



Mass Transit Rider Research Report

Key Factors Influencing Ridership in North America

The Emerging Urban Mobility Ecosystem

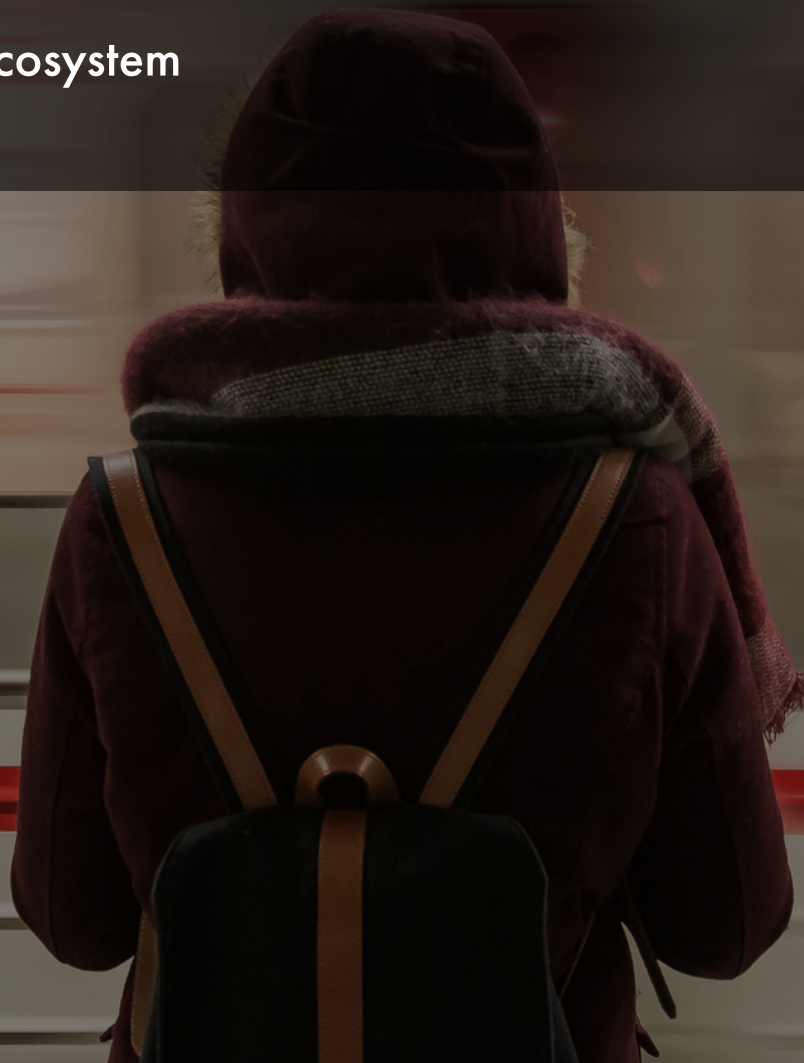


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Methodology

We issued a Google Surveys poll in the fall of 2017 to a diverse group of over 1000 US residents in order to gain an overview of the trends taking place in regards to public transit ridership across North America. The survey included both people who use public transit services and those who do not. All respondents however did have access to public transit services, those who did not have access were excluded from taking the survey.

The survey was conducted to ensure a true cross section of the US population were represented, with relatively even splits between different age categories, geographies and gender. Overall, slightly more males took the survey and those over age 65 are slightly underrepresented compared to other age categories. A full breakdown of the findings is in the appendix and a full copy of the raw data can be requested (details in the appendix section). In the report we use the term 'rideshare' to refer to companies like Uber and Lyft which are often referred to as ride-hailing companies as well.

Throughout this report, we will distinguish between topline findings, which reflect the answers of all 1000 respondents and are statistically significant, and crosstab findings, which dive into the responses from smaller segmented groups. These results help reveal interesting trends taking place, but more research will be needed using a larger sample size to reveal the true extent of these crosstab trends. The purpose of showing both is two-fold:

- » Topline findings: To isolate the macro trends that are currently impacting public transit ridership.
- » Crosstab findings: To indicate subgroup trends taking place, which highlight behaviour taking place and may spur others to conduct more in-depth research.

Executive Summary

Key Findings

Public transportation networks across North America are at a crossroads. Ridership is declining, but the importance of Mass Transit in reducing congestion and increasing economic prosperity has arguably never been so important. This has prompted innovative cities and transit agencies to explore new public/private partnerships which are helping buck the national ridership trend.

Given the rapidly changing transit landscape, we wanted to better understand the motivations and behaviors of public transit riders in North America. In doing so, we hoped to gain insight into the decline in public transit ridership as well as the various services and technologies that riders are using.

We issued a survey to a diverse group of over 1000 US residents who have the option to ride public transit, but who don't necessarily do so. Our results produced findings that give unique insights into how public transit agencies can stem declining ridership and attract new riders.

Topline findings include:

» Citizens are mostly optimistic about public transit services

- ▶ 32% report that their local transit options are improving, while only 19% of all respondents say the quality of their local transit is declining. The remainder believe it is staying the same.
- ▶ Weekly rideshare riders are even more likely to say their local public transportation is improving, at 37%

» Public transit is still massively underutilized

- ▶ 70% of our respondents drive themselves on at least a weekly basis, while 40% never use public transit despite having access

» Convenience is the top priority for passengers when choosing to ride public transit

- ▶ More than price (24%), travel time, and even necessity (17%), convenience is the number one motivator, with 33% of respondents selecting it as their primary reason for riding

» Ridesharing is connecting public transit for many, facilitating multimodal journeys

- ▶ Over one third (35%) of our respondents are now combining rideshare with public transit to reach a destination on at least an occasional basis, while 7% are combining ridesharing with public transit on at least a weekly basis.
- ▶ 19% of all respondents are using public transportation every week, with 9% now using ridesharing every week
- ▶ 9.2% of all respondents are using ridesharing instead of public transit on at least a weekly basis

Crosstab analysis points to:

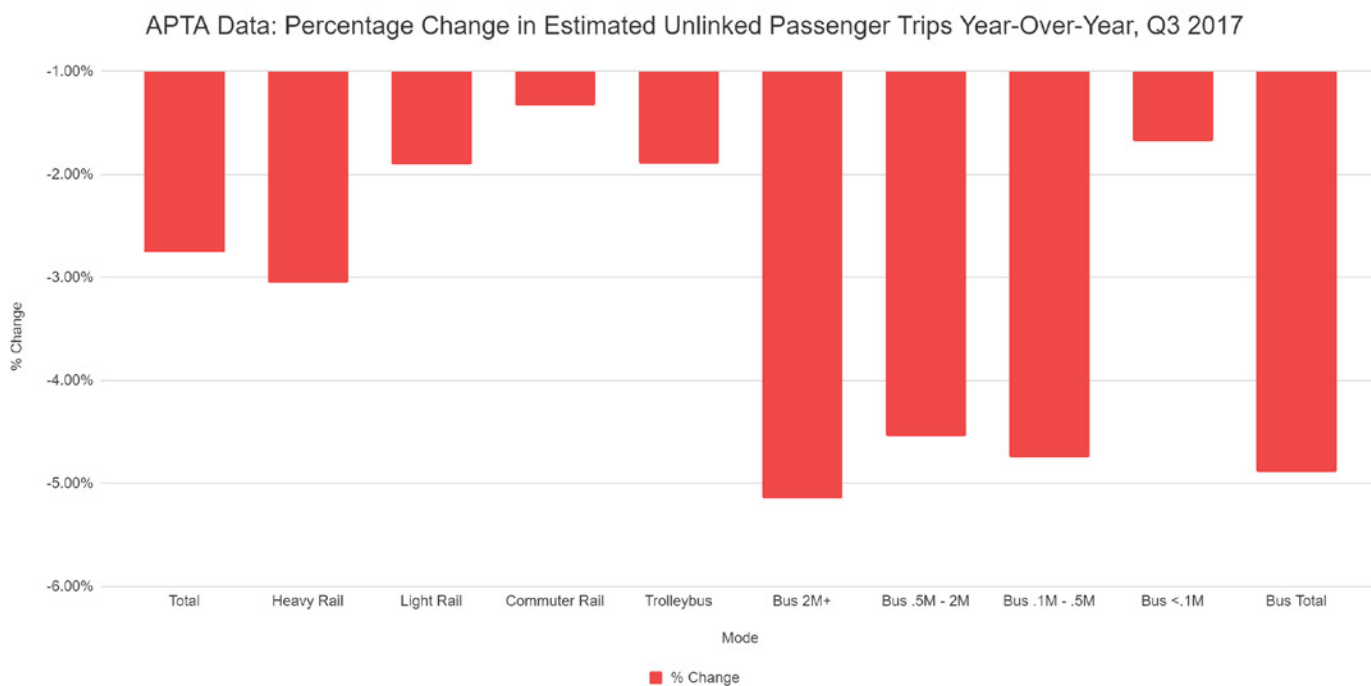
» Private car ownership vs. ridesharing and public transit: The use of shared mobility services vastly increases the likelihood of riding public transit, pointing to a growing urban mobility ecosystem.

