Changes in mobility were underway even before COVID-19

This policy brief is the fourth and final piece in a series that explores data from the Chicago Metropolitan Agency for Planning's (CMAP) most recent regional travel survey, My Daily Travel. My Daily Travel is CMAP's fifth travel survey, a primary-source data collection undertaken every decade to generate a detailed picture of how and why people travel within northeastern Illinois. It draws from a representative sample of more than 12,000 regional households.

This policy brief examines what that data can reveal about new and emerging trends in mobility. It explores the trajectory of two modes new to the survey: the rapid growth of transportation network companies (TNCs) like Uber and Lyft and the emergence of Divvy and other bike-sharing systems into the region. Previous pieces in this series explored everyday travel behavior, disparities in travel experiences, and the impacts of pre-COVID telecommuting patterns on regional travel behavior.

Note on COVID-19: The My Daily Travel survey reflects travel patterns and preferences in the region, as of 2019, prior to the COVID-19 pandemic. Although patterns have changed in response to the pandemic, this 2019 survey can reveal long-term travel trends that may reassert themselves as recovery continues.

Key findings

- The growth of ride-hailing services like Uber and Lyft, fueled by the ease of technology, appears to have displaced taxi ridership, which fell significantly between 2008 and 2019. Although TNC ridership was greatest in Chicago, suburban residents also extensively used these services.
- When compared to other regional travelers, white travelers were much more likely to report using TNCs for non-work trips, such as dining or recreation.
- The region's younger travelers were the most reliant on TNCs, with 18- to 29-year-olds reported taking an average of nearly one trip a week.
- Bike-share services, such as Divvy, filled their own transportation niche. Bike share skewed more heavily toward trips to or from work compared to personal bike trips.

Northeastern Illinois travelers typically can expect their experience using the region's transportation system to remain similar over time. For most trips in 2019, travelers relied on the same cars, buses, trains, and sidewalks that they had in previous years. 2020, of course, was not a typical year. But even though the rate of change before the pandemic was not as dramatic as after it began, important shifts were already underway. The My Daily Travel survey provides a pre-pandemic baseline that planners and policymakers can use to better understand these trends in the months and years ahead.

One crucial development in the decade between My Daily Travel and CMAP's prior household travel survey was the emergence of new modes, including TNCs like Uber and Lyft and bike-share systems such as Divvy. These modes still represent a relatively small component of the overall travel happening in the region, but they grew from nothing in 2008 to hundreds of thousands of trips each day in 2019. This policy brief will explore the emergence of these modes, as well as who is using them and why.

Residents rely on TNCs more than taxis

CMAP has previously written about TNC ridership patterns in Chicago, based on data provided by the city. However, Chicago's data only includes TNC trips that start or end within the city's borders. It does not include the smaller, but still significant, number of trips that start and end outside Chicago. These trips include travel within and between suburban municipalities. My Daily Travel suggests those suburban trips represented 12 percent of all TNC trips in the region before the pandemic. However, the lack of trip data outside Chicago prevents deeper understanding of the characteristics of suburb-to-suburb TNC trips. To fully understand how rideshare is affecting mobility in the region and across Illinois, public officials must gain access to comprehensive TNC data.

This mode, which had only begun to emerge at the time of CMAP's last travel survey in 2008, accounted for three quarters of a percent of all regional trips in 2019. As shown in the chart below, the growth in TNC ridership more than offset the sharp decline in taxi ridership, which fell significantly between 2008 and 2019. After combining individual TNC rides with shared TNC trips — those taken in services like UberPool and Lyft Line — total ridership was more than three times as much as taxi ridership was in 2008. In 2019, total TNC ridership was more than six times as much as taxi ridership.[1]

Taxi ridership fell significantly between 2008 and 2019, but transportation network company (TNC) trips more than made up the difference.

Note: Includes "rideshare" and "shared rideshare" trips by residents age 5 and older of the CMAP seven-county region, Grundy, and DeKalb. The reported regional totals for both taxi and TNC trips in My Daily Travel are less than those captured in the City of Chicago's data on TNC and taxi trips. This may be due to the exclusion of non-resident trips and/or other survey design factors.

Sample size:
- Taxi, 2008 (342);
- Taxi, 2019 (125);
- TNC, 2019 (879).

