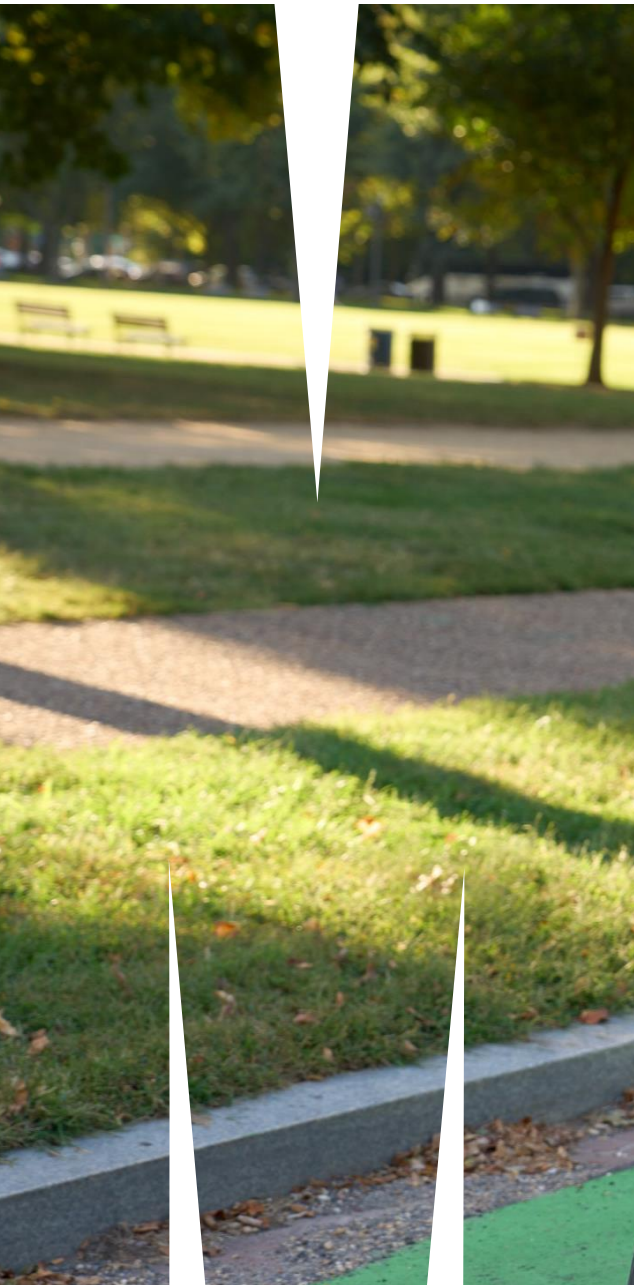
MONASH University

MONASH
INSTITUTE OF
TRANSPORT
STUDIES

WIDENING ACCESS TO MICROMOBILITY

UNDERSTANDING USE OF A REDUCED-FARE PROGRAM IN THREE COUNTRIES



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MONASH University

FOREWORD

Who is excluded from using a service? What barriers exist, and why? In the transportation sector and society more broadly, more effort is being put forward to ensure that services run or managed by the government are accessible to all, regardless of personal characteristics or background. Often, it is a recognition that planning decisions historically prioritized some demographic groups over others, leading to inequitable outcomes in air quality, access to opportunity, street safety, and more. This is the impetus behind reduced-fare programs that are typically offered by public transport agencies, for example, with strong benefits for low-income travellers' access to jobs, schools, and other destinations. With the introduction of shared micromobility in the last half-decade, these same questions around access and equity have been raised, and while operators have developed and implemented equity programs, their effectiveness has been unclear.

This report shares the findings of a study of Lime Access, a reduced-fare program offered by Lime, a shared micromobility company providing shared scooters and bicycles in over 280 cities across nearly 30 countries. A survey of Lime riders in Australia, New Zealand, and the United States yields both quantitative and qualitative insights that have policy relevance as cities explore the future of their shared micromobility systems and their equity programs.

"Love Lime and how inclusive they are for low income people like me. I am grateful every day."
- Seattle, Washington | Access

"The Lime Access program has been the biggest relief in my life during these very tough financial times. I can't sing their praises enough for this."
- San Francisco, California | Access

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The authors would like to thank Tiange Chen for providing support in early stages of the project as part of his final-year undergraduate research assignment.

The research team maintained a high level of academic ethical research practice. A/Prof. Delbosc minimised the potential for conflict of interest by maintaining academic independence during the data collection and analysis phases of the study. Lime only provided Monash University access to distribute the survey to Lime customers, as part of a project for Tiange Chen's undergraduate research assignment. Dr. Thigpen only became involved in the project during late-stage paper writing and qualitative data analysis. Lime provided no financial support for this study.

EXECUTIVE SUMMARY

Shared e-bike and e-scooter programs, also known as 'shared micromobility', have been expanding in cities across the globe since 2017. To date, little research has directly examined the role that shared micromobility programs play in supporting the travel needs of low-income populations. This paper aims to fill that gap by evaluating a subsidy program for low-income riders.

Between June and October 2022, we surveyed Lime customers in the United States, Australia and New Zealand. In many cities, Lime operates a program called 'Lime Access' that provides subsidised rides to qualifying customers. By surveying both Lime Access and non-Access riders, we were able to identify similarities and differences in their personal characteristics, usage patterns, benefits and barriers, which helps establish a baseline understanding of the effectiveness of shared micromobility reduced-fare programs.

Lime Access customers are more likely to be unemployed than non-Access riders. Lime Access riders were more likely than general riders to be locals who use shared micromobility for utilitarian purposes (commuting, shopping): non-Access members' most common trip purposes were social outings and part of a commute trip, while Access members were much more likely to use Lime for shopping/errands and commuting. Lime was regularly used as a first / last mile mode linked to transit, especially among Access customers (44% of trips linked with transit vs 23% for non-Access).

On average, Lime Access customers experienced significantly more benefits than non-Access customers. Most customers use the system because it is fast, fun and convenient. The two most common reasons, 'fast' and 'fun', were chosen by over 60% of all Lime customers with no significant difference between cohorts. Lime Access customers were also more likely to report challenges than non-Access customers, and both groups cited availability and mechanical issues as their most common challenges. Lime Access riders were more than twice as likely as non-Access riders (67% vs 31%) to select "affordable" as one of the main reasons they used Lime.