- ▶ 80% of weekly drivers never use public transit, while 95.5% of weekly rideshare riders use public transit, pointing to a future of reduced car ownership in favour of public/private urban mobility options.

Introduction

Public transit has reached an inflection point. The American Public Transportation Association's latest ridership report shows an overall decline of 2.88% across all modes of public transit year-over-year, and the trend shows no sign of slowing. Looking at the topline data, it's easy to see a picture in which riders are turning away from transit systems in favor of either ridesharing services or their own cars powered by cheap gas, causing additional congestion.

Breaking the data down by mode, we observe the following:



The greatest declines were observed in large city bus systems, while bus systems serving fewer than 1 million annual passengers and commuter rail saw negligible declines in ridership.

There are also a number of bright spots. Digging into the city-by-city statistics reveals a few major agencies that are bucking the trend and showing ridership increases. The most noteworthy are New York's Metro-North and LIRR, Columbus and Seattle. Increases in these major systems show that the overall declines in the APTA data are not necessarily indicative of what's occurring in every city, and that it is still possible for agencies to increase ridership.

So - what's behind the macro ridership trends? How do potential riders view their local transit options, and is there anything that cities and transit agencies can do to make riding public transit more appealing to citizens?

Of course, we suspected that there would be no simple answers to these questions, and found that the many elements of urban transportation today - both public and private - are more intertwined than many would imagine. We also found that little things can have a big impact on the transit options that citizens choose, and that convenience is ultimately the biggest motivator for people who now have more transportation options to choose from than ever before.

Yet, public transit is underutilized and underfunded and roads are bearing the brunt of congestion as a result. This report will outline not only some of the causes behind the underutilization, but also point to opportunities for ridership growth that could ease road congestion and enable more seamless transit experiences.

Rider Perception

Comparing Options

According to the survey findings, nearly 70% of the Americans with access to public transit that we surveyed drive themselves on a weekly basis, representing a huge growth opportunity. Further, looking at the charts below, over 40% of those surveyed never ride any public transportation, despite having the option. While not surprising, these topline numbers are critical to understanding the current state of public transportation in North America; significant portions of the population elect single-occupancy rides instead of more economical and environmentally friendly public transit, even when they have public transit available to them, leading to the current state of congestion and overcrowding on our roads and highways.

Chart 1: How often do you use public transit services such as the subway, train, bus or ferry?

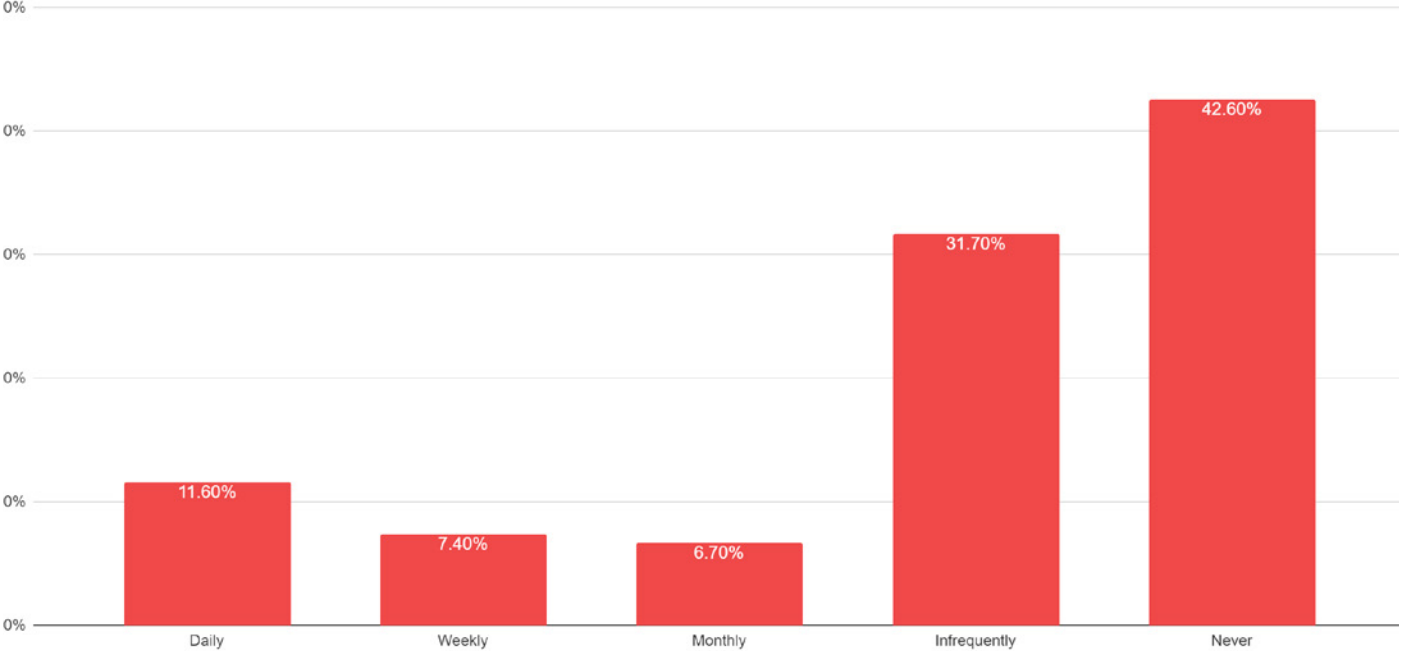
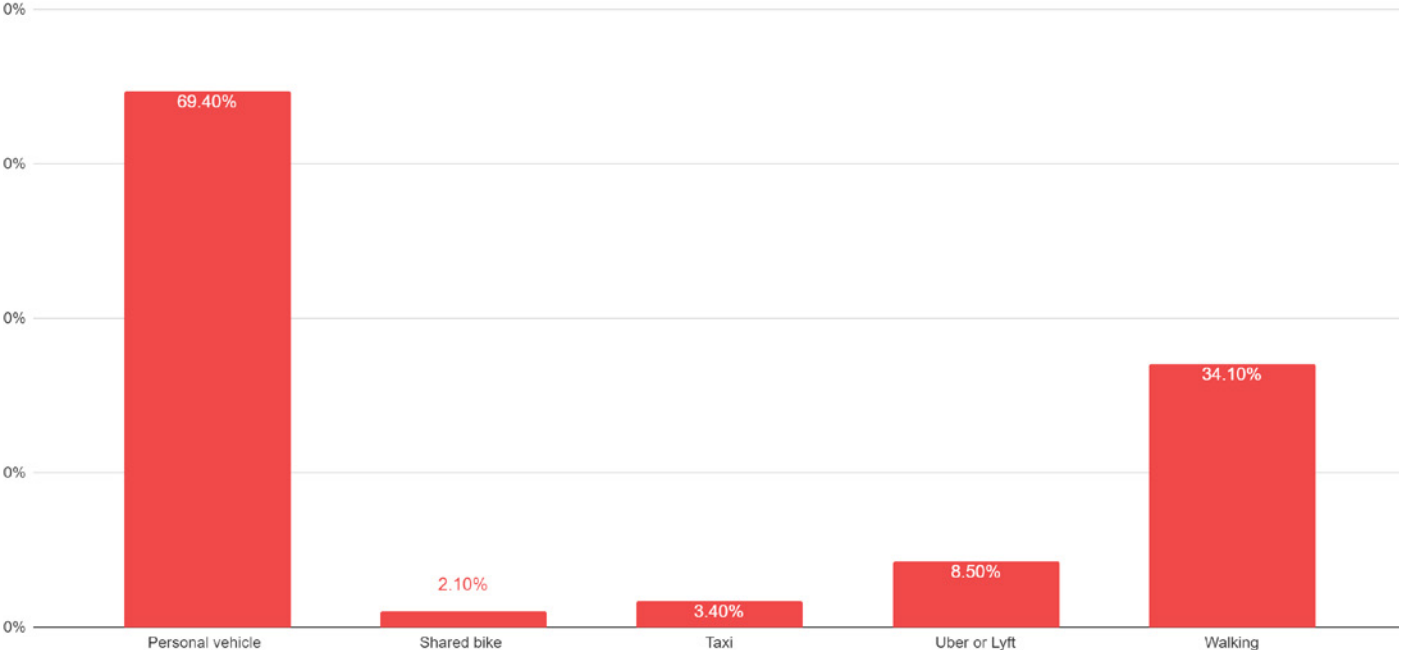
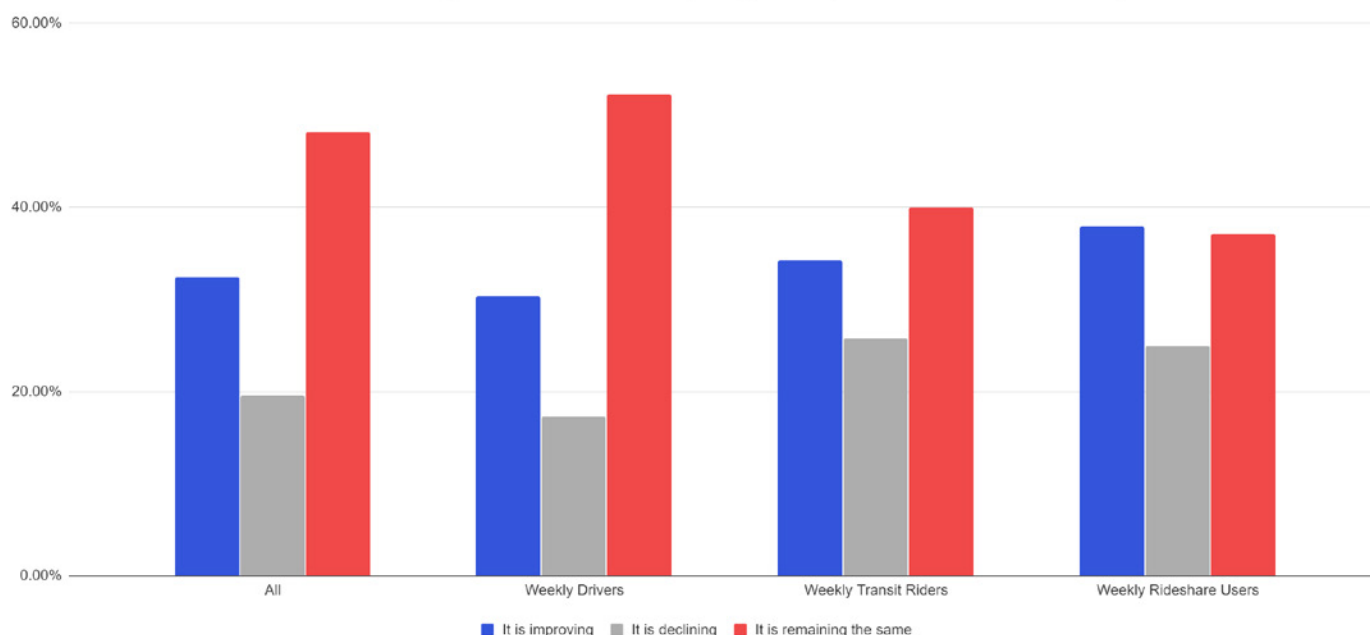


