter markets, testing different types of services, on-demand shuttles, and Transportation Network Companies (TNCs). Both pilots were designed to serve the last-mile of commutes for riders traveling from the city of Chicago to suburban job locations via Metra. The markets selected for pilots were the Commerce Drive/22nd Street area of Oak Brook in DuPage County and the Bannockburn Lakes complex, owned by GlenStar, in Lake County.

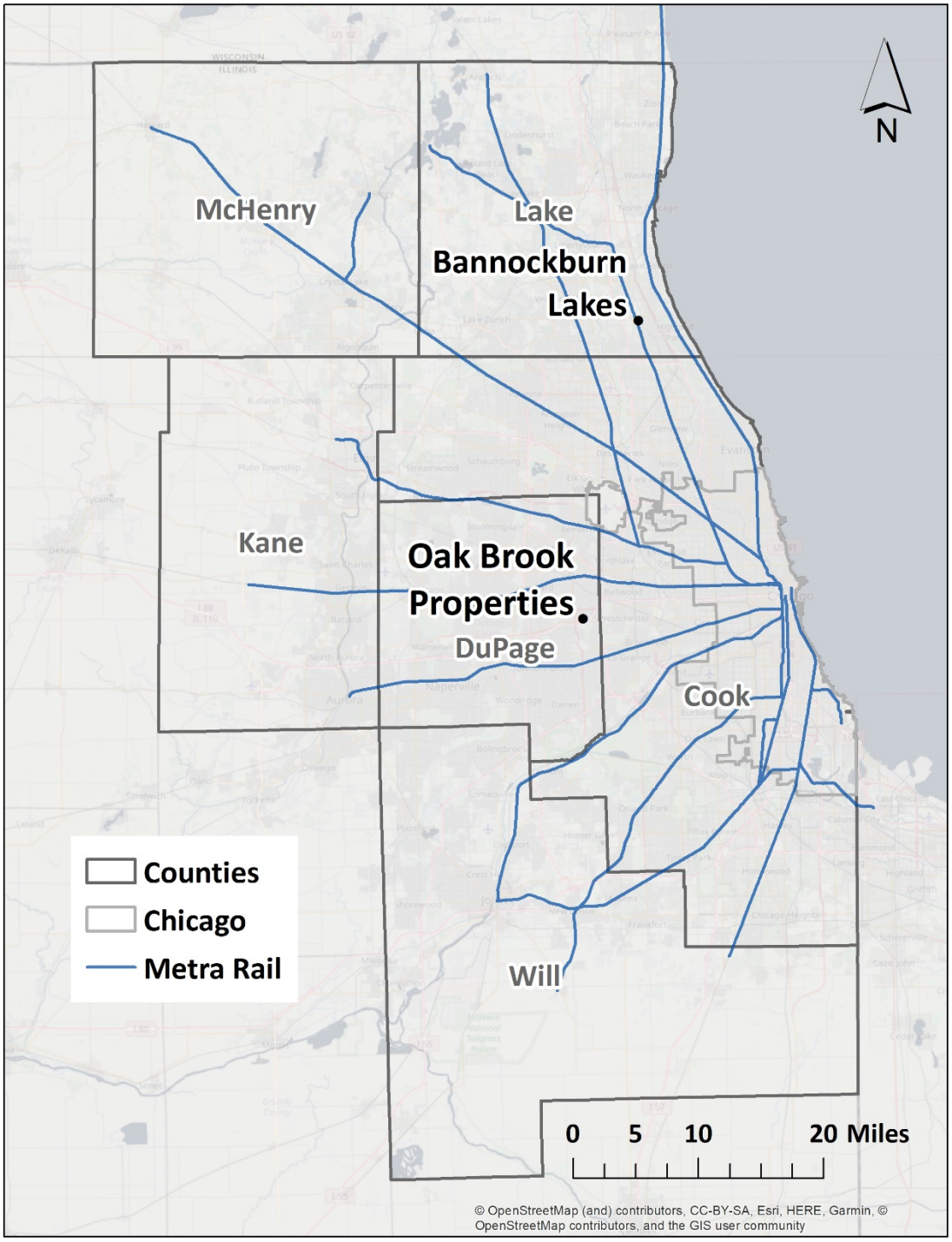
In addition to testing new technology and modal concepts, each pilot was also designed to help municipalities explore innovation. For each pilot, the RTA assisted with funding and planning while Oak Brook and Bannockburn each led coordination efforts between local employers and property owners.

