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# Access Denied?

## Perceptions of New Mobility Services Among Disabled People in San Francisco

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Client: San Francisco Municipal Transportation Agency

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<b>16. Abstract</b> <p>Thirty years after the passage of the Americans with Disabilities Act, people with disabilities still face significant barriers to transportation access. In recent years, new transportation services known as “new mobility” or “emerging mobility” launched entirely without accessible options. These services include transportation network companies (TNCs) such as Lyft and Uber, bike share, scooter share, and car share. Whether cities rush to welcome or grudgingly accept new mobility services, disability access is still too often an afterthought. This report, prepared for the San Francisco Municipal Transportation Agency, examines perceptions of new mobility services among disabled people in San Francisco via a survey of 218 people with disabilities. The study finds that disabled people in San Francisco see promise in some new mobility services but currently face significant barriers to use. Out of all new mobility options, respondents were most interested in on-demand automobility, e.g. accessible TNCs or accessible taxis. Respondents expressed significant concern about scooters and dockless bike share blocking the path of travel, and nearly 75 percent reported that an improperly parked scooter or bike created a mobility barrier for them on at least one occasion. Additionally, with broken sidewalks and missing curb ramps common, people with disabilities still face many barriers to basic mobility. This project offers the following recommendations: continue advocating for more effective TNC Wheelchair Accessible Vehicle (WAV) regulations at the state level, address the problem of scooters and bicycles on sidewalks, and build safer active transportation infrastructure to decrease conflicts between modes and make public space safer for vulnerable pedestrians.</p>			
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# Disclaimer

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# Table of Contents

Executive Summary	3
Introduction	5
Background and Context	6
Literature Review	11
Transportation Access for People with Disabilities	11
The Rise of New Mobility Services	12
Disabled Travelers and New Mobility	12
Methodology	14
Survey Design	15
Findings	16
Overall Perceptions and Experiences	17
Transportation Network Companies	19
Car Share	20
Bike Share	21
Scooter Share	23
Other Mobility Barriers	24
Discussion	25
Policy Recommendations	27
Conclusion	30
Dreams for the Future of Accessible Transportation	30

# Access Denied?

## Perceptions of New Mobility Services Among Disabled People in San Francisco

### Executive Summary

Thirty years after the passage of the Americans with Disabilities Act, people with disabilities still face significant barriers to transportation access. In recent years, new transportation services known as “new mobility” or “emerging mobility” launched entirely without accessible options. These services include transportation network companies (TNCs) such as Lyft and Uber, bike share, scooter share, and car share. Although the disability community urgently needs better transportation options, thus far new mobility services have mostly come up short. Whether cities rush to welcome or grudgingly accept new mobility services, disability access is still too often an afterthought.

In order to meet the transportation needs of the disability community, we first must understand them. This report, prepared for the San Francisco Municipal Transportation Agency (SFMTA), examines perceptions of new mobility services among disabled people in San Francisco via a survey of 218 people with disabilities. Respondents were surveyed between December 2019 and February 2020.

**Ultimately, I find that disabled people in San Francisco see promise in some new mobility services but currently face significant barriers to use**, most notably physical and sensory inaccessibility. Three findings are especially notable:

- 1) Out of all new mobility options, **people with disabilities in San Francisco are most interested in on-demand automobility**, e.g. accessible TNCs or accessible taxis.
- 2) Respondents expressed significant concern about scooters and dockless bike share blocking the path of travel, and nearly **75 percent of respondents reported that an improperly parked scooter or bike created a mobility barrier for them on at least one occasion**. Only 16 percent indicated that bikes or scooters had *not* blocked their access to the street or sidewalk.
- 3) With broken sidewalks and missing curb ramps common, **people with disabilities still face many barriers to basic mobility**. Some people with disabilities are

frustrated by the focus on new mobility services when many disabled people still cannot accessibly navigate their own neighborhoods.

Based on these findings, I recommend the following actions:

**1) Continue advocating for more effective TNC Wheelchair Accessible Vehicle (WAV) regulations at the state level.**

In 2018, California Governor Jerry Brown signed Senate Bill 1376 into law. Also known as the TNC Access for All Act, SB 1376 charges a surcharge on inaccessible TNC rides. San Francisco should continue advocating through the California Public Utility Commission's (CPUC) current SB 1376 rulemaking process for more rigorous TNC Wheelchair Accessible Vehicle (WAV) regulations that will provide equivalent service to wheelchair users.