Chart 2: What other type(s) of transportation do you use on at least a weekly basis?



Many media depictions would have us believe that preference for single occupancy vehicles is dictated by the rapidly deteriorating state of public transit infrastructure. However, when we polled riders to see if their perceptions of public transit aligned with this depiction, the results suggested otherwise. Instead of highly negative opinions about the quality of public transit amongst our respondents, the majority responded either that the quality of their public transit service was remaining the same or improving.

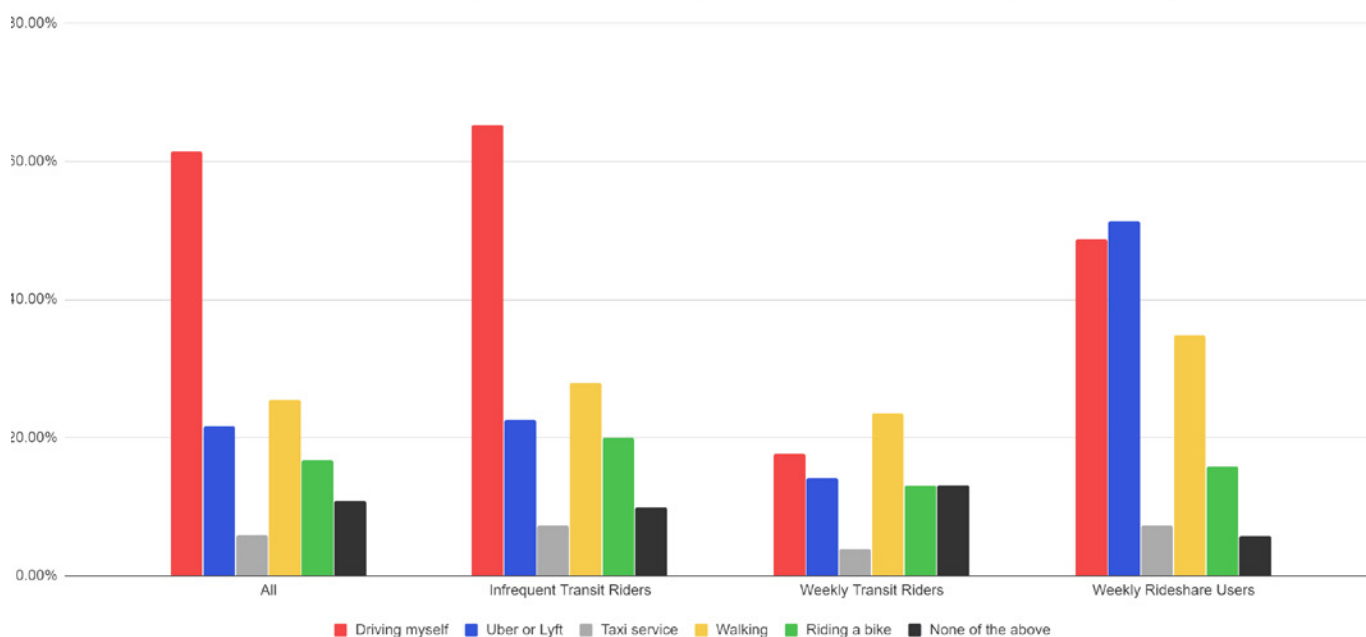
Chart 3: How would you characterize the quality of the public transit available to you?



Across all consumers with access to public transit, less than 1 in 5 believe that their local transit systems are decreasing in quality, while more than 1 in 3 think they are improving. Further, we found that the riders we surveyed who utilize transit and rideshare frequently are more likely to hold more positive or negative sentiments towards their local systems than infrequent riders, suggesting that those with more exposure to public transportation may be likelier to be opinionated about it. This is also reflected in the majority of weekly drivers that hold neutral opinions.

Digging deeper into public transit perspectives, not only do most consumers not believe their local public transit is declining in quality, most view the riding experience relatively favorably as well.

Chart 4: Which of the following transportation options do you feel provide a better experience than public transit?