This work represents the next iteration of efforts to better serve lower density suburban job markets via transit. Previous efforts, dating back to prior strategic plans, include the shuttle bug Pace routes that are operated via a partnership with the Transportation Management Association of Lake Cook and the Pace 465 Belmont Esplanade shuttle bug. Shuttle bug services utilize traditional buses that run on schedules aligning with Metra arrivals and departures, while these new mobility pilots set out to test on-demand technology and service providers. The goals of the RTA last-mile mobility pilots were to

1) Test new technology and partnerships to improve transit connections using non-traditional modes such as TNCs and on-demand shuttles.
2) Improve last-mile conditions for reverse commuters taking Metra to lower density suburban job locations.

Figure 1 shows the location of the Oak Brook Properties and Bannockburn Lakes in the region.

Figure 1. Oak Brook Properties and Bannockburn Lakes, RTA Last-Mile Mobility pilot locations



Oak Brook

In 2017, the RTA, the Oak Brook Chamber of Commerce, and the Village of Oak Brook developed a pilot program to explore private-sector alternatives for a last-mile shuttle connection between Metra's commuter rail service and Oak Brook office properties. Previous planning and market development efforts by the RTA and the Oak Brook Chamber included solicitation of financial participation by local property owners to structure a service-provider solicitation. A Request for Proposal (RFP) was issued by the Village of Oak Brook in January 2018 with a contract awarded to Chariot for service which began on June 25, 2018, between Metra's UP-West Elmhurst station and business properties in the Commerce Drive/22nd Street area.

The service contract provided for up to two-years of fixed-price operations in the morning and evening rush hours, with four trips in the AM and four trips in the PM. In addition to the Metra/Elmhurst station, Chariot would make six stops at each of the participating property's front doors.

At the outset of the pilot there was interest in making connections to both the Elmhurst station and the Hinsdale station on the BNSF line. Due to funding constraints, the pilot commenced serving only the Elmhurst station, the busier of the two stations. **Figure 2** shows the Metra stations and Oak Brook Properties.

The pilot program was structured to transition responsibility from the RTA to property owners over the two-year period. For the first year, RTA funded 80% of the operations, with the property owners funding 20%. The second year the funding split was 50/50, with RTA funding ending after the second year. Continued operation would be determined by property owners, the Chamber, and the Village.

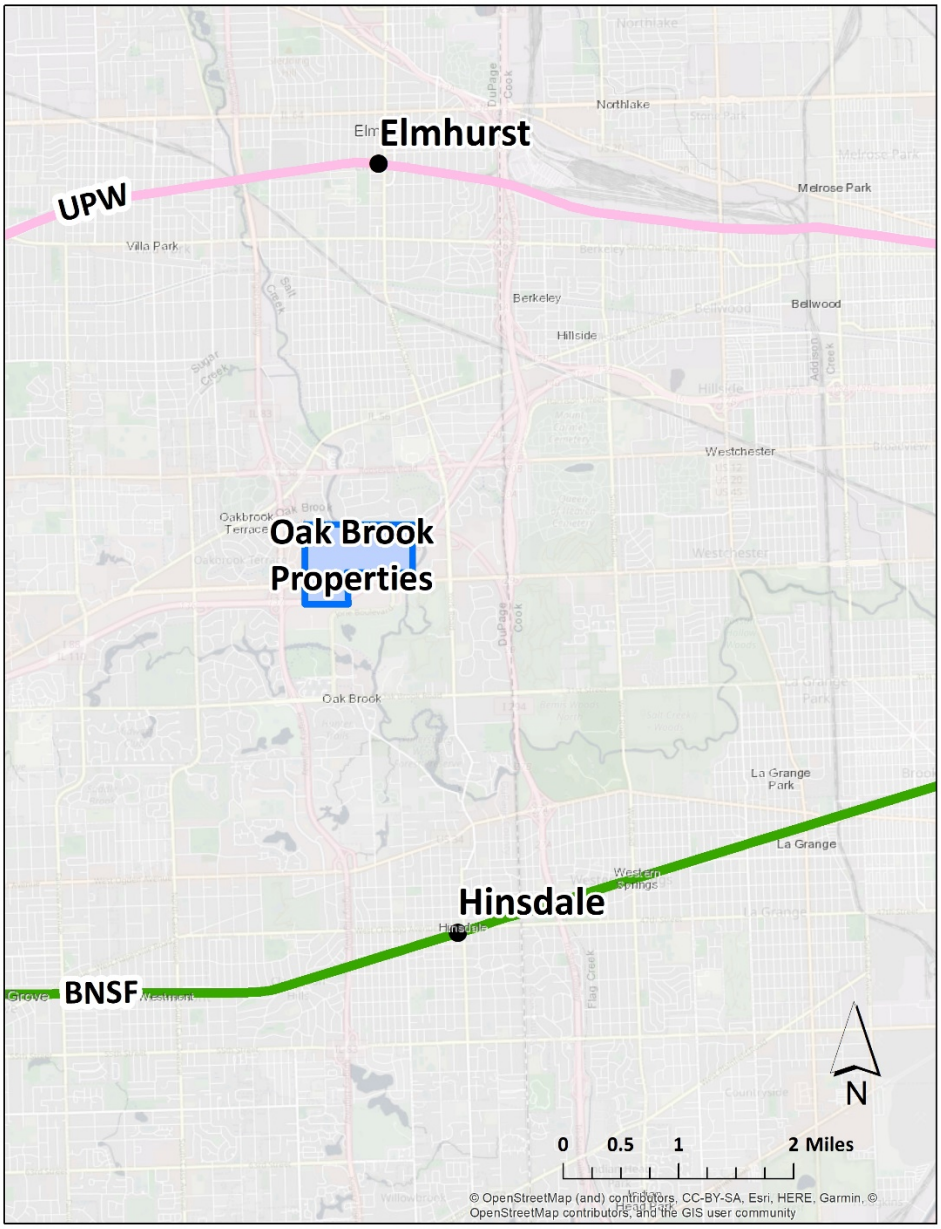
In January 2019, Chariot announced that it would be going out of business, just over 8 months into what was to be a two-year pilot. Without Chariot as a viable partner, the RTA and Oak Brook acted quickly to replace the Chariot service, executing an agreement with Lyft as the replacement provider on February 27, 2019. Lyft had an existing relationship with Chariot to provide fill-in service during an emergency. The financial structure of the pilot remained the same with the RTA funding 80% of the cost for the remainder of year one and the property owners funding the remaining 20%.