**2) Address the problem of scooters and bicycles on sidewalks.**

New mobility companies need stronger incentives to keep sidewalks clear. Some of San Francisco's policies here have proven effective and should be continued, such as scooter "lock-to" requirements and bike rack installation paid for by the scooter companies. San Francisco should consider placing additional requirements on the micromobility companies to increase user accountability, such as mandatory user fines for incorrect parking. SFMTA could also pilot interventions such as drop zones and a valet model in select high-use areas, where micromobility staff help riders rent devices and provide in-person guidance on riding and parking requirements.

**3) Build safer active transportation infrastructure to decrease conflicts between modes and make public space safer for vulnerable pedestrians.**

People with disabilities reported safety concerns with new mobility services. Building protected bike lanes and wider sidewalks will increase safety among disabled road users, and will enable scooter and bike share riders (disabled and non-disabled) to use their devices without impeding pedestrian space. SFMTA should also continue its recent practice of conducting project site visits with people who have various disabilities. By gathering first-hand feedback on the challenges of a particular project site, planners will be better equipped to design accessible infrastructure.

# Introduction

Thirty years after the passage of the Americans with Disabilities Act (ADA), people with disabilities still face significant barriers to full participation in society (Cokley, 2019). Despite the ADA's promise of equal access, people with disabilities have lower employment rates, lower incomes, and greater social isolation than the general population (Cokley, 2019). Many buildings remain physically inaccessible, and disability discrimination persists (Cokley, 2019). Compounding all of these issues is a lack of accessible mobility (Rosenbloom, 2007). Nearly one third of people with disabilities describe inadequate transportation as a problem in their lives, and many major transportation systems have large accessibility gaps (Rosenbloom, 2007; Walker, 2017). Despite increased access in the past few decades, people with disabilities still face substantial transportation challenges (Rosenbloom, 2007).

At the same time, able-bodied people have perhaps more transportation options than ever. Over the past few years, many major metropolitan areas have seen a rapid increase in transportation technology known as “new mobility” or “emerging mobility.” These new services include electric scooters, bike share, car share, and ride hail/transportation network companies (TNCs). In the San Francisco Bay Area, home to Silicon Valley and the 2010s tech boom, new mobility services are particularly widespread (Schneider, 2018). Transportation network companies such as Lyft and Uber—which began in the Bay Area—make up approximately 25% of peak hour traffic in Downtown San Francisco (SFCTA, 2017). San Francisco's bike share system launched in 2013, and San Francisco was among the first cities to see hundreds of scooters on its streets and sidewalks (Keeling, 2018).

While new mobility advocates praise the services for providing alternatives to single-occupancy vehicle travel, these modes have not operated without controversy (Yue, 2019). One key point of contention is the question of disability access (Wright, 2020). Despite a clear need for better transportation options and a civil rights law prescribing equal access, disability advocates have stressed that most new mobility services are inaccessible to many disabled people (Flamm, 2018). In some cases, advocates say, new mobility actually creates additional barriers (Bowen, 2019).

Very little research exists, however, on people with disabilities and new mobility services. This study is one of the first reports on perceptions of new mobility services among disabled people, and the first to examine new mobility and accessibility in San Francisco. By asking disabled people what they actually want out of new mobility services, this study aims to illustrate how people with disabilities view their place in a shifting transportation landscape.



Notably, this survey pre-dates the COVID-19 pandemic, which has had disproportionately negative effects on transportation access for people with disabilities (Cochran, 2020). In light of this pandemic, attention to disabled mobility is more important than ever.

Employing survey data collected from 218 disabled people in San Francisco, this report addresses the following research questions:

- How do people with disabilities in San Francisco perceive new mobility services?
- What are their experiences using or encountering new mobility services?
- To what degree are they interested in using various new mobility services?
- How do they prioritize new mobility access in the context of their broader transportation needs?