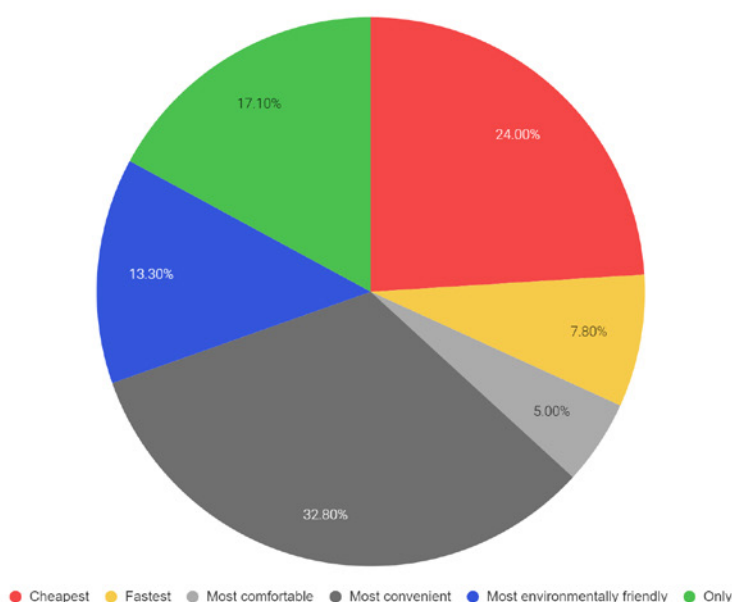


When it comes to grading the public transit experience, our respondents that ride public transit more often are the likeliest to rate the experience highly against other transportation options. While over 60% of all respondents - a statistically significant portion - as well as 60% of the infrequent public transit riders group, report that driving provides a better experience than public transit. For those respondents who are frequent public transit riders, that number drops to below 25%. For that same segment, no other mode of transportation we asked about broke through 20% in terms of providing a better experience.

It appears that consumers' ranking of experience aligns very closely with their chosen mode of transportation. While half of the weekly rideshare users we surveyed say that ridesharing provides a better experience than public transit, that number drops to 14% for weekly transit riders and around 20% for all respondents and infrequent transit riders. This, taken with our topline findings that found fewer than 1 in 5 believe their public transit options are declining in quality, suggests that most consumers do not tend to view the public transit experience negatively.

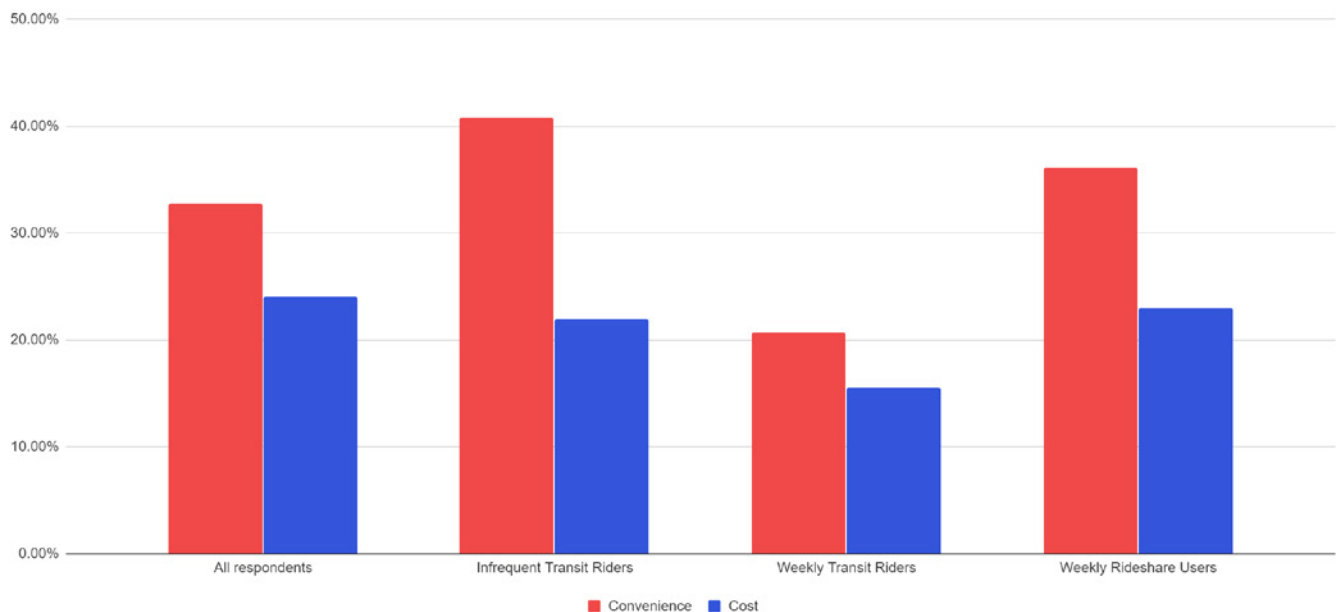
If not the ridership experience, what influences consumers - particularly those who aren't relying on personal vehicles - to choose one transit option or another? The answer boils down to convenience.

Chart 5: "I primarily use public transit because it is the _____ option"



Convenience, more than cost and necessity, is the number one driver behind public transit ridership across all our respondents. This becomes even more pronounced when we break down the results and look at why consumers with multiple transit options at their disposal ride public transit.

Chart 6: Convenience vs. Cost



The statistically significant finding here is that convenience outweighs cost for all our respondents by about 10 percentage points. Digging into subgroups of respondents, daily and weekly transit riders who we surveyed - those who rely on transit the most - are the least motivated by convenience, likely because they're constrained in terms of their transit options.

However, when it comes to respondents who frequently use other transit modes, our findings suggest that convenience becomes an even bigger motivator.

This is absolutely critical for anyone interested in improving public transit to understand. Riders with multiple options for transportation - the ones that are most rapidly reducing their reliance on public transit - are concerned first and foremost with convenience, not cost or comfort. While this means that public transit agencies are vulnerable to losing riders to more convenient options, it also means that even minor improvements in convenience can boost ridership numbers - something we'll dive deeper into later in this report.

Overall, this section demonstrates that riders are pragmatic - they choose the transit option that gets them from A to B most effectively. For most Americans with access to public transit, that still means exclusively driving themselves - 80% of weekly drivers never use public transit. However, only 4.5% of the weekly ridesharing riders we surveyed never use public transit - suggesting that there may be a growing segment of convenience-motivated urban transit users that combine multiple transportation options to reach their destinations.

While some of this may sound like common sense, the fact that many riders are highly motivated by convenience is often overlooked when new services like ridesharing are compared to public transit systems.

Ridesharing

Part of the urban mobility ecosystem

Despite ridesharing's surge in popularity over the past few years, very little is known about what type of impact these services have on urban transportation ecosystems, and initial research into the subject has only begun to emerge. Take, for example, UC Davis transportation researcher Dr. Regina Clewlow's recent study. Her team found that not only are ridesharing increasing congestion by testing whether or not trips would have been made in the absence of the existence of those services, but also that 24% of adults in key metro areas are using these services on a weekly basis, mainly driven by the desire to avoid the hassle of parking, i.e. convenience.

We wanted to dig a bit deeper to figure out exactly how ridesharing interacts with other forms of transit. Given the increasing frequency of transit agencies' partnerships with ridesharing platforms to increase first mile-last mile service, are consumers combining ridesharing with public transit to reach their destinations and how are these services impacting public transit ridership as a whole?