The quotes provided in open-ended comments starkly illustrated the tangible benefits of the Access subsidy on riders' lives, especially for people with a physical disability or who could not afford a car. Although the absolute number of these customers may be relatively small, the impact of the program on their lives is likely to be disproportionally significant.

The findings of this study provide implications for regulating shared micromobility programs to achieve equity and sustainability goals, with respect to fleet sizes, service areas, and funding.

In both the survey responses and open-ended comments, riders requested greater availability of bikes/scooters - for example, places that restrict usage to specific counties, council areas or cities can cause frustration to riders who see these boundaries as an arbitrary restriction on their movement. From a regulatory perspective, this would suggest that cities reconsider fleet size limits as well as service area boundaries.

The cost of running a reduced fare program without a public subsidy remains a challenge for commercial enterprises that provide these systems, as the growth of reduced-fare programs directly impacts the earnings of the shared scooter companies and therefore the financial sustainability of city micromobility programs. The majority of both fourth generation dockless and third generation docked systems have yet to experience full farebox recovery, leading in some cases to systems closing (e.g., Minneapolis' docked bikeshare system closed in early 2023). One approach to resolving this tension would be for local governments to provide financial support for these reduced fare programs. Alternatively, cities could reduce program fees in exchange for more robust equity programs. For example, the city of Denver, Colorado does not charge shared scooter operators any program fees (unlike most cities with shared micromobility programs), but expects robust equity outcomes as well as other commitments, like the creation of parking corrals. In Washington, DC, the city provides a schedule of program fee rebates that increase depending on how well shared micromobility companies promote usage of reduced-fare programs.

BACKGROUND

Shared bicycle programs have expanded in cities across the globe for the last couple decades, most recently followed by a rapid increase in shared e-bike and e-scooter programs. These programs, which we refer to as 'shared micromobility', provide their users with flexibility and convenience, particularly when combined with public transport, and potentially increase the number of people advocating for safe cycling infrastructures (Fishman et al., 2013).

LITERATURE REVIEW TAKEAWAYS

Shared, dockless scooters and bicycles are the latest evolution of bikeshare

The origins of what is now described as shared "micromobility" came in Amsterdam in the 1960s with the White Bikes program (Davis, 2014). In contrast to what is now a large, professionalized industry, consisting of an array of private and public operators, the initial foray into bikeshare began with white-painted bikes left on the street for anyone to use for free. It wasn't until three decades later that the initial "second-generation" bikeshare system launched in Copenhagen, which relied on coin deposit technology akin to the system employed by some supermarket chains with their shopping carts.

The third generation of bikeshare systems, debuting in the early 2000s, resolved the issues of the first two generations by implementing dedicated infrastructure through parking "docks", credit card payment systems, and bike tracking systems via GPS. These docked bikeshare systems proliferated into the mid-2010s as technologies improved.

In the very late 2010s, the fourth generation of shared bikes, and quickly followed by e-scooters, arrived on city streets. This generation is characterized by "dockless", free-floating operations where shared bikes and scooters are parked freely rather than being required to park at docks. Additionally, electric-assist is a common feature of the fourth generation, with all e-scooter systems and an increasing number of bikeshare systems featuring electric assist (National Association of City Transportation Officials, 2022; North American Bikeshare and Scootershare Association (NABSA), 2023). Within a couple of years, these venture capital-backed systems quickly doubled the size and ridership that docked bikeshare systems had taken a decade to achieve.

(a) (b) (c)

Figure 1 Examples of third (a) and fourth (b and c) generation shared micromobility systems

Each generation of bikeshare has had its drawbacks: theft, vandalism, and financial sustainability

As might be expected, the White Bikes were plagued by theft and vandalism (DeMaio, 2009; Fishman, 2016), and second-generations systems were also susceptible to theft, given the low costs and anonymity. A challenge for third-generation docked bikeshare systems has been to identify and maintain consistent funding sources, as in nearly all cases farebox recovery was well below 100% (North American Bikeshare and Scootershare Association (NABSA), 2021). The fourth generation also has had well-publicized issues, most notably around tidy and compliant parking (Brown et al., 2020, 2021; Klein et al., 2023), equity (Brown et al., 2022), and with few exceptions (Bellan, 2023), questions about the long-term financial sustainability of the private businesses that operate these systems (Bellan, 2022; Glasner, 2022), just as with the third generation of docked systems.

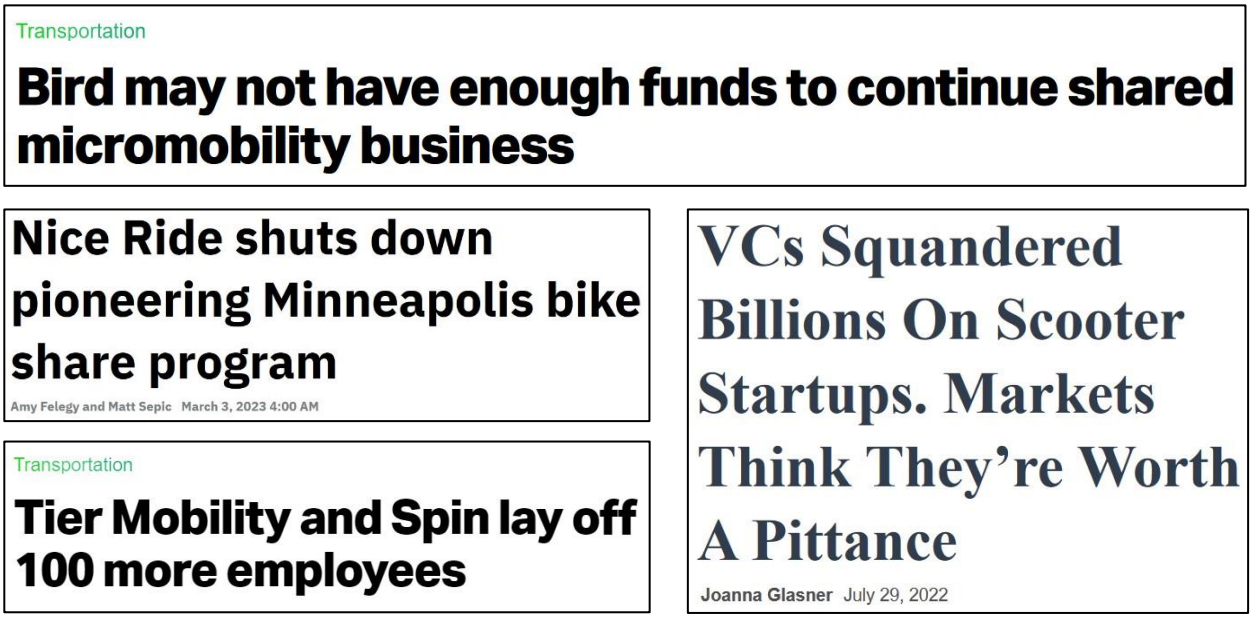

Figure 2 Example headlines of third and fourth generation shared micromobility systems facing financial difficulties.