In April 2019, a Request for Qualifications (RFQ) was issued by the Village of Oak Brook for the second year of the last-mile pilot, to begin on June 29, 2019. A contract was issued to Lyft to complete the pilot, with the funding being split 50/50 between the RTA and property owners as originally intended.

With the pilot transitioned to a TNC-style service, rides were offered to and from Elmhurst on the UP-West line and the Hinsdale station on the BNSF. Similar to Chariot, Lyft allowed riders to book rides through their app using a promotion code with the full cost of the ride to or from the

Metra station and their place of employment covered by the pilot program. Unlike the original Chariot service, the TNC style service operated by Lyft does not carry fixed costs to the user, with the only costs incurred being for rides performed.

Figure 2. Participating Oak Brook Properties and Metra Stations, RTA Last-Mile Mobility Pilot locations



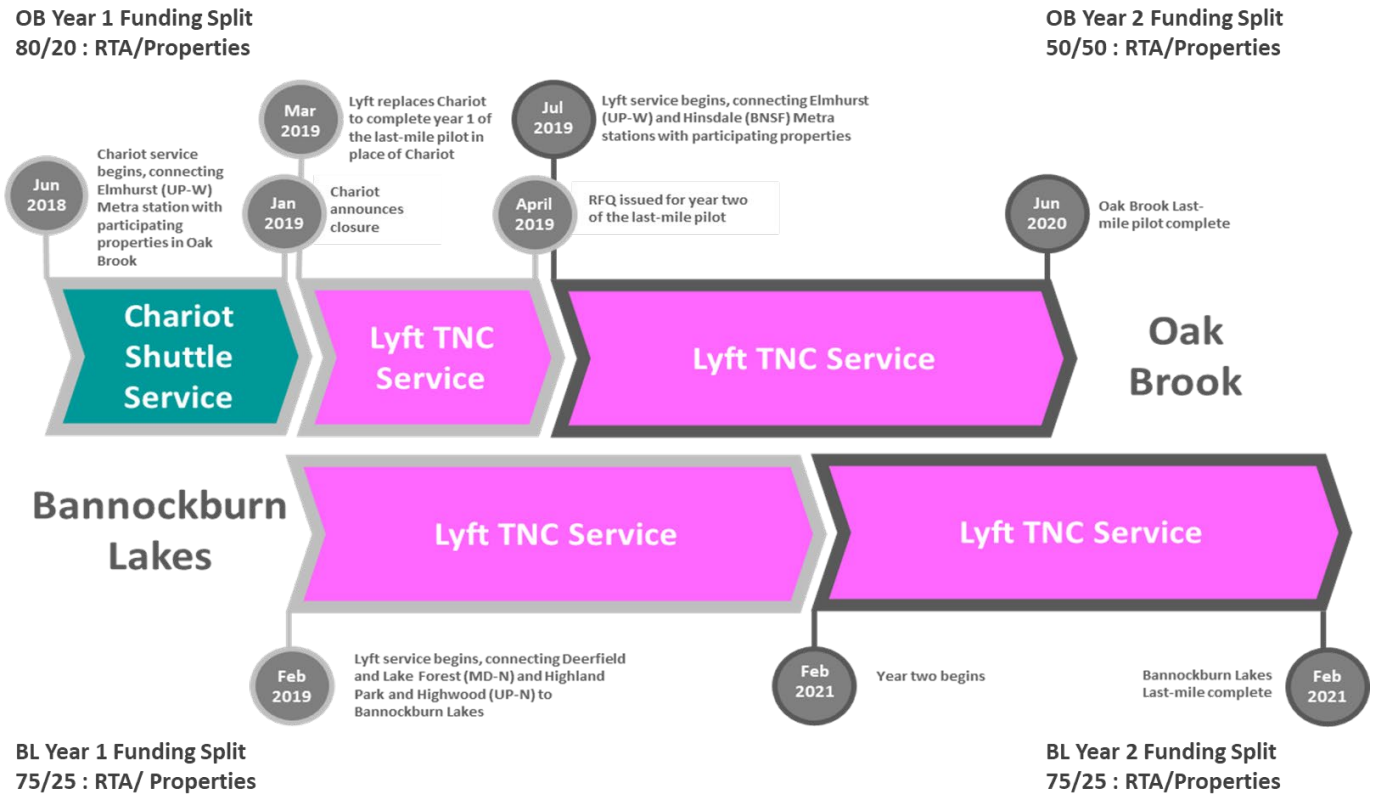
Bannockburn

In 2018 the RTA, the Village of Bannockburn, and GlenStar Properties developed a pilot program to explore private-sector alternatives for a last-mile TNC connection between Metra's commuter rail service and GlenStar's