Before we dive into those questions, here's what we can conclude with a high degree of certainty when it comes to ridesharing:

Chart 7: Percentage of Weekly Uber/Lyft Riders by Age Group

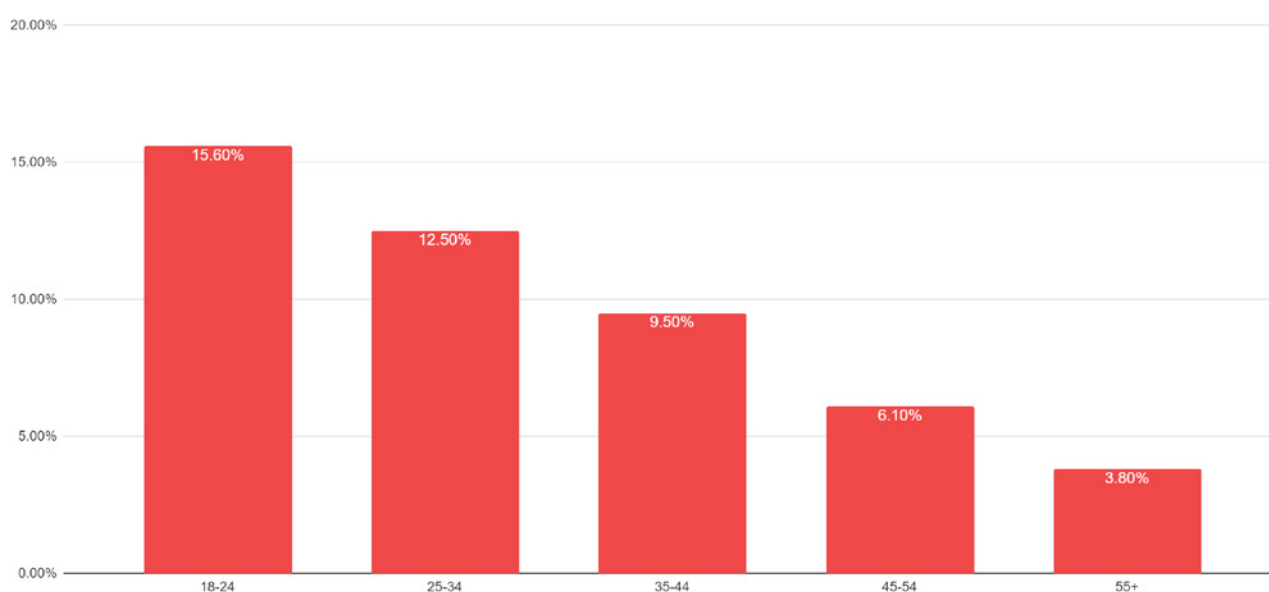
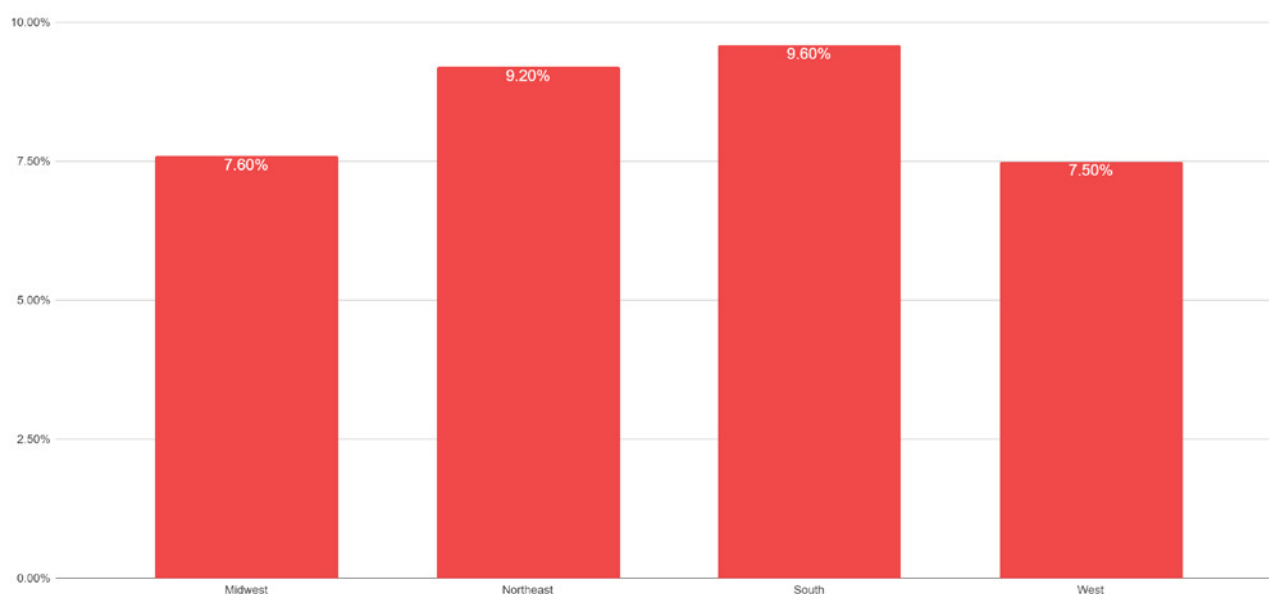


Chart 8: Percentage of Weekly Uber/Lyft Riders by Geography

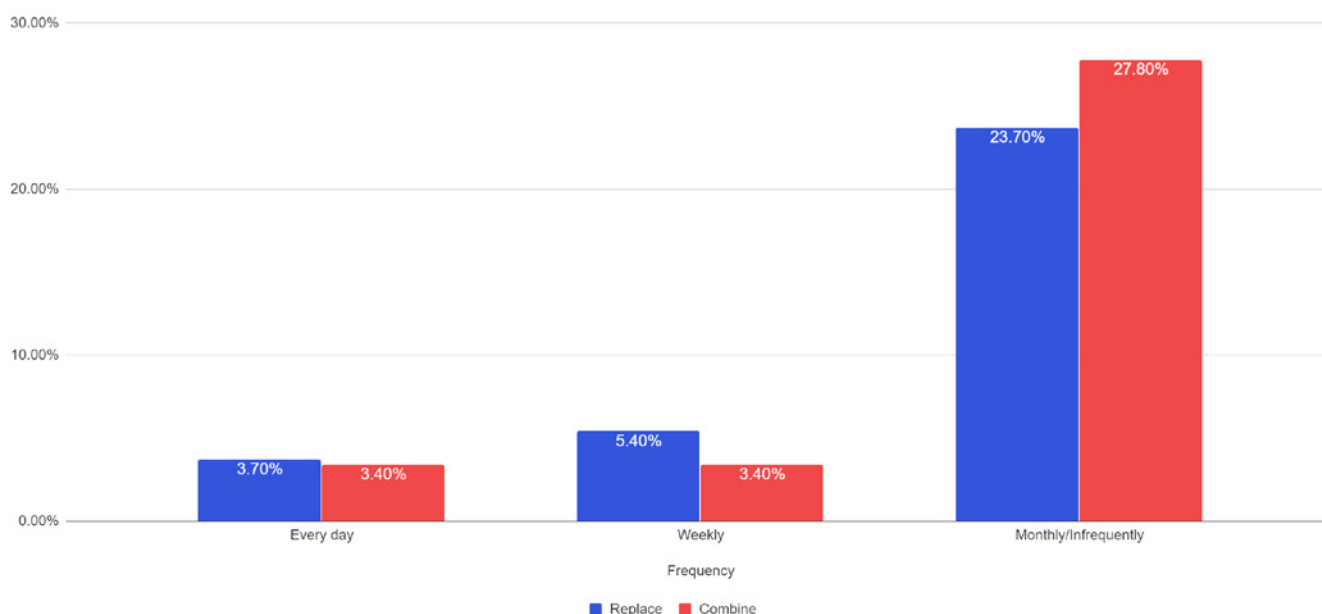


We found that, across all US adults with access to public transit, 8.5% are now using ridesharing on a weekly basis. This number increases to over 15% for the 18-24 demographic, and is inversely correlated with age across subsets of our survey. There is much less variation in ridership when measured in terms of geographic location.

Given the focus on convenience thus far in this report, it should come as no surprise that it continues to play a factor in how consumers interact with public transit and ridesharing. It turns out that consumers are combining the two together, and replacing public transit, in order to reach their destinations in the most efficient way possible.

We asked all our survey respondents how often they replace public transit rides with ridesharing services and how often they combine ridesharing with public transit to complete a single journey. Here's how they stack up:

Chart 9: Replacing vs. Combining Public Transit with Ridesharing



Interestingly, the rates of replacement and combination mirror one another, with slightly more combinations happening on a monthly/occasional basis than replacements. Overall, more than one third (34.6%) of all our respondents are combining ridesharing with public transit to reach their destination on at least an occasional basis - a major indicator of where things are headed as consumers seek more multimodal transit options.

The bad news for public transit agencies is that their ridership numbers are indeed being impacted in some capacity by the increasing popularity of ridesharing services - nearly 10% of all consumers with access to public transit are using ridesharing instead on a weekly basis. The good news, however, is that there's a major opportunity to play to the trend of combining ridesharing and public transit, and we'll likely see an increase in the number of first/last-mile partnerships moving forward.