Critics argue shared micromobility only serves a subset of travellers and trip purposes

One main concern about shared micromobility services is the argument that they only meet the needs of a subset of travellers. A range of studies have found that shared micromobility users are more likely to be young, male and high-income compared to the general population (Dill & McNeil, 2021; Fishman et al., 2013), in part because they are more likely to be placed in high-income neighbourhoods that are less racially diverse (Dill & McNeil, 2021).

Shared e-scooter and e-bike trips serve a variety of purposes, although the purpose varies considerably depending on the mode and system type. Shared e-bike systems serve a variety of purposes including commuting, linking to transit systems, and social / recreation, with shopping trips less common (Bieliński & Ważna, 2020). While some surveys of e-scooter customers find that trips are more likely to be for social / recreational trips or 'just for fun' (Bieliński & Ważna, 2020; Portland Bureau of Transportation, 2018), other studies find that shared e-scooters are used most frequently for commuting (San Francisco Municipal Transportation Agency, 2019).

Surveys of shared micromobility riders finds that a plurality of trips replace walking, typically followed by public transit and then motor vehicles (Krauss et al., 2022; North American Bikeshare and Scootershare Association (NABSA), 2021; Wang et al., 2022). However, this varies quite significantly by the local context. In San Francisco, the most common mode shift was from ride-hailing (San Francisco Municipal Transportation Agency, 2019), followed by walking and public transport. In general, more auto-centric cities and countries tend to see higher mode shift from

cars, and more transit-rich cities experience higher mode shift from public transit (Krauss et al., 2022; Wang et al., 2022).

Most shared micromobility systems offer equity programs

The equitable distribution and usage of shared micromobility programs has been a focus of study in recent years. In a recent study, Brown et al. (2022) found that a majority of shared micromobility programs (62%) in the United States include at least one equity requirement, though some require as many as seven different equity requirements. In looking across three dimensions of equity - process, implementation, and evaluation - the authors found that implementation-related requirements were seen most frequently, such as non-smartphone access options (36% of programs) or reduced-fare programs (32% of programs). Process requirements, such as community engagement and outreach, were less common, and an equity evaluation component was even less frequently included in program requirements.

Dockless shared systems can better meet diverse neighborhoods' needs

The geographical distribution of shared micromobility can be an important contributor to equitable outcomes. Docked bikeshare systems have historically been located in wealthier, higher-education, better-resourced neighbourhoods (Hosford & Winters, 2018). In contrast, by untethering vehicles from docking stations, dockless scooter and bike services tend to have a natural advantage in providing broader coverage compared to docked systems (Meng & Brown, 2021; Mooney et al., 2019; Palm et al., 2021).

Many shared micromobility systems offer a reduced-fare program for low-income riders

Providing subsidised rides for low-income customers is another method employed to increase the equity of access to shared micromobility programs. Yet there is limited research available on the usage patterns of riders using the reduced-fare programs offered by dockless operators like Lime, Bird, and Spin. Spin commissioned a study of its equity offerings which provided several recommendations, reported on a website with limited information about the study content and findings. The report does not provide insights into the underlying usage patterns or demographics of the company's reduced-fare program[1]. Docked bikeshare provider Lyft has published reports on usage by members of its equity programs, finding that low-income riders were more likely to be women, to be a non-White race, to either hold a part-time job or be unemployed, and to use public transit (Lyft, 2023a, 2023b). A recent study from the Sacramento, California region's bikeshare system found that low-income riders (not necessarily enrolled in a reduced fare program) were less likely to use the system, but those who *did* use the program used it more frequently than other riders (Mohiuddin et al., 2023).

There is little evidence whether shared micromobility equity programs are effective

To date, little research has directly examined the role that shared micromobility programs can play in supporting the travel needs of low-income populations. This is particularly true for shared e-scooter programs, with a recent review finding only four studies that include shared e-scooter programs (Dill & McNeil, 2021). The preliminary research in that area suggests that e-scooter programs may be more likely to appeal to racially diverse and low-income populations than bike-share programs (Dill & McNeil, 2021). Recent reviews of shared scooter programs' equity offerings and requirements have found that despite common requirements by cities for equity programs from operators, very few studies have evaluated the efficacy of those requirements, leaving a gap in understanding of which equity programs achieved their goals (Brown et al., 2022; Palm et al., 2021).

[1] See https://www.spinmobilityequity.com/

GOALS OF THIS REPORT

This report evaluates a subsidy program for low-income riders by examining the demographics, usage patterns, benefits and barriers for low-income riders relative to general riders. Lime operates shared e-bike and e-scooter programs in seventeen countries and over 200 cities around the world, and in June 2022 we surveyed Lime customers in the United States, Australia and New Zealand. Lime operates a program called 'Lime Access', which provides discounted rides to customers who qualify based on their income. Using a similar method as previous bikeshare studies (Buck et al., 2013), we compare the demographics and usage patterns of Lime Access customers to their general customer base, providing a better understanding of the role that shared micromobility can play in supporting the travel needs of low-income communities. Furthermore, qualitative responses to open-ended questions in the survey provide depth and nuance to our understanding of the role that shared micromobility systems can play in supporting the travel needs of vulnerable populations.

SURVEY METHODS

To meet the research aim, we employed an online questionnaire survey of Lime users in Australia (Melbourne, Sydney and Gold Coast), New Zealand (Christchurch, Auckland, Tauranga, The Hutt Valley and Hamilton) and the United States (Seattle, San Francisco, San Diego, Portland and Spokane). In some of these locations Lime operates shared e-bikes, shared e-scooters, or both, so for the purpose of this study the specific mode used was not compared directly.

The survey was designed in collaboration between Monash University and Lime; Lime sent an invitation to participate through their app. Because of the focus on Lime Access members, all members of this program in the targeted cities were invited; 'non-Access' members were randomly selected for invitation.