Ultimately, I find that disabled San Franciscans have mixed opinions of new mobility services. Many are interested in using one or more of these services but face barriers to doing so, most notably accessibility and affordability. Additionally, people with disabilities are most enthusiastic about on-demand automobile travel, such as accessible TNCs or accessible taxis. Given that current accessible on-demand options are limited, these results suggest substantial latent demand for these services.

People with disabilities are also very concerned about scooters and dockless bike share blocking the path of travel. Nearly 75% of respondents reported at least one experience with an improperly parked scooter or bike creating a mobility barrier, and many open-ended comments stressed the need to keep sidewalks clear. Finally, the disability community continues to face transportation barriers that go beyond inaccessible new mobility services. Some survey respondents expressed frustration with the focus on new mobility when many disabled people still cannot easily walk or wheel through their own communities.

## Background and Context

### *New Mobility Services*

**New mobility** is a relatively recent term. Also known as “micromobility” or “emerging mobility,” in this report new mobility refers primarily to four modes: transportation network companies (TNCs), also known as ride hail (e.g. Uber or Lyft), bike share (e.g. Bay Wheels or Jump), scooter share (e.g. Scoot, Spin, Jump, or Lime), and car share (e.g. ZipCar, GIG, Car2Go, or Turo).

New mobility services emerged during the past decade, though their presence in cities has dramatically expanded over the past few years (NACTO, 2018; Schneider, 2018). These services are generally available on-demand and rely on real-time location data and mobile apps to serve customers. While many new mobility services are operated by private companies, some are publicly-owned or offered through public-private partnerships (Dalton, 2018).

**Transportation network companies (TNCs)**, also known as “ride hail,” are the most widely used of all new mobility services (Chiland, 2020; Schmitt, 2019). TNCs provide on-demand vehicle rides to users, who are connected to drivers through a mobile app. The two major TNCs, Uber and Lyft, are both headquartered in San Francisco. Uber and Lyft launched in 2011 and 2012, respectively, and at the time neither offered wheelchair accessible vehicle (WAV) options (SFMTA, 2019). In 2016, Uber attempted to recruit accessible van owners to drive for their service, but only three WAV drivers in the Bay Area joined the platform. Frequent wheelchair accessible options thus did not become available (P. Mendoza, personal communication, March 13, 2019; I. Smith, personal communication, February 19, 2019). The rise of TNCs also decreased the availability of accessible taxis, as taxi drivers began driving for Lyft and Uber, using their non-accessible personal vehicles instead (SFMTA, 2019).

In 2018, however, Uber rolled out a new UberWAV program, this time with more drivers and a greater number of accessible vehicles (SFMTA, 2019). Uber contracts with MV Transportation, a paratransit provider, to offer on-demand accessible vehicle service in several major cities, including San Francisco. In 2019, Lyft launched their own WAV program, Lyft Access (Khalid, 2019). Lyft contracts with another paratransit broker, First Transit, to provide service. Lyft Access is currently available in a few counties, San Francisco among them.

**Car share**, meanwhile, has become less accessible over time in the Bay Area. A form of car rental, car share companies have a variety of service models, including free floating, point-to-point, and peer-to-peer. While a small fleet of accessible vehicles was available to Bay Area residents through City Car Share between 2001 and 2016, the program is now defunct. Until 2019, several wheelchair accessible vans could be rented from Community Resources for Independent Living (CRIL), but those vehicles are now out of service as well (J. Lehman, personal communication, January 3, 2020).

**Bike share** launched in the Bay Area in 2013 as Bay Area Bike Share. Later known as Ford GoBike and now as Bay Wheels, the program is a public-private partnership between the Metropolitan Transportation Commission and Lyft. Bay Wheels is a station-based bike share system, where users can rent a standard bicycle at a particular station and return it to any bike share station across the region. Bay Wheels also offers electric bikes, which can be docked at a station or locked to a bike rack (SFMTA, n.d.). San Francisco additionally permitted the operation of JUMP, a private dockless bike share program owned by Uber, though JUMP recently left San Francisco (Huston, 2020).

Following a similar program in Oakland, the San Francisco Municipal Transportation Agency (SFMTA) partnered with Bay Area Outreach and Recreation Program (BORP), San Francisco Recreation and Parks, and Lyft to launch an adaptive bike share program in 2019. Various forms of accessible bicycles are available for rental on Sundays in Golden Gate Park. Unlike conventional bike share, bikes must be rented and returned at a single location (A. Brown, 2019).