Breaking the results down further with a focus on daily and weekly public transit riders, who represent a subset of our respondents rather than a statistically significant sample, we see these trends become more pronounced:

Chart 10: Replacing Public Transit With Ridesharing

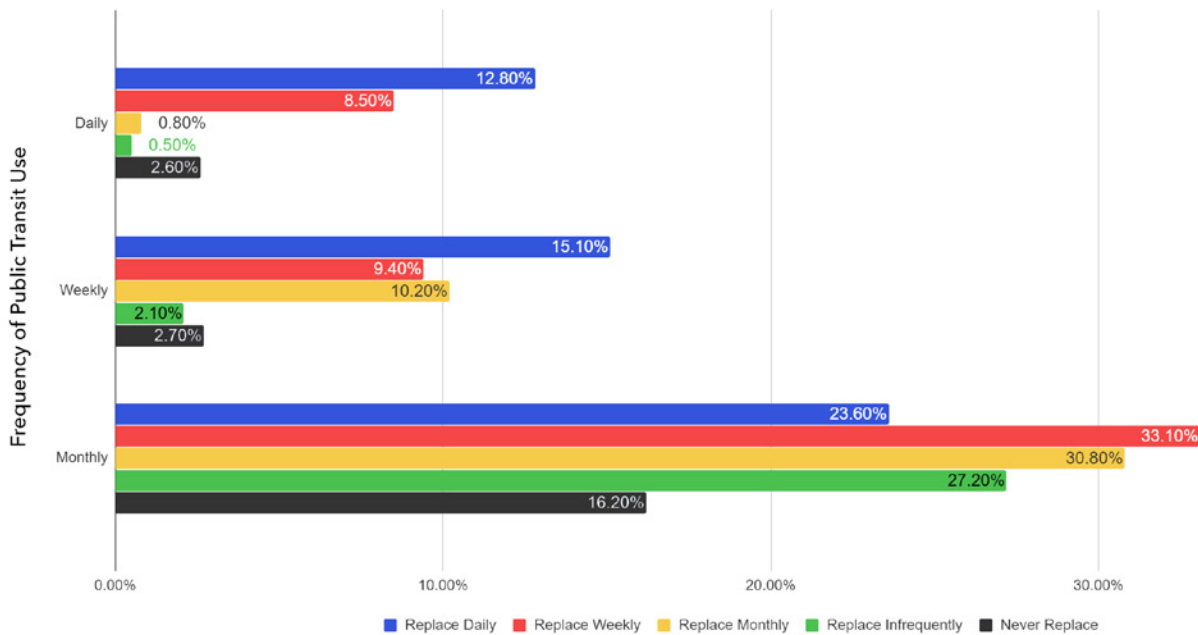
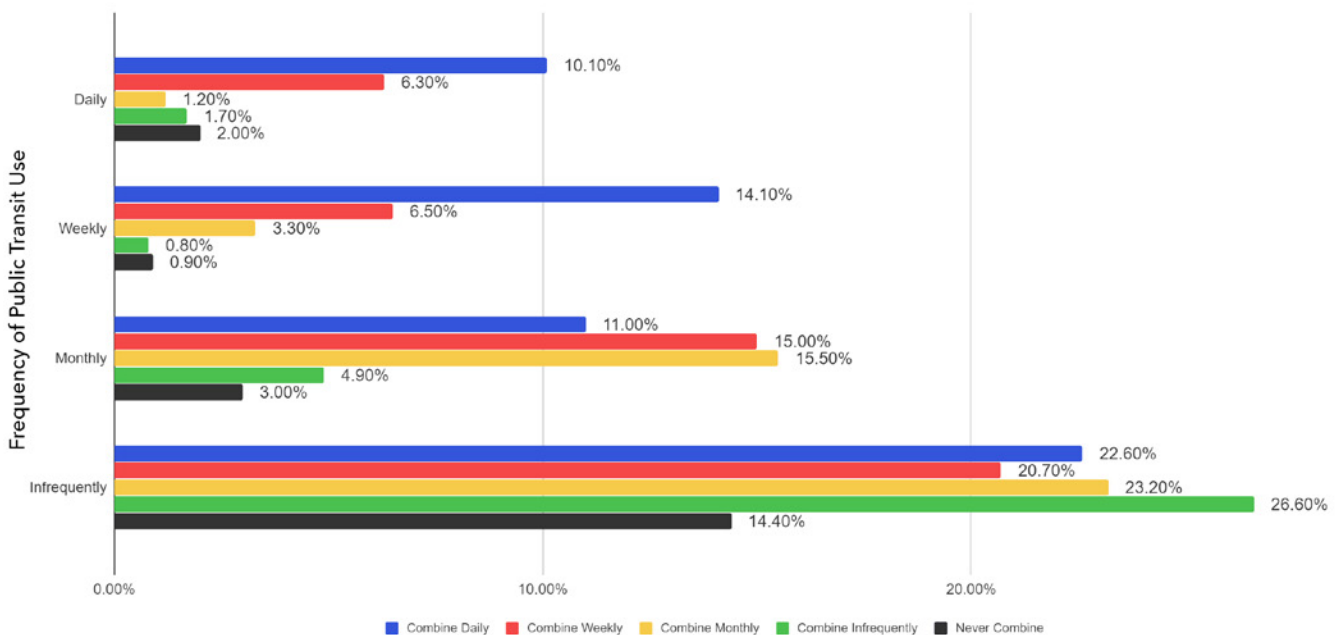


Chart 11: Combining Public Transit With Ridesharing



Charts 10 and 11 show that ridesharing is having a major impact on public transit riders. Some of the most interesting, albeit preliminary, findings include:

- » The more infrequent public transit riders - those who ride on a monthly or less basis - are the most likely to replace and combine public transit and ridesharing, suggesting that this is a convenience oriented group and less motivated by cost and necessity.
- » Over 20% of daily riders and over 30% of weekly public transit riders are replacing a public transit ride with a ridesharing service at least once per month
- » More than 1 in 10 daily public transit riders are also using ridesharing every day in combination with public transit to reach a destination (10.1%)

This data paints a picture of urban transit that is growing increasingly complex. Given what we know about the importance of convenience, it's clear that many consumers who are not strictly motivated by price are combining public transit and ridesharing.

Agencies can take a lesson from some of the convenient features that ridesharing apps provide, like location tracking and seamless payment, and deploy them relatively easily on their own systems. Increasing ridership by boosting convenience would have a positive impact on street congestion, while ridesharing can serve to replace personal vehicles in the first/last mile and in places underserved by public transit.

The data showing rider tendencies to use ridesharing services in combination with public transit offers a clear opportunity for public transit agencies to partner with ridesharing companies to enable full first/last mile multimodal journeys.

To make public transit that much more convenient, public transit should embrace an ecosystem of mobility solutions and start to develop partnerships between private modes of transit. This way, ridesharing and public transit agencies can work together to provide the optimal passenger experience based on both city and rider priorities in terms of cost, convenience and the availability of mobility resources.