Participants who opted in filled out a short questionnaire survey on Monash University's Qualtrics platform and were put into a prize draw for a gift voucher. To increase participation of Lime Access members from Australia and New Zealand, they were all provided with a $5 voucher in addition to the prize draw. The survey and recruitment process were approved by the Monash University Human Research Ethics Committee (MUHREC project ID 33234).

The survey was first distributed to Australia and New Zealand in June 2022. After reviewing these results and adjusting a few questions, the survey was distributed to selected cities in the US in September/October 2022.

In total, 1,177 responses were recorded. Through the process of data cleaning, 95 incomplete responses were removed and a further 11 responses were deleted because an individual filled out the survey twice. This resulted in a final sample size of 1,037. Of those, 98 respondents used the recruitment link for Lime Access members. In addition, the questionnaire itself asked if someone was a member of Lime Access and anyone who said 'yes' was coded as an Access member, bringing the total to 166. We acknowledge that these responses may not be representative of Lime users as a whole, as Lime does not routinely collect demographic information about its customers.

The questionnaire survey included questions on the following topics (see Appendix A for the full survey instrument):

- How often they use Lime
- Information about their most recent trip
- Reasons why they use Lime
- Challenges/obstacles they experience using Lime
- Familiarity with the Lime Access program
- Demographics

The survey results will be presented in descriptive form.

Of the over 1,000 respondents, nearly 1 in 3 individuals (334) provided answers to an open-ended survey question asking for feedback on Lime and the Lime Access program. These quotes will be used for illustrative purposes for the corresponding closed-ended survey questions as well as to illuminate areas that the survey did not address.

LIME ACCESS SERVES A DIVERSE USER GROUP

Survey results show that Lime Access serves its intended population of low-income riders. Lime Access customers are much more likely to be in the lower income brackets than non-Access customers, with around 90% of Lime Access customers on a below-median household income.

Compared to non-Access riders, Access riders were:

- 2.5 times more likely to be employed part time
- Over 4 times more likely to be unemployed
- Nearly 3 times more likely to be a student

Lime Access riders have greater age diversity than non-Access, with both young (under 25) and older (over 64) individuals making up a greater share of Access riders (see Table 1).

Table 1: Demographics of sample

	Not Lime Access		Lime Access		Survey total	
	N	%	N	%	N	%
Gender						
Male	506	60.0	103	63.6	609	60.6
Female	308	36.5	48	29.6	356	35.4
Other, non-binary, prefer not to say	29	3.4	11	6.8	40	4.0
Occupation						
Employed full-time	615	71.9	39	24.1	654	64.3
Employed part-time	92	10.8	41	25.3	133	13.1
Unemployed	30	3.5	26	16.0	56	5.5
Student	58	6.8	32	19.8	90	8.8
Home duties	13	1.5	5	3.1	18	1.8
Retired	24	2.8	9	5.6	33	3.2
Other	23	2.7	10	6.2	33	3.2
Age						
18 - 24	115	13.4	30	18.1	145	14.1
25 - 34	275	31.9	45	27.1	320	31.2
35 - 44	238	27.6	45	27.1	283	27.6
45 - 54	137	15.9	24	14.5	161	15.7
55 - 64	73	8.5	13	7.8	86	8.4
65 or older	16	1.8	6	3.6	22	2.2

RESULTS

The results are organized around four main themes, which we elaborate in the following sections:

- Lime Access riders use Lime for essential trips.
- Shared micromobility can support a car-light or car-free life.
- Lime Access can provide an essential option for travellers with disabilities.
- Lime Access users love the program and want to see it expanded.

LIME ACCESS RIDERS USE LIME FOR ESSENTIAL TRIPS

People use Lime to travel to work, shop, socialise and enjoy their city. Most trips taken by Lime Access riders are for 'essential' purposes such as commuting (to work or study), shopping and running errands. In contrast, non-Access riders were more likely to say they were making a social outing (see Figure 3). Lime Access riders were also more likely to integrate their trips with the public transport system; 44% of Lime Access riders connected to transit before or after their trips, compared to 23% of non-Access riders.

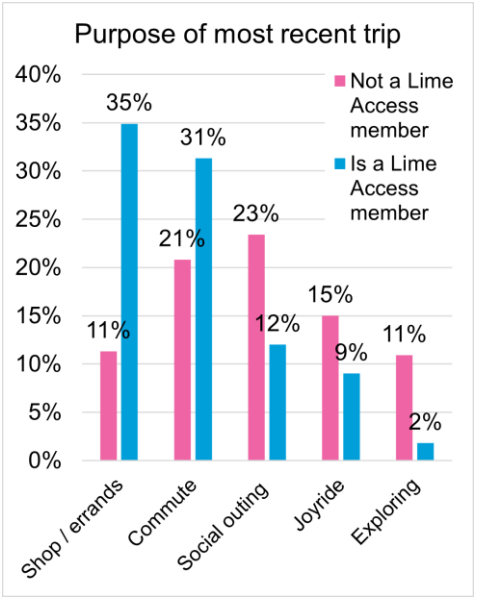

Figure 3 Purpose of riding Lime during the most recent trip

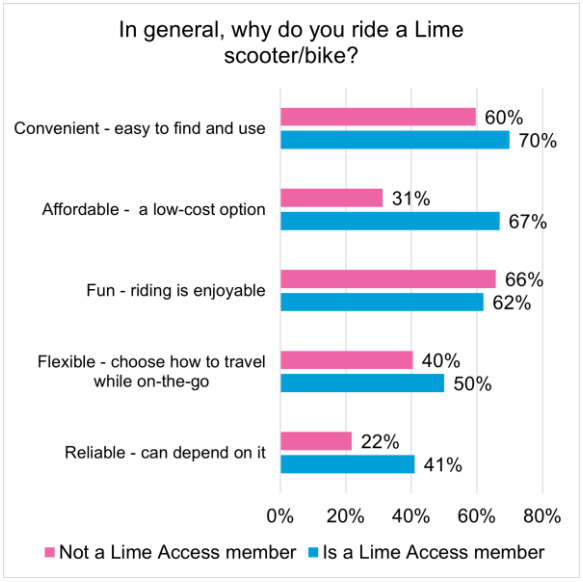

Figure 4 Selected reasons for riding with Lime (multiple responses allowed)

The essential nature of these trips is also reflected in the reasons Lime Access riders use the program (see Figure 4). Being able to find and use an e-bike or e-scooter is a fundamental requirement of any dockless shared system. The convenience of finding and using Lime was a key reason for use, and significantly higher for Access customers (70%) than non-Access customers (60%). Access members were also far more likely than non-Access members to indicate that Lime was affordable, flexible, reliable and that they could depend on the system.