Bannockburn Lakes complex. The Village of Bannockburn issued an RFP in late 2018 and awarded the contract to Lyft for service to begin on February 25, 2019. The agreement called for service to operate between Metra's UP-North Highland Park and Highwood stations as well as MD-North Deerfield and Lake Forest stations, and GlenStar Properties located at Bannockburn Lakes.

The pilot provided for up to two years of operations. With strong interest by GlenStar, the cost sharing for this pilot was 75% of costs paid by GlenStar and 25% by RTA.

Figure 3 shows the pilot timelines.

Figure 3. Timeline of RTA Last-Mile Mobility Pilots



Chariot Service in Oak Brook

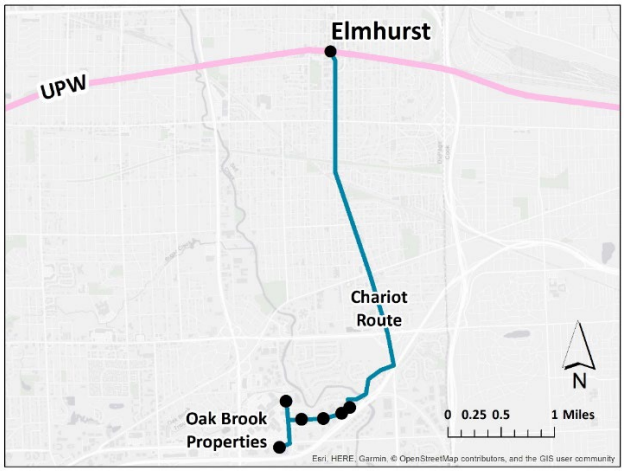
Chariot was an app-based microtransit provider using employee drivers and dedicated Chariot-owned vehicles. The Oak Brook service marked its entry into the Chicago regional market. Operation initially was on a fixed schedule to coincide with Metra's morning arrivals for trains from downtown Chicago and afternoon departures to Chicago. Although targeted primarily for the reverse commute directions, the frequency of peak-direction Metra service also provided opportunities to serve those living in communities west of Elmhurst.