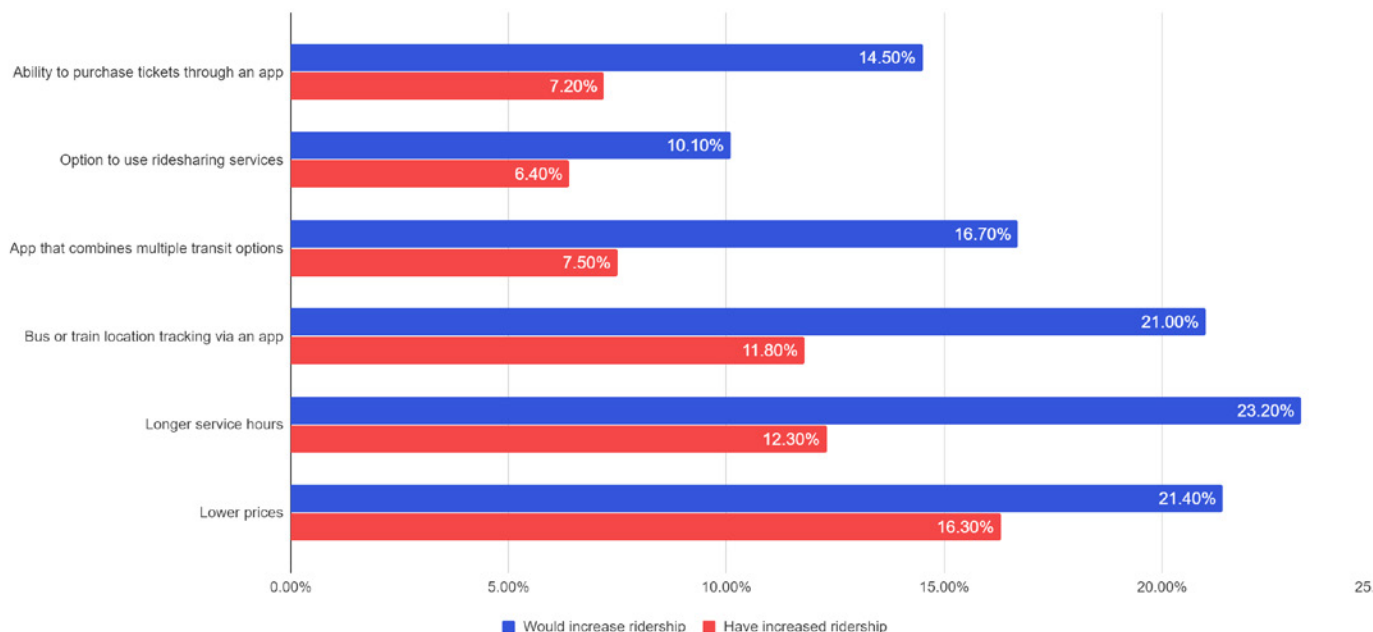
In this scenario city centers can optimize and incentivize the use of high occupancy public transit services, with ride and bike sharing enabling first and last mile journeys around transport hubs, while ridesharing can help fill the gaps in underserved areas and remove the need for large buses to serve routes with low passenger numbers. This connected urban mobility ecosystem will help reduce congestion and should lead to more people moving away from private car ownership in urban areas, especially as more on-demand and autonomous vehicles become the norm.

What Agencies Can Learn

Increase Convenience

Convenience plays a major theme in this report, not just in terms of how consumers are currently interacting with a variety of transit options, but in how they responded to various features that might increase convenience. We asked consumers about a number of transit improvements and whether each feature had caused them to increase their public transit ridership, or if the addition of each feature would cause them to increase ridership if it were deployed on their local system.

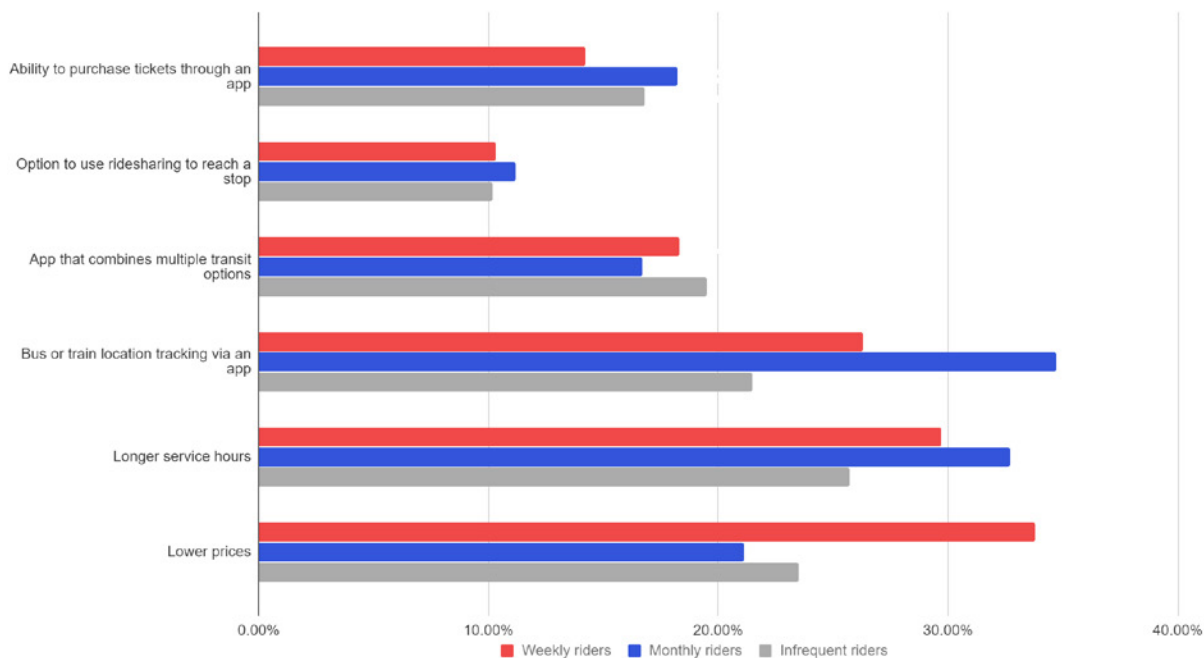
Chart 12: Convenience Features' Impact on Ridership



While fare reductions and service hour changes could certainly be cost prohibitive, these technology changes are relatively inexpensive to implement, and have also measurably increased ridership based on our data.

We do know that some consumers are relatively inflexible regarding their public transit ridership - it may be the most cost effective or only transportation available to them, meaning they'll be less responsive to improvements or decreases in quality. What happens when we look at consumers who might be more responsive to improvements - those who are riding on a less than daily basis?

Chart 13: Convenience Features' Impact on Less Frequent Riders



Mobile ticketing, ridesharing for first/last mile, trip planning and location tracking are all popular with over 10% in each segment, with nearly 35% of monthly riders saying they'd ride more frequently if location tracking were implemented.

Notice anything interesting about these features? Mobile purchasing, planning and location tracking are all features of ridesharing services.

This is not a coincidence, and speaks to the way today's public transit riders are being conditioned to expect convenience in their transit offerings. These services increase the predictability and seamlessness, and therefore convenience, of the ride. This data demonstrates that public transit agencies can replicate much of what makes ridesharing so compelling, in a way that would drastically increase ridership.

One area where we're currently seeing convenience play a key role is in commuter rail, which is bucking the APTA ridership trends and in many cases experiencing gains in ridership. Commuter rail typically offers real time train times, mobile ticketing, and the ability for riders to bypass traffic on their way to a central drop off point in a city - a clear and compelling value proposition that competes directly against cars from a convenience standpoint.

Some riders are indeed turning to ridesharing for some of the travel that they once accomplished via public transit. This is a near term trend, however, that will fade as agencies catch up in terms of tech-enabled convenience. Once public transit convenience enablers become operational then ridesharing in many respects becomes a complementary partner, especially as we move into a world with more on-demand transit options and autonomous vehicles. We're already seeing many consumers combining the options on their own, and expect that trend to continue as ridesharing's first/last mile role in the equation becomes more formalized.

Conclusion

CEO Brian Zanghi's Perspective

Perhaps the biggest themes in this report are that convenience and pragmatism drive passengers' choice of transit mode, while burgeoning urban mobility ecosystems are developing as consumers mix and match public and private transit options to reach their destinations. Squint a little and you can see a future where private car ownership declines as people in urban areas shift to seamless public/private transit options, particularly when more on-demand and autonomous transit options become the norm. There is much more potential moving forward for interoperability between public and private services to enable full first/last mile journeys with public transit at its core, not to mention the fact that relatively small changes in convenience - the addition of location tracking or convenient ticket purchase options, for example - could result in major ridership boosts for public transit agencies in the short term.

Increasing ridership, even marginally, is a must for public transit agencies for the sake of congested cities around the country. The underlying implication of our data is that while many Americans with access to public transit do rely on those services for all or most of their day-to-day needs, most do not. That is not sustainable.

Through better public/private partnerships and a more integrated transit system in general, it is possible to reduce overall congestion while enabling urban growth by:

- » Increasing the use and ridership of public transportation, starting with easier to deploy, consumer-facing features that increase convenience and build good will
- » Recognizing that large public transit systems are suffering from years of investment neglect, but that immediate changes can be made to start moving things in the right direction
- » Facilitating partnerships between different modes of transit to increase efficiency - for example alliances between commuter rail and subway interoperability, or increasing multi-passenger ridesharing
- » Moving towards a more integrated transit model with closer partnerships between public and private organizations.