"They are very helpful and there are scooters everywhere around my neighborhood it makes it where I can ride it anytime."
- Seattle, Washington | Access

"I've used it many times to get me to a doctors appointment."
- Portland, Oregon | Access

"Lime is a great way to commute to and from work and public places."
- Tauranga, New Zealand | Non-Access

"I really do love that it exists. I am able to run errands and get to appointments."
- Seattle, Washington | non-Access

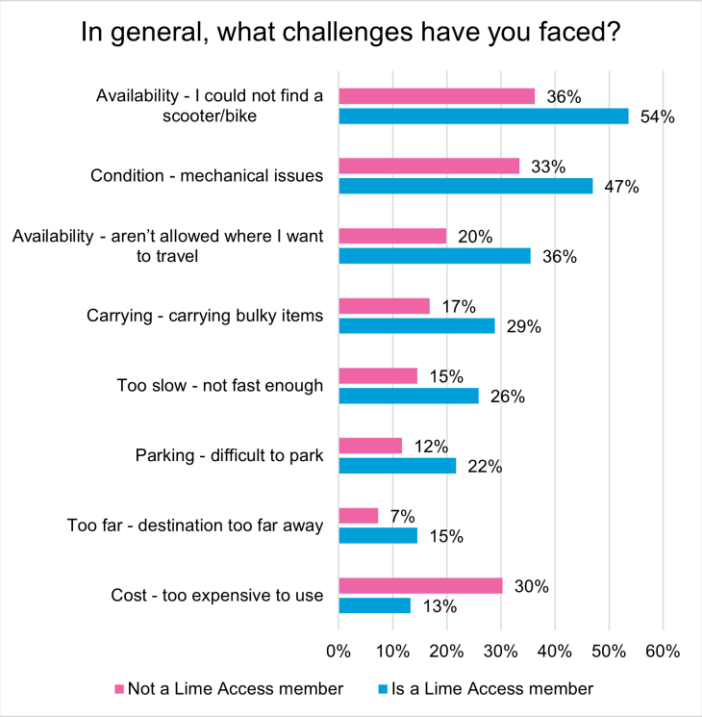

Figure 5 Selected challenges faced when riding with Lime (multiple responses allowed)

Perhaps because of this reliance on Lime, Lime Access customers were more likely to report challenges using Lime. Problems with availability and access to destinations, mechanical issues, needing to carry items and parking were all more likely to be expressed by Access customers (see Figure 5). Many survey respondents wrote in the comments that they wished that Lime was available in more neighbourhoods, or that more vehicles were on the ground, or that the system would expand to their home town.

Only 15% of Lime Access customers were challenged by cost issues, suggesting that the reduced fees are successfully supporting the mobility of these riders.

"I love what lime offers, just wish there were more scooters in my hood."
- Portland, Oregon | Access

"Please bring Lime to Montana!"
- (visiting) Seattle, Washington | non-Access

"Need to allow access in Tenderloin where I live! Lime is failing to serve my already underserved neighborhood!!"
- San Francisco, California | Access

"Ideally, they will be allowed to expand in other San Diego neighborhoods.."
- San Diego, California | Access

"No-go zones are poorly demarcated, and changed without warning. They now include public roads and parts of public bike paths. My primary commute route is unusable on Lime."
- Seattle, Washington | Access

MICROMOBILITY CAN SUPPORT A CAR-LIGHT OR CAR-FREE LIFE

Micromobility has the greatest impact on sustainability if trips replace car use. In this survey, 15% of Lime trips would have otherwise been taxi/ridehailing and 10% of Lime trips would have been otherwise taken by car (see Figure 6); interestingly this 10% was the same for Access and non-Access members. It is worth noting that although we did not ask about car ownership directly, **half of Lime Access riders said that one of the benefits of Lime is that it lets them 'get somewhere without a car'.** In addition, Access members were far more likely than non-Access members to say that Lime was good for the environment (48%).

The high trip substitution with public transport (34% among Lime Access riders) and very low substitution with taxi (4%) also indirectly suggests that these riders are less likely to have access to car-based mobility.

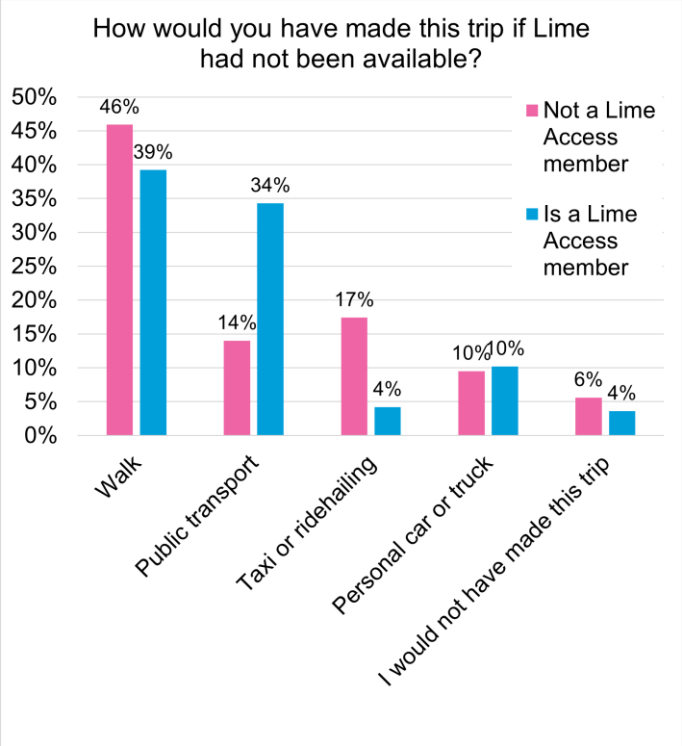

Figure 6 How riders would have made their most recent trip if Lime had not been available.