**Scooter share** is the most recent of the major new mobility modes to launch in San Francisco. Like other new mobility services, scooters are available on-demand via a mobile app. In San Francisco, these electric scooters are exclusively operated by private companies, some of whom began operating in the city without municipal permits (Keeling, 2018). Recently, SFMTA required permitted scooter companies to develop and deploy adaptive scooters. Their main point of controversy, however, is not their lack of accessible service but improper scooter parking by users, who sometimes block the path of travel with the devices (Bowen, 2019).

**Regulation** is an on-going issue with new mobility services. In California, cities regulate scooters, bike share, and car share, although the state remains involved with the ongoing (and contentious) question of data sharing and consumer privacy.

TNCs, meanwhile, are regulated by the California Public Utilities Commission (CPUC), a state agency (SFMTA, 2019). CPUC regulation has been a source of frustration for cities and local transportation agencies (SFMTA, 2019). TNCs have dramatically changed the urban landscape in large cities like San Francisco, but without the ability to requisition trip data or craft regulations, municipalities are limited in their response. The CPUC has generally taken a hands-off approach to TNCs, but cities are beginning to leverage their influence over state lawmakers to pass regulations in the state legislature.

In 2018, California Governor Jerry Brown signed Senate Bill 1376 into law (Hill, 2018). Also known as the TNC Access for All Act, SB 1376 charges a surcharge on inaccessible TNC rides.

While currently still in the rule-making process, the legislature passed SB 1376 to provide additional funding for accessible transportation options. With this new funding source in the works, San Francisco transportation planners are especially interested in understanding how people with disabilities perceive and use new mobility services so that the funding can be allocated efficiently.

## *The Disability Community*

**Disability** can be defined in many ways. The United States government's definition differs from activist and disability studies definitions, and all of these conceptions of disability have evolved over time. The most recent significant change to the federal government's definition of disability was through the ADA Amendments Act of 2008, which defines disability as having "an impairment that substantially limits one or more major life activities, a record of such an impairment, or being regarded as having such an impairment" (EEOC, 2008).

This report uses activist and attorney Lydia Brown's definition, which does not place a value judgement on disability. They write, "people are disabled when they have physical or mental differences or impairments while living in a society where their bodies and ways of thinking, communicating, sensing, or moving are not treated as 'normal' or 'natural'" (L. Brown, n.d.).

Alison Kafer's (2013) political/relational model of disability is also useful in this context. Kafer notes that the "problem" of disability does not "reside in the minds or bodies of individuals but in built environments and social patterns that exclude or stigmatize particular kinds of bodies, minds, and ways of being (p. 6)."

In the United States, an estimated 40 million people have at least one disability (ACS, 2017). In San Francisco, approximately 90,000 people are disabled, or ten percent of the population (ACS, 2017). Compared to the general population, disabled people are older, lower-income, and have lower smartphone use (ACS, 2017).

**Accessibility** is another term whose meaning varies. It is also a term which transportation planners generally use differently than people with disabilities. In transportation terms, access refers broadly to the ability to reach desired locations (Litman, 2020). This study uses Lydia Brown's definition, however, which is widely accepted within the disability community. Brown defines accessibility as "how well a person with atypical ways of

thinking, communicating, sensing, or moving, can easily navigate an environment” (L. Brown, n.d.).

Naturally, what is accessible for one disabled person may not be for another. In the survey instrument used for this study, individuals were asked to consider what options would be accessible for them, leaving it to survey-takers to define what accessibility means for themselves.

**Language** is another contested element of the disability community. Although terminology varies, most people prefer either identity-first language (disabled person) or person-first language (person with a disability) (L. Brown, 2011). To respect the variety of preferences, I use both terms in this report.

# Literature Review

## Transportation Access for People with Disabilities

Transportation enables access to a broad range of opportunities (Ong and Miller, 2005). Transportation access is an especially prominent issue in the lives of disabled people (Park et al, 1998; Rosenbloom, 2007), who face additional barriers to employment, education, and other activities of daily life (National Council on Disability, 2015).