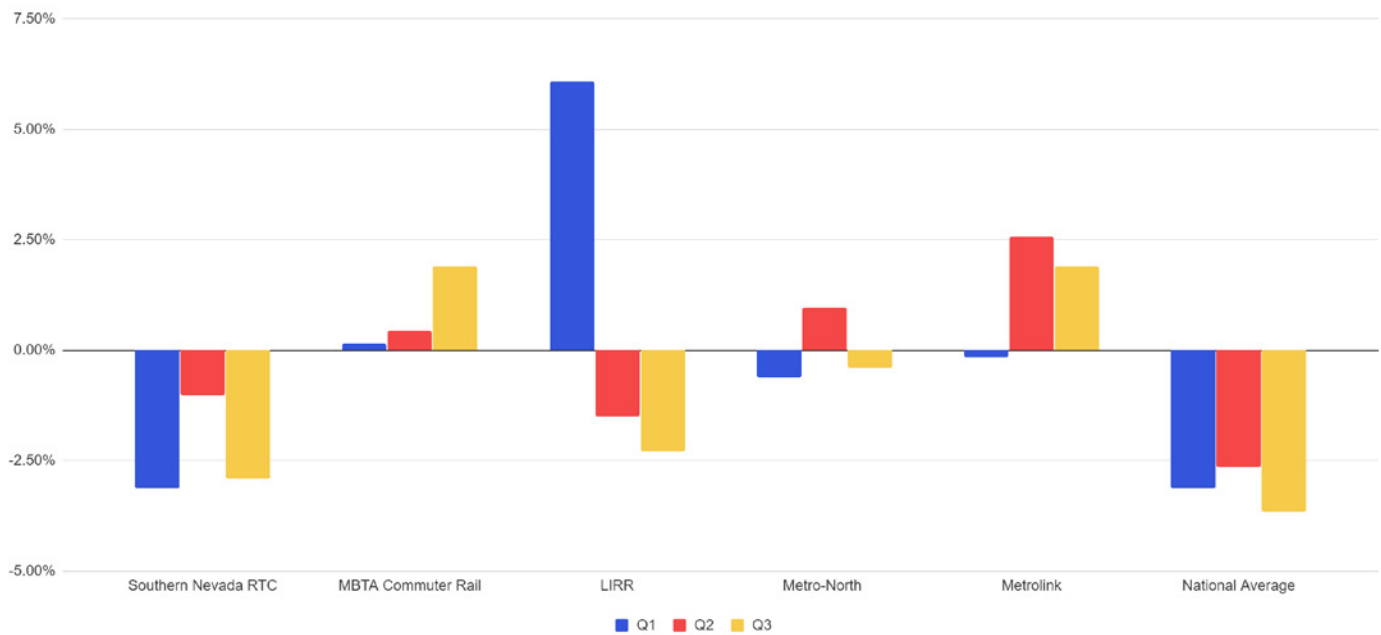
As our report shows, there is no reason to be focused on one transportation mode or another. Instead, improving the current situation should be about facilitating seamless mobility and enabling consumers to use the best mode for each situation, thereby increasing convenience.

This is absolutely critical to converting the riders who aren't using public transit every day out of necessity - a huge growth opportunity that transit agencies can start taking advantage of right now.

This is also where a mobility platform like Masabi's Justride comes into play as a leader through technology initiatives that help improve the passenger experience and connects public and private sector transit options. This makes it easier for agencies to offer connected services with private operators to help solve the first mile/last mile issue, by offering an enhanced passenger experience and seamless payment, without a huge upfront investment and lengthy development and implementation period.

In looking at APTA's ridership data, I noticed an interesting trend. Transit systems that have had Masabi's Justride mobile and account-based ticketing platform deployed for at least a year are outperforming the national ridership data, and some are even seeing net gains in ridership:

Q1, Q2 and Q3 YoY Ridership Changes in JustRide Cities



While ticketing is certainly not the only factor at play, it speaks to the impact that innovative agencies and rapidly deployable solutions like mobile ticketing, journey planning, vehicle location tracking, account-based payments and more, can have on ridership in the near term, even as many agencies focus on major infrastructure overhauls over time.

In the future, seamless private/public urban mobility ecosystems will be the norm, with the public transit agency at its core. We believe this will lead to less private car ownership as people use their mobile phones to navigate and select the mobility option that is most convenient for them, paying seamlessly using their phone or another token. As more on-demand services and autonomous vehicles become available, cities will be able to take advantage of efficiencies by maximising the use of different modes of transit in different areas. This will help reduce congestion and journey times, while citizens will have a seamless mobility experience only paying for what they use, when they use it. This is often referred to as Mobility-as-a-Service (MaaS) and Masabi is helping enable best-of-breed MaaS around the globe.

Hopefully this report will help to spur a much-needed dialogue between the public and private sectors, and reinforce the notion that these two groups can effectively work together in a mutually beneficial way that helps improve the passenger experience, reduces congestion and facilitates economic prosperity for cities and communities across North America.

Appendix

Survey Results

Do you have the option to use public transportation such as a train, subway, bus or ferry for any of your local transportation needs?

Yes	27.19%
No	60.85%
Not sure.....	11.96%

How often do you use public transit services such as the subway, train, bus or ferry?

Daily	11.56%
Weekly.....	7.36%
Monthly.....	6.72%
Infrequently	31.73%

What type(s) of transportation do you use on at least a weekly basis?

Never	42.63%
Personal vehicle.....	69.41%
Uber or Lyft	8.54%
Taxi service	3.36%
Personal bike.....	9.71%
Shared bike.....	2.09%
Walking.....	34.14%
None of the above	11.51%

Which of the following transportation options do you feel provide a better experience than public transit?

Driving myself.....	61.41%
Uber or Lyft	21.62%
Taxi service	5.78%
Walking.....	25.52%
Riding a bike.....	16.71%
None of the above	10.68%

Fill in the blank: 'I primarily use public transit because it is the _____ option'

Fastest	8.50%
Only.....	17.67%
Cheapest	23.39%
Most convenient	31.97%
Most comfortable	5.09%
Most environmentally friendly.....	13.40%

How would you characterize the quality of the public transit available to you?

It is improving	32.10%
It is declining	18.92%
It is remaining the same.....	48.98%

Which of the following would make you ride public transportation more often, if it were available on your local public transit service?

Ability to purchase tickets through an app	13.89%
Option to use Uber or Lyft to reach a stop	9.98%
App that combines multiple transit options.....	15.85%
Bus or train location tracking via an app	20.38%
Longer service hours	22.50%
Lower prices	20.80%
None of the above	34.17%

Have any of the following made you ride public transportation more often?

Ability to purchase tickets through an app	7.19%
Option to use Uber or Lyft to reach a stop	6.43%
App that combines multiple transit options.....	7.48%
Bus or train location tracking via an app	11.35%
Longer service hours	12.10%
Lower prices	16.33%
None of the above	55.92%

How often do you use a ridesharing service like Uber or Lyft instead of public transportation?

Every day.....	3.94%
At least once a week	5.36%
At least once a month.....	23.17%
Never	60.74%
I wouldn't ride public transit regardless.....	6.79%

How often do you use Lyft or Uber in combination with public transit?

Daily	3.35%
Weekly.....	3.37%
Monthly.....	6.85%
Infrequently.....	21.00%
Never	65.43%

To request the raw data from our survey, please reach out to masabi@scratchmm.com.

About Masabi

Masabi is the global leader in mobile ticketing and Software-as-a-Service (SaaS) based fare collection for transit. Masabi's Justride is a cloud-based mobility platform unifying account-based and pre-pay ticketing into a single configurable solution. Justride's SaaS architecture, 'Mobile First' approach and BYOT philosophy, allow transport providers of all sizes around the globe to deliver innovation quickly, delighting passengers and reducing costs, while increasing efficiency and data insights.

The company's Justride SDK, the world's first and only mobile ticketing SDK for public transport, allows partners such as Uber, Kisio and Transit App to request fare types, make payments, and deliver visual and barcode mobile tickets to a passenger within their applications.

Masabi works in partnership with more than thirty leading transit agencies and operators in North America, Europe, Australia and around the globe, including; New York MTA, Arriva, National Express, Keolis, Thames Clippers, Boston MBTA, LA Metrolink, The Hague and Las Vegas RTC. It has offices in London, New York, Boston and Cluj and investors include Mastercard and Keolis.