"As someone on a low income who does not own a car it feels very liberating to be able to take a scooter to an area that is not serviced by public transport whenever I like."
- Melbourne, Australia | Access

"It has been a huge help for me. I was forced to sell my car after losing my job during the pandemic. The cost of users and even renting Lime was prohibitively expensive. Lime access has allowed me to do things that would [not] have been feasible without it"
- Seattle, Washington | non-Access

"It is a great program that has allowed me to keep my job considering I'm supposed to have a vehicle to have the position I have at my company. Not having a car but having Lime and at [an] affordable price is a great benefit to me."
- Portland, Oregon | Access

Taken as a whole, this suggests that quite a few Access customers do not drive and are frequent transit users, even in locations where transit was not always a realistic option. There is also good evidence that Access riders view Lime in a similar light as public transit, both a complement and a substitute. On the one hand, roughly 1 in 3 trips by Lime Access riders replaced public transit, and on the other, 44% of Access trips used Lime to connect to public transit at the beginning or end of the trip (see Figure 7), as part of an overall multimodal journey.

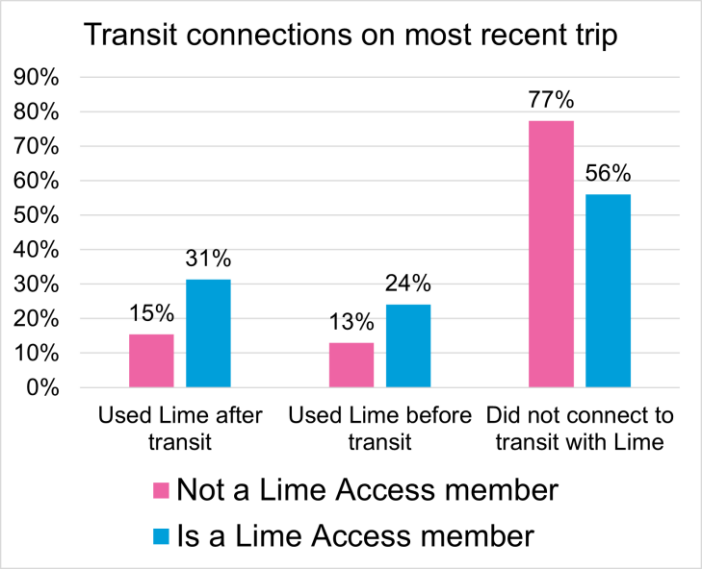

Figure 7 How often riders used Lime to connect to public transit within the same journey

LIME ACCESS CAN PROVIDE AN ESSENTIAL OPTION FOR TRAVELERS WITH DISABILITIES

Many Lime Access riders told us about how the program allows them mobility despite medical conditions or physical disability. Many of those disabilities are 'invisible' and are not likely to be noticed by the casual observer. Yet to the riders, the electric motor of Lime vehicles reduces fatigue and strain that they would experience walking or riding a standard bike.

"I have kidney problems so the scooter saves me from fatigue of long walks."
- Christchurch, New Zealand | Access

"Lime is an essential part of my life. I have an arthritic knee which hampers my mobility - but which is actually improved by biking. I live on a steep hill, so often bike down into the city and then can bus home uphill."
- Seattle, Washington | Access

For some customers, having a physical disability intersects with a lack of car access or income restrictions. For them, Lime provides an essential service that they could not otherwise meet.

"I'm ADA, which basically is handicapped, and I cannot walk all over like I used to be able to. Lime provides me independence I wouldn't have without it! With the low income program you offer, it literally saves me! I wouldn't be able to get groceries or run errands or do most anything I do because of Lime."
- San Francisco, California | Access

"When we found out about it, it was a game changer for my life. I can't drive, and I have a disability that makes walking places challenging. Before, I couldn't afford to use any of the scooter companies and so I had a lack of access to going out, and where we lived often didn't have any available. Now we both live in the city and I have access to Lime Access, so if I want to go somewhere, I now have options to do so."
- Seattle, Washington | Access

LIME ACCESS USERS LOVE THE PROGRAM AND WANT TO SEE IT EXPANDED

Although Lime provides essential mobility to many customers, it's worthwhile to note that many riders also love and enjoy the program. Over 60% of all customers – both Access and non-Access – say that 'fun' is one of the reasons why they ride with Lime. Although both Access and non-Access customers cited reasons why Lime was a convenient option, Access customers were more likely to express appreciation, gratitude, relief and even love for the program.

"I love it! It is super helpful and allows me to go places I otherwise would not have."
- San Francisco, California | Access

"Love Lime and how inclusive they are for low income people like me I am grateful every day."
- Seattle, Washington | Access

"I really appreciate this program."
- Portland, Oregon | Access

"The Lime Access program has been the biggest relief in my life during these very tough financial times. I was pretty shocked when I first heard about the program because no other company offers financial assistance regarding transportation in this way. It's such a massive help in my life and really is such an innovative and client centric program. I can't sing their praises enough for this."
- San Francisco, California | Access

These and other responses suggest that subsidised micromobility programs could provide significant mobility benefits to some people with a disability, people who do not have a car, and people on low incomes. Yet when the survey asked non-Access customers if they had heard of the program before, only 24% of respondents had heard of the program. Several Access customers noted that they only enrolled because a friend told them about it.

“I have spread the word to many people about just how wonderful it was of Lime as a company to offer this help. I think this has been one of the better PR moves I've seen a company make in terms of real world payoff and public opinion modification.”
- Seattle, Washington | Access

“I did not know there was such a thing, but I might apply and if I qualify I’ll probably use Lime more.”
- Seattle, Washington | non-Access

“I love using them! And I mention to everyone about the Lime Access program, [especially] since I work in social services.”
- Seattle, Washington | Access

Some riders noted in their open-ended feedback that they had encountered difficulty signing up for Lime Access. These riders indicated that the application process took longer than expected, or they had difficulty reaching someone to ask for help with completing their application.

“I applied for like access it's been longer then the two days it said it get back to me and still not getting back other then that all is good.”
- Seattle, Washington | non-Access

“Hard to reach an actual person about it. I qualify for it and applied but haven't been accepted.”
- Portland, Oregon | Access

“Please review my application & accept me into the access program.”
- Brisbane, Australia | non-Access

PROGRAM AND POLICY RECOMMENDATIONS

WAYS FORWARD TO EXPAND REDUCED-FARE PROGRAMS

The findings from this study clearly show the benefits of reduced-fare programs for low-income customers, demonstrating their importance in helping shared micromobility programs achieve equity and sustainability goals. Understandably, cities increasingly view equity programs as fundamental components of what they consider a successful program, as evidenced by tying fleet increases to equity program usage (e.g. Washington, DC, Denver, etc.) and offering program fee waivers based on the outcomes of companies' efforts to promote these programs.