Using the Chariot app, riders employed by any of the tenant companies within the six participating properties could book rides for no cost, using their work email address as validation. Members of the general public could also download the app and book rides for a fixed price of $6.20 per trip. Chariot utilized a single 14-passenger Chariot-owned and branded van, with an 8-passenger wheelchair accessible vehicle available for deployment if needed. Riders were required to request a trip through the app to board, with trip requests being accepted up to two hours before each peak period. Trips in the opposite direction (e.g., boarding in Oak Brook in the morning and traveling to Elmhurst) were allowed.

While billed as microtransit, which is often associated with a demand-responsive or route deviated style service, in practice Chariot operated a fixed route shuttle on a schedule aligned with Metra arrivals and departures. The Chariot van stopped at every participating property regardless of whether a trip was booked. Additionally, routes were planned to give plenty of time to make Metra connections, even in unpredictable peak period roadway traffic.

The annual cost of the Chariot service for one branded Chariot vehicle and driver came to $98,172. The cost per vehicle and geography of the service area limited the ability to serve both the Elmhurst and Hinsdale Metra stations. Ultimately, Elmhurst was selected based on rider data indicating this was the higher demand of the two possible stations to serve.

Figure 4. Chariot Service, Oak Brook Last-Mile Mobility Pilot

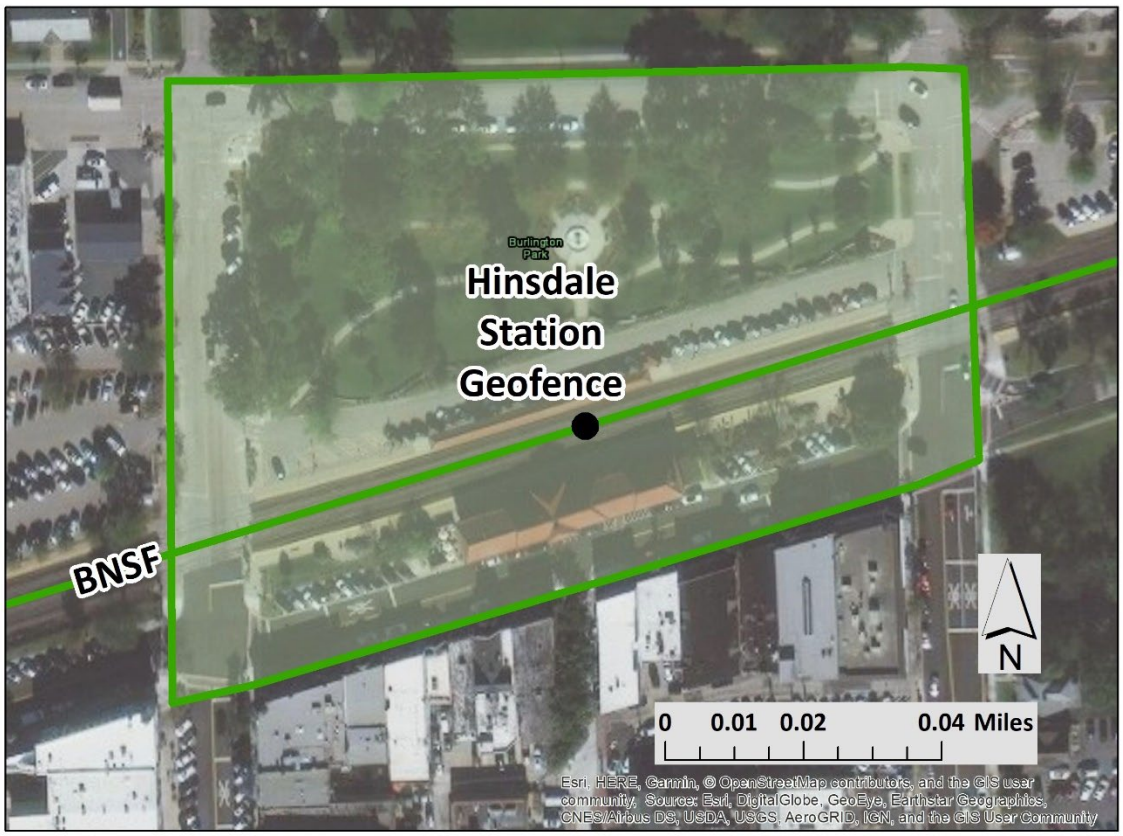


Lyft Service in Oak Brook and Bannockburn

Lyft is an app-based TNC that has been operating in the Chicago region since 2011. Like most TNCs, Lyft operations rely on contractor drivers offering their own vehicles for service. Rides are booked on-demand and the quantity of service provided is balanced with demand through pricing. While the majority of Lyft rides are served by standard private vehicles, Lyft does offer the delivery of a Wheelchair Accessible Vehicle (WAV) to accommodate ride requests within a reasonable timeframe.