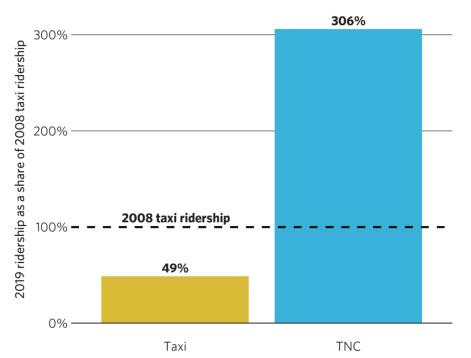Source: Chicago Metropolitan Agency for Planning analysis of My Daily Travel and Travel Tracker data.

Figure 1

If TNCs continue to grow as the region recovers from the pandemic, congestion and transit ridership could be affected significantly. In response to concerns about the impacts of this growth, Chicago officials implemented a surcharge on TNC trips that start or end in the downtown area. Recent research also has highlighted that increased TNC ridership before the pandemic began could have contributed to both increased congestion and declining transit use. Other research has highlighted that bus ridership may have been especially affected.

The My Daily Travel survey also asked respondents about their general use of TNCs, regardless of whether they used them on their recorded travel day. The responses allow for a more nuanced understanding of reported TNC ridership throughout the region.

Respondents revealed they most often used TNCs for non-work-related travel. Nearly two-thirds of regional travelers reported relying on TNCs most commonly for late night or daytime non-work travel. However, those proportions varied significantly by race and ethnicity. Non-white travelers were the likeliest to report using TNCs for travel related to their work.
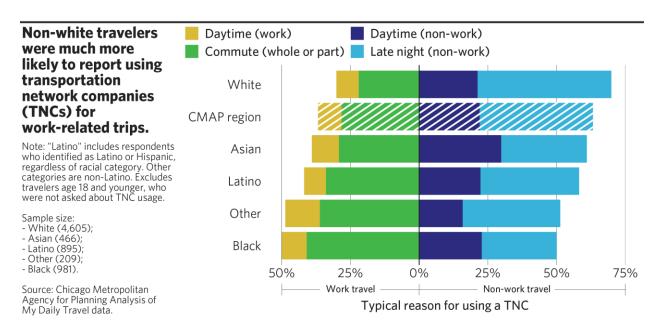
Non-white travelers were much more likely to report using transportation network companies (TNCs) for work-related trips.

Note: "Latino" includes respondents who identified as Latino or Hispanic, regardless of racial category. Other categories are non-Latino. Excludes travelers age 18 and younger, who were not asked about TNC usage.

Sample size:
- White (4,605);
- Asian (466);
- Latino (895);
- Other (209);
- Black (981).

Source: Chicago Metropolitan Agency for Planning Analysis of My Daily Travel data.

Legend:
- Daytime (work)
- Commute (whole or part)
- Daytime (non-work)
- Late night (non-work)

Categories (top to bottom): White, CMAP region, Asian, Latino, Other, Black

Axis: 50% — 25% — 0% — 25% — 50% — 75%
Work travel ← → Non-work travel
Typical reason for using a TNC

Figure 2

Residents in northeastern Illinois reported taking an average of between one and two TNC trips a month. Reported TNC ridership was by far the highest among Chicago residents, who reported taking close to one trip a week. However, many residents in the rest of the region also were using these services. In suburban Cook County, residents reported relying on TNCs about once a month, making these services an occasional but still regular part of the transportation ecosystem. By contrast, in less dense counties, such as McHenry and Kendall, residents rarely relied on TNCs. Residents there averaged about only two to three trips a year.
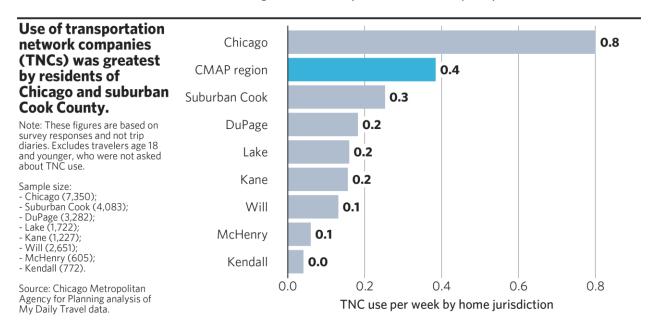
Use of transportation network companies (TNCs) was greatest by residents of Chicago and suburban Cook County.

Note: These figures are based on survey responses and not trip diaries. Excludes travelers age 18 and younger, who were not asked about TNC use.