Encouragingly, many riders feel the benefits of reduced-fare programs. In 2022, nearly 13,000 Lime Access riders took over 1 million trips. Yet the valuable success of these programs comes at a cost to the businesses running the shared micromobility systems. With few exceptions, when cities require reduced-fare programs of operators, they do so without providing a subsidy or way of offsetting the costs to the business. In 2022, the discounts offered via Lime Access were over US$7 million, which represents the difference between the cost of a non-Access and an Access trip. Therefore, as reduced-fare programs continue to grow, they have the potential to erode the earnings of the shared scooter companies, which in turn impacts the financial sustainability of cities' micromobility programs. This poses potentially-existential risks to the ongoing operations of these programs: the majority of both fourth generation dockless and third generation docked systems have yet to experience full farebox recovery, leading in some cases to systems closing.

Ultimately, cities and companies alike want to continue to expand upon the successes of reduced-fare programs, and both parties have a mutual interest in the long term success of shared micromobility program. Given these shared goals, the natural follow-up question posed by both cities and companies is:

What can be done to expand reduced-fare programs in a financially sustainable way?

Expanding Awareness of Reduced-Fare Programs

As shared scooter companies look to expand the usage of reduced-fare programs by more individuals, the most prevalent obstacle is likely to be a lack of awareness that the program exists. According to the survey, only a quarter of existing Lime customers had ever heard of the Lime Access program.

One opportunity for shared micromobility operators is to partner with services that directly serve or cater to individuals relying on income assistance programs. Shared micromobility companies could partner with or advertise through these assistance programs, as a more targeted marketing tool to communicate directly with eligible individuals. For example, shortly after this survey was completed, Lime initiated a partnership with Propel, a financial services company that helps individuals manage their public benefits, to advertise Lime on their platform. Lime took this step as a way to directly reach individuals most likely to benefit from Lime Access.

Another barrier raised by some survey respondents was difficulty in registering for Lime Access, which could be improved by making the registration process as seamless as possible. Oftentimes, with technology and specifically programs for those on lower incomes, the barrier to entry is the difficulty of the signup form and the inconvenience of having to wait days before using the benefit. Lime recently invested in a partnership with SheerID to make the application process near-

instantaneous. In most cases, applications are processed in under 60 seconds, rather than requiring Lime staff to manually review applications, which can take up to 3 days. In markets where this integration has gone into effect, Lime Access signups have increased by 90%.

Cities can also support the expansion of reduced fare programs through outreach. While it is important for more riders to be aware of reduced-fare programs, and to make it easier for eligible riders to apply, cities have unique channels through which they can broadcast the availability of these programs to the general public. In environments where shared scooters might have a negative public reputation, this can also provide the public with a better understanding of the benefits of shared scooter systems, making public officials' work easier when extending or expanding programs.

Financial Mechanisms to Sustain Reduced-Fare Programs

Given the financial challenges experienced by shared micromobility companies, a broader conversation about the role of governments in providing financial support for these reduced fare programs would be productive. There are precedents from other commercial mobility providers for this approach; for example, in Australia, people with a disability who are eligible for subsidised taxi trips can now use their discount in Uber, as long as their wheelchair or mobility aid can fit inside the vehicle. A similar approach could be taken with the growing proliferation of e-bike rebates. While most rebate programs are aimed at offsetting the cost of purchasing a personal e-bike, with larger rebates for low-income individuals, these funds could also be directed to subsidize membership in a shared e-bike or e-scooter program. This approach could help address barriers experienced with personal ownership around the availability of safe, secure storage and the costs of maintenance.

If local funds are not available to subsidize reduced-fare programs, cities can also rely on creative regulations and accounting to help bridge the difference. For example, the city of Denver, Colorado does not charge shared scooter operators any program fees (unlike the overwhelming majority of cities with shared micromobility programs), but in exchange expects robust equity outcomes as well as other commitments, like the creation of parking corrals. In Washington, DC, shared micromobility companies can be rewarded for prioritizing equity. Companies that enroll a large number of riders in their reduced-fare programs can earn refunds on the per-vehicle program fees they pay to DC (see Table 2).

Table 2: Washington, DC fee waiver conditions based on low-income plan usage[2]

Percent of Total Miles Travelled by "Low-Income Customer Plan" Users	Percent of Fleet Eligible for Fee Waiver
<1%	0%
1 – 1.99%	10%
2 – 2.99%	20%
3 – 3.99%	30%
4 – 4.99%	40%
5 – 5.99%	50%
6 – 6.99%	60%
7 – 7.99%	70%
8 – 8.99%	80%
9 – 9.99%	90%
≥10%	100%

[2] https://www.dcregs.dc.gov/ContentSearch.aspx?searchText=3314.31&DocType=DCMR

Provide Other Incentives to Encourage Expansion of Equity Programs

Shared scooter programs often have restricted service areas and limited fleet sizes. Companies typically are interested in expanding to serve larger areas and providing more vehicles to riders, and cities could use this interest as a carrot for achieving equity goals. Simultaneously, expanding fleets and service areas could provide better access to safe riding facilities for low-income riders. For example, Lime riders are not allowed to ride on the Lakefront Trail or the Loop in Chicago, yet these two facilities provide some of the best infrastructure for people riding bicycles and scooters. Low-income residents on Chicago's South Side would benefit greatly from these facilities being opened to connect them to more destinations, safely.

CONCLUSION

This study paints a picture of the very different use of shared micromobility among people who are provided subsidised rides (via Lime Access) compared to 'standard' customers, drawing on a survey across three different countries (Australia, New Zealand and the United States). Non-Access customers were more likely than Access riders to be new or occasional riders. Although the majority of non-Access customers lived or worked where they used Lime, they were more likely than Access riders to use Lime for social and recreational purposes. A significant minority of non-Access customers (24%) were visitors to the city where they used the system. For these customers, Lime provided a convenient alternative to taxis or the local transit system when they visited an unfamiliar city for tourism or business.