The Lyft app connected riders with drivers, provided routing, and handled all payment functions for the pilot. Riders were provided a promotion code to pay the full cost (with a $25 cap) for any qualifying Lyft ride between designated Metra stations and participating properties. A geofence was created for each station and each property. For a ride to qualify, the requested origin and destination had to fall inside of the geofenced areas. The rider's smartphone location functionality then confirmed the physical accuracy. **Figure 5** shows an aerial view of the Hinsdale Station geofence. A ride originating-in or destined-to the green area (to/from a participating property) would qualify for the promotional code in the Lyft app.

Figure 5. Lyft Station Geofence, RTA Last-Mile Mobility Pilots



The advantage of the TNC model is that rides are filled completely on-demand. Any concern with aligning pick-up and drop-offs to Metra arrivals and departures is managed by the rider at

the time of request. Additionally, there is no fixed overhead cost to provide the service. Lyft only charges for the rides served. In Oak Brook this allowed the pilot to expand to the Hinsdale station and to expand hours to cover the period between 4:00 AM and 10:00 PM. The drawback to the TNC model is that there are no opportunities to scale the service. Regardless of demand, the average cost per rider is constant. Additionally, Lyft, in comparison to Chariot, was far less able to market the service to customers, survey customers for feedback on the service, or report ridership specific to individual buildings.

Key Findings

The two pilots saw modest rider activity throughout the pilot durations, with new (unique) riders dominating use at the launch of the pilot and return riders dominating usage as the pilots continued unless a major employer changed. Most riders used the services intermittently throughout a given month. The operations at both locations were received favorably by riders and partners. Neither location achieved demand that would warrant dedicated, fixed-route transit service, indicating that scalable, on-demand service such as that provided by TNCs is an appropriate mobility solution for these lower density suburban locations. The Bannockburn service was more heavily used than the Oak Brook service, likely because of the high presence of professional workers in the residential neighborhoods served by the Metra lines that were feeding that service.

In total, 3,102 customer trips were served to or from Oak Brook properties over the two-year long pilot. Chariot served 46 unique customers over 9 months of service and Lyft served 35 unique customers over 15 months of service. Unique riders per month peaked early in the pilot with 17 in the month of August 2018. Lyft unique riders peaked at 15 in the month of July 2019. Both services showed significant seasonality decreases in unique riders per month and average trips per day in the colder months of the year (January and February 2019 experienced severe polar vortex conditions which also disrupted Metra service). **Figure 6** shows average trips per day and unique riders by month for the duration of the Oak Brook pilot.

In total, Bannockburn served 2,790 trips to 64 unique riders to or from Bannockburn Lakes and the four Metra stations. November 2019 saw the biggest increase in unique riders of any month of the pilot. This increase reflected a new, large tenant, Stericyle, moving its corporate headquarters to Bannockburn Lakes. Figure 6 shows average trips per day and unique riders by month through February 2021 for the Bannockburn pilot.

Daily trips and unique riders were significantly impacted by the COVID-19 pandemic for both pilots, with no trips being requested in Oak Brook after the March stay at home order. This is in line with impact expressed in transit ridership and general travel throughout the region.

Figure 6. Average Trips per Day and Unique Riders by Month, Oak Brook Last-Mile Pilot, June 2018-June 2020