Sample size:
- Chicago (7,350);
- Suburban Cook (4,083);
- DuPage (3,282);
- Lake (1,722);
- Kane (1,227);
- Will (2,651);
- McHenry (605);
- Kendall (772).

Source: Chicago Metropolitan Agency for Planning analysis of My Daily Travel data.

Jurisdiction	TNC use per week
Chicago	0.8
CMAP region	0.4
Suburban Cook	0.3
DuPage	0.2
Lake	0.2
Kane	0.2
Will	0.1
McHenry	0.1
Kendall	0.0

TNC use per week by home jurisdiction

Figure 3

The people who used TNCs also varied. As shown below, the region's youngest adult travelers reported taking between three and four trips a month, while those 60 and older reported taking a trip once out of every 10 weeks. The youngest TNC users also reported paying the lowest average fares ($12 per trip), with average costs typically increasing with age. The cost differences could be due to younger travelers being more likely to take the lower-cost shared TNC option, although the survey did not ask respondents about what type of TNC they most commonly used. It also could be a result of other factors, such as where younger versus older residents tend to travel.
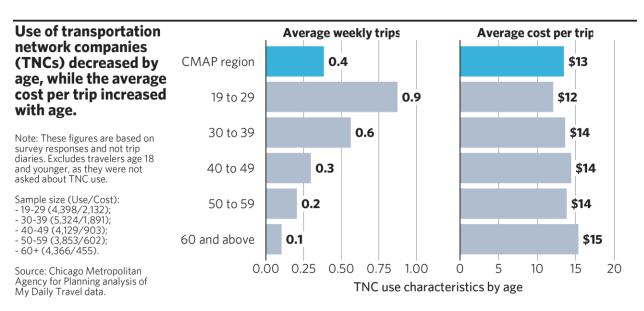

Use of transportation network companies (TNCs) decreased by age, while the average cost per trip increased with age.

Note: These figures are based on survey responses and not trip diaries. Excludes travelers age 18 and younger, as they were not asked about TNC use.

Sample size (Use/Cost):
- 19-29 (4,398/2,132);
- 30-39 (5,324/1,891);
- 40-49 (4,129/903);
- 50-59 (3,853/602);
- 60+ (4,366/455).

Source: Chicago Metropolitan Agency for Planning analysis of My Daily Travel data.

Average weekly trips / Average cost per trip

	Average weekly trips	Average cost per trip
CMAP region	0.4	$13
19 to 29	0.9	$12
30 to 39	0.6	$14
40 to 49	0.3	$14
50 to 59	0.2	$14
60 and above	0.1	$15

TNC use characteristics by age

Figure 4

In addition to characteristics like age and home location, other factors, such as smartphone ownership and transit ridership, also positively correlated with TNC use.[2] Transit ridership particularly is interesting. It could point to the travel patterns of a multimodal resident who uses various modes for their travel needs. However, it also could reinforce the research referenced above. TNC trips, instead, could replace trips that otherwise would be made by transit.

Local officials should pay close attention to developments in TNC use. Chicago's data shows that ridership for those Chicago-based trips has gradually risen since April 2020 — a trend that may accelerate in the future as the region reopens. As ridership rebounds, how these services affect issues like transit ridership, congestion, and emissions once again will become a priority. Across the region, planners and policymakers must monitor these impacts, so that they can best enable transportation benefits while mitigating potential negative consequences.

Bike share fills a different niche

Bike-share systems also are new to the My Daily Travel survey. These systems allow travelers to rent bicycles quickly and relatively affordably using kiosks or mobile applications. Since CMAP's 2008 travel survey, these systems have emerged throughout the region. For example, Divvy bikes are a common sight in Chicago and Evanston. Systems exist outside Cook County, too, including the Koloni Fox Valley Bike Share in the western suburbs and the Grayslake Bike Share in Lake County. Like TNCs, this new mode represented a small share of overall travel in 2019 — slightly less than 0.1 percent of all regional trips, with Chicago residents using bike-share systems the most. In comparison, trips made by personal bike were more than 10 times as high — representing 1 percent of all trips.

Although the sample size limits in-depth analyses, the trip diaries in My Daily Travel suggest that riders tended to use bike share and personal bikes for different purposes. In particular, bike share skewed more heavily toward trips to or from work (77 percent), compared to personal bike trips (40 percent).[3] Bike share also had a higher rate of connections to other modes. This is consistent with recent research that has found a connection between the introduction of bike-share systems and increased use of biking to commute to work. It also highlights the role bike-share systems can play in multimodal trips, connecting travelers to other sustainable modes like transit.