Lime Access riders were more likely than general customers to be locals who use shared micromobility for utilitarian purposes (commuting, shopping) as a regular part of their daily travel patterns. For these customers, micromobility is more likely to substitute and complement public transport, with almost half of riders using transit as part of their trip chain and a third would have used transit if Lime was not available. Many Access customers expressed that Lime helped them overcome significant mobility barriers, such as not having a car or having a disability that limits their capacity to walk long distances. These customers saw more benefits to using Lime than non-Access members, and 41% noted it was a reliable travel mode for them.

Perhaps because of this reliance on Lime, there was a greater call for more availability of bikes/scooters and expanding the system into areas where it's currently not allowed. From a regulatory perspective, this would suggest that reconsidering fleet size limits as well as service area boundaries could be a productive conversation to better meet the needs of riders. For example, places that restrict usage to specific counties, council areas or cities can cause frustration to riders who see these boundaries as an arbitrary restriction on their movement.

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APPENDIX A - SURVEY INSTRUMENT

Q1 How often do you make trips using a shared bicycle or scooter?
- o Once a day or more
- o More than once a week
- o Once every week or two
- o Less than once a month

Q2 How long have you been a member of Lime?
- o Less than a week
- o More than one week but less than one month
- o Over a month but less than 6 months
- o Over 6 months

In the following questions, we will ask you about your most recent Lime trip.

Q3 What is your relationship to the neighbourhood where you took your most recent ride? Please select all that apply.
- ☐ I live here
- ☐ I work here
- ☐ I attend school or university here
- ☐ I was visiting (live in the same city/region)
- ☐ I was a tourist (live outside this city/region)
- ☐ Other (please specify) _____

Q4 Why did you take this trip?
- o Commute to/from work or school
- o Shopping or errands
- o Social outing (coffee, dining, bars, movies)
- o Other recreation (gym, lessons/practices, hobbies)
- o Large event (concerts, sporting events, festivals)
- o Business/work-related travel (client meetings, out of town travel)
- o Exploring a new city (out-of-town travel/vacation, local day trip)
- o "Joy ride" (riding for fun, no particular destination)
- o Other (please specify) _____

Q5 On this trip, did you use Lime to connect to public transport? Please select all that apply.
- ☐ Yes, I used public transit before riding Lime
- ☐ Yes, I used public transit after riding Lime
- ☐ No

Q6 How would you have made this trip if a shared scooter/bike had not been available? Choose the most likely option.
- o Personal car or truck
- o Personal moped or motorcycle
- o Carshare (e.g., Zipcar, Car Next Door)
- o Taxi or ridehailing (e.g., Uber, Lyft)
- o Train, tram or bus
- o Personal bicycle

- o Personal e-scooter
- o Different shared scooter/bike (e.g., Neuron)
- o Walk
- o I would not have made this trip
- o Other (please specify)

Q7 In general, why do you choose to ride a Lime scooter/bike? Please select all that apply.

- ☐ Affordable - Lime was a low-cost option
- ☐ Fast - Using Lime was faster than walking
- ☐ Sustainable - Using Lime is good for the environment
- ☐ Fun - Riding Lime is enjoyable
- ☐ Convenient - It was easy to find and use Lime to get to my destination
- ☐ Flexible - I could choose how to travel while on-the-go
- ☐ Reliable - I knew I could depend on a shared scooter/bike to get where I needed to go
- ☐ COVID safe - I felt safe using Lime as an open-air, socially-distanced option
- ☐ Curious - I'd heard about it and wanted to try it out
- ☐ Car-free - It allows me to get somewhere without having to drive
- ☐ Other (please specify)

Q8 What challenges or obstacles have you experienced when trying to take a ride or when riding a shared scooter/bike? Please select all that apply.

- ☐ Cost - Lime was too expensive to use
- ☐ Payment - It's difficult for me to use the payment system
- ☐ Availability - I could not find a scooter/bike when I wanted one
- ☐ Availability - Scooters/bikes aren't allowed in the neighbourhoods I want to travel in
- ☐ Weather - The weather was too hot, cold, wet, etc
- ☐ Too far - My destination was too far away
- ☐ Safety - I was worried about road safety (e.g., lack of bike lanes, fast car traffic)
- ☐ Parking - It was difficult to park or unclear how to park
- ☐ Carrying - I was carrying bulky items, gear, or food/drinks
- ☐ Condition - The battery was too low or there were mechanical issues
- ☐ Too slow - The ride was not fast enough or there were slow zones where I wanted to ride
- ☐ Uncomfortable - I feel unsteady or worry about hitting someone or something
- ☐ Helmet - I did not have a helmet and did not want to ride without one
- ☐ Nothing - No problems
- ☐ Other (specify)

Q9 How likely are you to use Lime again in the future?

- o Not at all
- o Not very likely
- o Neither likely nor unlikely
- o Somewhat likely
- o Very likely

Q10 Have you heard about a program called Lime Access?

- o No
- o Not sure
- o Yes, but I'm not a member
- o Yes, and I'm already a member

Q11 Lime Access provides discounted rides to Australians with a valid Services Australia Health Care Card. Are you eligible for the Lime Access program?

- o Yes
- o Not sure
- o No

Q12 What barriers might stop you from signing up for Lime Access?

- o I didn't know this program existed
- o I don't know enough about the program
- o It's too hard to show evidence that I am eligible for the program
- o Nothing, I'm already in the program
- o Other

Q12 Do you have any further comments about Lime or the Lime Access program?

Q13 We would like to know a little more about you and your household to better understand the demographics of our riders and to share aggregated data with the cities we serve.

Q14 What is your main occupation?

- o Employed full-time
- o Employed part-time or casual
- o Unemployed and looking for work
- o Student
- o Home duties
- o Retired
- o Other, specify

Q15 What is your highest educational qualification?

- o Grade 12 or below
- o Technical qualification / certificate
- o Undergraduate university degree
- o Postgraduate university degree

Q16 What is your age?

- o 18 - 24
- o 25 - 34
- o 35 - 44
- o 45 - 54
- o 55 - 64
- o 65 - 74
- o 75 - 84
- o 85 or older

Q17 How do you currently describe your gender identity?

- o Male
- o Female
- o Other or non-binary
- o Prefer not to say

Q18 Please check the category for your annual household income before taxes. Consider all sources of income.

- o Less than $15,000
- o $15,001 - $25,000
- o $25,001 - $50,000
- o $50,001 - $75,000
- o $75,001 - $100,000
- o $100,001 - $150,000
- o More than $150,000
- o Prefer not to say

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