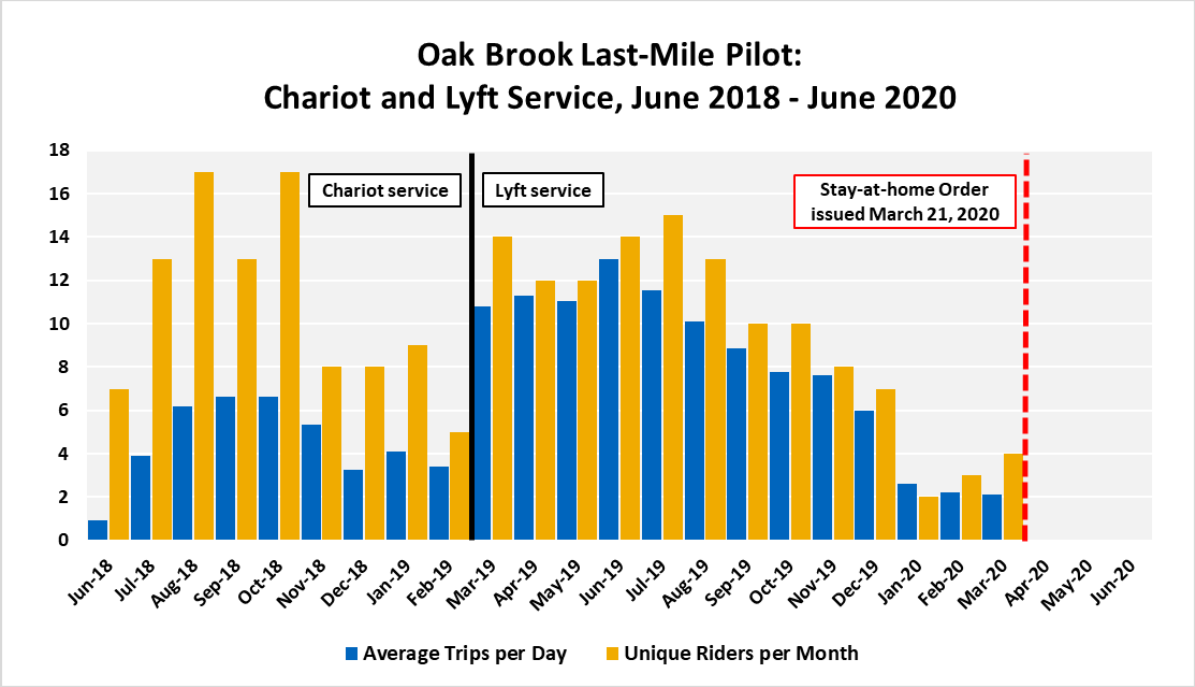
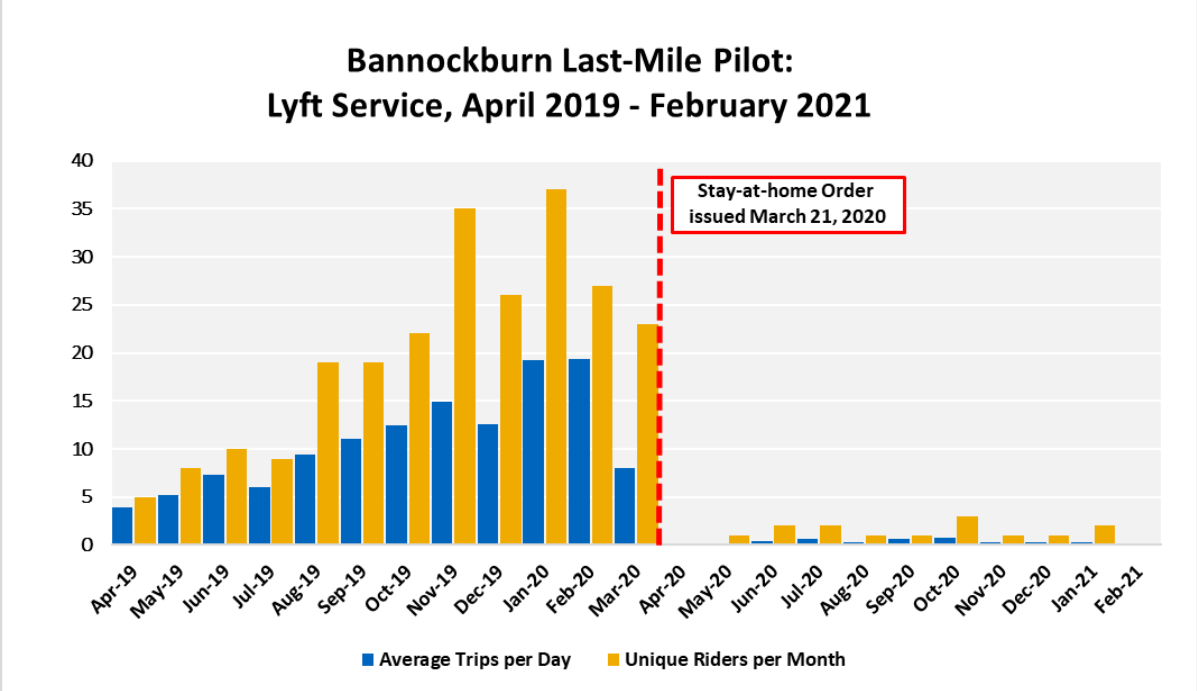


Figure 7: Average Trips per Day and Unique Riders by Month, Bannockburn Lakes Last-Mile Pilot, April 2019-February 2021



A simple cost comparison between the services provide by Chariot and Lyft for the Oak Brook Last-Mile Pilot quickly highlights the differences between the two models. Based on the actual number of trips served, Chariot is over 5 times the cost per trip. However, if the Chariot service had reached greater than 50% capacity, the cost per trip would begin to out-perform Lyft

substantially. Given that a robust market of demand was never realized for this pilot, Lyft proved far more cost-effective in serving the Oak Brook Last-Mile Pilot customers. **Table 1** shows pilot costs broken down by provider.