The My Daily Travel survey also allows for a more nuanced understanding of bicycle travel patterns over an average day. As shown below, personal bike trips appeared to have the highest concentrated use in the morning. This was especially true of non-work trips, which did not have the same morning and evening peak pattern displayed by work trips.

Overall personal bike usage was highest during the morning peak, although work trips have similar morning and evening peak profiles.

Note: Trips in motion are 85-minute rolling averages. Includes trips by residents age 5 and older of the CMAP seven-county region, Grundy, and DeKalb. Includes only trips that were within, to, and/or from one of those counties.

Sample size: Figures are based on a total of 1,513 records.

Source: Chicago Metropolitan Agency for Planning analysis of My Daily Travel data.
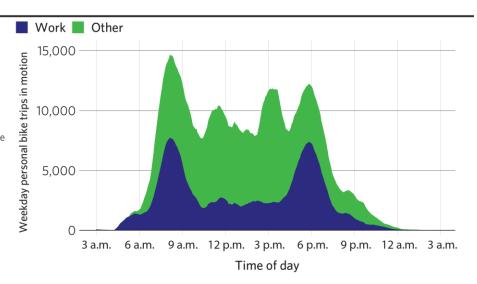
Figure 5

Chicago residents also were more likely to rely on personal bikes for work-related trips than were other residents in the region. Nearly half of all bike trips made by Chicago residents were part of a journey to or from work. For other residents of the region, that figure was roughly a

third. That figure — one in three — is still a significant share. But it indicates that in suburban parts of the region, residents relatively are more likely to use bikes for other trip purposes, such as outdoor recreation.

Divvy ridership was significantly higher in the afternoon peak, especially for non-subscribers.

Note: Trips in motion are 25-minute rolling averages. "One-time user" refers to Divvy customers that purchased a single ride or a day pass. Trips that were in motion as of 2:55 a.m. and ended after 3:00 a.m. are captured only on the right side of the graph.

Source: Chicago Metropolitan Agency for Planning analysis of Divvy ridership data for weekdays between Sept. 4, 2018, and May 9, 2019, excluding all federal holidays and the weeks of Nov. 19, Dec. 24, Dec. 31, and Apr. 15.

Figure 6

The My Daily Travel survey did not have enough bike-share trips to complete a comparable analysis. However, Divvy publishes comprehensive records of its ridership. The Divvy system also represents the vast majority of the region's bike-share ridership, enabling a comparison of the time-of-day patterns of personal bikes versus bike-share. That comparison reveals, in contrast to personal bikes, Divvy use was highest in the afternoon. Mid-day Divvy use also was much lower relative to its morning and evening peaks than that of personal bikes.

While Divvy ridership figures do not capture the purpose of the trip, they do include whether the rider was an annual subscriber or a one-time customer. Subscribers, who are the likeliest to rely on Divvy for commutes to or from work on a regular basis, displayed strong morning and evening peak behavior. But the predominance of the afternoon peak suggests some subscribers might have been taking advantage of a benefit of bike-share systems. They had the ability to choose a bike for just one leg of a two-way trip.

Unlike many transportation options, bike-share and more generally, biking, saw increased demand during the pandemic. CMAP previously has written about this surge in interest, as Divvy expanded its system and travelers turned to modes that did not require spending time in shared and enclosed spaces.

In 2020, Divvy also began to deploy electric bikes, also known as e-bikes. The popular new option was not available when CMAP collected data for My Daily Travel. These bicycles use an electric motor to augment pedaling. Users also can lock these bikes to a standard bike rack, instead of only at a Divvy station. E-bikes allow Divvy users to take longer journeys and make it

easier to travel to areas where docking stations are less frequent. They are also introducing residents in northeastern Illinois to a technology that may become more common in coming years, particularly if the federal government moves ahead with proposals to subsidize their adoption.

Even after the pandemic, bikes and bike-share will continue to provide healthy and sustainable ways to travel around the region. The demand for these modes may maintain the strong interest seen since the pandemic began. However, demand also could fall, as traffic returns to roads and some pre-pandemic habits reassert themselves. Even as the effects of the pandemic subside, public officials can implement policies that make bicycles — whether personal, shared, electric, or pedal-powered — are a more realistic option for all the region's travelers.