Table 1. Cost Breakdown by Provider, Oak Brook Last-Mile Pilot

	Chariot	Lyft
Months of Operation	8	16
Total Trips	883	2219
Total Cost	$65,448.00	$28,116.15
Cost per Month	$8,181.00	$1,757.26*
Cost per Trip Served	$74.12	$12.67*
Cost per Trip at 100% Occupancy	$6.72	n/a
Cost per Trip at 80% Occupancy	$8.40	n/a
Cost per Trip at 50% Occupancy	$13.43	n/a

*Average cost

Pace Suburban Bus operates Demand Response services throughout the six-county region, in addition to a number of other modes. Many of Pace Demand Response services operate in service areas surrounding Metra stations, providing on-demand first and last mile suburban connections. For comparison, Pace's directly operated Demand Response services produced a cost per trip of $19.21 in 2019. **Table 2** shows annual cost by trips for directly operated services, 2019. Table 2 does not include Demand Response purchased transportation, ADA paratransit, or Demand Response – Taxi services.

Table 2. Cost Breakdown, Pace Suburban Bus Directly Operated Demand Response, 2019

	Pace Demand Response
Total Annual Trips	47,435
Annual Operating Cost	$911,349
Cost per Trip Served	$19.21

Source: National Transit Database (2019)

Lessons Learned

In both Oak Brook and Bannockburn much was learned about the reverse commute market and how to best both fund a pilot and partner with private companies to deploy the correct tools to meet demand. While the Oak Brook Last-Mile pilot never commanded a level of demand to maintain a cost-effective shuttle style service such as the service operated by Chariot, in both Oak Brook and Bannockburn, Lyft proved to be a useful private partner in providing cost-effective last-mile transportation to Metra riders accessing job locations. The following section includes lessons learned in planning and implementing a suburban last-mile pilot that other municipalities and employers can use in developing future efforts throughout the region.

1) **The TNC model is a great tool for serving a relatively low demand, sprawling last-mile service area**. While cost comparisons will show the ceiling of cost-effectiveness to TNCs, the pay-for-what-you-use design is appropriate for low-demand market segments that can grow into a larger service over time.

2) **The on-demand shuttle service, with a dedicated vehicle and driver, requires substantial demand to be a cost effective last-mile solution.** Unless there are significant changes to existing conditions (i.e. a large new development or employer, limitations on parking, transit dependent workforce, or incentives to commute via transit) it is unlikely an on-demand shuttle will be the best tool to deploy to sprawling suburban locations.

3) For commercial properties considering a last-mile service, **communication with customers is key**. Property managers should work with tenant employers to ensure that the service is promoted well and that customers know how to utilize the service. With both pilots, communicating with customers proved challenging.

4) In planning a service, **consider the total cost of the trip,** both in terms of Metra or other transit fare plus the last-mile service and in terms of the externalities of private auto use such as the cost of providing parking. Additionally, property owners and employers should promote the last-mile connection as a building amenity, allowing employers to access a larger work force and as a tool to retain current employees.

5) Lastly, **know your market.** The last-mile was the focus of these efforts but the first-mile is important too. Oak Brook is served by the UP-West and BNSF lines, both lack residentially developed stations in the city of Chicago and a mature reverse commute market. In comparison, the UP-North and MD-North Metra lines serving Bannockburn Lakes have existing reverse markets, accounting for 50% off all Outbound AM-Peak Metra riders.

Conclusion

Both the Oak Brook and Bannockburn pilots were successful in testing partnerships with new mobility companies and in testing how the RTA can partner with municipalities to offer new, innovative transportation services to employers. The lessons learned in Oak Brook and Bannockburn will inform future efforts by the RTA and others throughout the region. The challenges of lower density, suburban travel markets remain but the TNC model is a solution to match limited demand with supply without carrying substantial overhead costs.