Looking ahead

In the decade between My Daily Travel and CMAP's 2008 travel survey, the region saw significant mobility shifts. These included both the rapid growth of TNCs and the emergence of bike share as an option for many of the region's residents. Between today and CMAP's next travel survey, the region will experience more changes. Changes like vehicle electrification or more widespread adoption of shared scooters and other modes likely would have happened even without the disruption caused by the pandemic. That disruption, however, provides public officials with an opportunity to shape the future of the region's mobility system. As they do so, those officials should draw lessons from the changes of the last decade.

First, even as new modes and options have emerged, the vast majority of the region's travelers still rely on the same transportation assets as in years past — cars, buses, trains, bikes, and sidewalks. This will continue to be the case in the coming years. Public officials must continue to invest in traditional modes, even as they find ways to accommodate new developments. These strategies could include investments that make roads safer and more comfortable for pedestrians and bicyclists. New bike lanes and multi-use paths, better connections to key destinations, and "complete streets" approaches all can make roads safer for everyone. It also could include increasing the attractiveness of multimodal trips, such as better integration and coordination between new and traditional modes like bike share and transit.

Second, policymakers need access to comprehensive data when evaluating new transportation options. Chicago's data on transportation network providers and Divvy's trip-level records both demonstrate the usefulness of this data. Despite their scope, neither these datasets nor the My Daily Travel survey can tell the complete story of regional travel. A more comprehensive regional dataset on TNCs created through state legislation could better identify the impact these services have on the region, such as changes to congestion or transit ridership. Similarly, new data on bicycling could highlight where and when bicyclists are using existing transportation networks, as well as where they might not be because of safety concerns. To enable better decisions, public officials should work to gather more data on existing modes and ensure such data is available for any new modes that arrive in the coming years.

Finally, any new transportation options should be considered for adoption based on how well they address existing challenges, such as promoting inclusive growth, making transit more competitive, and reducing carbon emissions. For example, local leaders in Bedford Park are collaborating with Cook County, the Regional Transportation Authority, Uber, and Via to increase transportation options for local workers by offering TNCs and on-demand shuttle services. Public officials should continue to innovate the existing transportation network, while encouraging and enabling residents to use sustainable modes for other trips. More generally, rather than shape the region to fit the needs of new technologies, public officials should shape the deployment of these technologies to fit the needs of the region. This approach would support the goals of ON TO 2050, with a more sustainable, accessible, and equitable mobility system for all residents.

Actions for public officials

- Require TNC providers and other operators of new and emerging modes to report data about regional and state trips to enable more frequent and comprehensive analyses of travel patterns.
- Leverage pilot projects to understand the potential effects of new transportation technologies and how they can solve mobility challenges.
- Support multimodal trip-making. This could include better integration of transit with other sustainable modes like bike share and enhancements to bicycle and pedestrian connections around transit stations to allow more travelers to use non-car modes.
- Invest in new bike infrastructure to sustain growth in this mode, even after the region has recovered from the pandemic.
- Continue investing in critical and foundational transportation assets, such as sidewalks, bus stops, and complete streets, while accommodating new and emerging technologies that support regional mobility.

About the data

Unless otherwise cited, the analyses in this series of policy updates rely on the data from CMAP's My Daily Travel (2019) and Travel Tracker (2008) surveys. Both surveys are available on CMAP's Data Hub. CMAP used R, a free open source statistical package, to analyze the data. The R scripts used to perform these analyses are available on CMAP's GitHub page. In addition to these scripts, the GitHub page includes information about the assumptions used and data exclusions applied. Partners are encouraged to use and build on this analysis to better understand travel dynamics relevant to their constituents and stakeholders.

[1] These figures may actually understate the growth in TNCs. Most importantly, the My Daily Travel survey collected only weekday travel behavior. Chicago's data on Transportation Network Providers (TNP), a category that includes TNCs, shows that Saturdays are an especially high-ridership day for TNCs. The total number of TNC trips captured in the My Daily Travel data is less than Chicago's TNP data from the same time period would suggest, even accounting for the exclusion of weekend travel. One additional source of this discrepancy could be that the My Daily Travel survey does not capture travel by out-of-region residents, who might disproportionately rely on services like TNCs, particularly if they arrived in the region without a vehicle.

[2] Smartphone ownership was associated with 0.31 more TNC trips/week, and each transit trip that day was associated with 0.14 more TNC trips/week. This was true even after controlling for income, race/ethnicity, number of household vehicles, and residence in Cook County.

[3] There are 176 records of trips taken by bike share and 1,513 records of trips taken by personal bikes.