People with disabilities have been advocating for accessible transportation since the 1970s, when the activist group ADAPT (Americans Disabled for Accessible Public Transit) staged a series of protests demanding wheelchair lifts on public buses (Rudolph, 2015). In 1990, Congress passed the Americans with Disabilities Act (ADA), which protects people from discrimination on the basis of disability. The ADA requires both public transportation agencies and private transportation companies to provide accessible service (ADA National Network, 2018).

Although attention to the mobility needs of the disability community has grown over the past several decades, significant barriers remain (Rosenbloom, 2007). Almost one third of people with disabilities describe inadequate transportation as a problem in their lives and nearly two-thirds of people with disabilities who reported major transportation problems had annual incomes below \$35,000 (Rosenbloom, 2007). Many major transit systems still have large accessibility gaps (Walker, 2017). In New York City, for example, only 20 percent of subway stations are wheelchair accessible (Walker, 2017). Moreover, large lawsuits have been filed during the past few years over inaccessible sidewalks (Tinoco, 2018), inaccessible elevators in transit stations (Brinklow, 2017), and inaccessible new mobility services (Lien, 2018).

These gaps in the accessible transportation network have major implications for the day-to-day lives of people with disabilities (Lubin and Deka, 2012). In studying people with developmental disabilities, Wasfi, Levinson, and El-Geneidy (2006) note that, "About 30% reported being unable to make trips they want to make and 46% unable to make trips they need to make (p. 2)." Feeley (2009) reports that, "Transportation was noted as a significant obstacle to participating in work (50.9%) and non-work (48.0%) activities" of Autistic people (p. 1). Lubin and Deka (2012) surveyed a broad disability population and found that, "Although satisfaction with [transit] vehicle equipment compliant with the Americans with Disabilities Act seems high, many individuals are dissatisfied with the level of transit service and environmental barriers between homes and transit stations and stops (p. 90)." Overall,

researchers note major deficits in transportation access for people with a variety of disabilities and find that people with disabilities are generally unhappy with their current levels of transportation access (Brumbaugh, 2018).

## The Rise of New Mobility Services

Most of what is considered “new mobility” emerged in the past decade, although car share launched in the decade prior. TNCs are especially popular, with for-hire vehicle use in the United States doubling between 2009 and 2017 (Conway, Salon, and King, 2018). As of 2017, TNCs in San Francisco made more than 170,000 daily vehicle trips, representing 15 percent of all intra-San Francisco vehicle trips (SFCTA, 2017).

Bike share systems, meanwhile, have emerged in most major cities around the world. Although bicycle mode share hovers around 2% in San Francisco, the bike share system has seen nearly 4.5 million trips since mid-2017 (SFMTA, 2020).

Scooters and dockless bikes, meanwhile, only emerged in the past few years, but in some cities quickly eclipsed bike share ridership (City of Santa Monica, 2019). While some cities have banned private micromobility companies, others, including San Francisco, have permitted their operations. Most cities are still in the first or second round of pilot programs, and regulations continue to evolve (SFMTA, 2019).

Limited research exists on perceptions of new mobility services among the general population, making comparisons to the disability community more challenging. Existing data suggest, however, that young people are more enthusiastic about these services than older adults. Users also have higher incomes than the population at large and are more likely to be men (City of Santa Monica, 2019).

## Disabled Travelers and New Mobility

Because TNCs are both more widely used and slightly older than some of the other new mobility services, most new mobility research focuses on them. In a national study, Cochran and Chatman (2019) find that while people with disabilities have lower monthly TNC use than the general population, they have higher daily use of both taxis and TNCs. They explain that the disability community’s older, lower-income population partially explains the lower monthly use and conclude that “latent demand for accessible ridehailing is likely high among people with disabilities (p. 4).”

Scholars have also examined the question of whether TNCs are violating the Americans with Disabilities Act, though the matter is not yet settled. Thus far, TNCs have been able to operate in most cities and states without providing accessible service, though the United States Justice Department has sided with disability rights organizations who have sued Uber for not providing equal access (Rogers, 2016).

Reed (2017), however, notes that “the text of the ADA—the United States’ landmark civil rights legislation for people with disabilities—fails to impose clear and adequate obligations on this new industry,” and concludes that “TNCs make a weak but credible argument claiming their business model falls outside the scope of Title III,” which regulates private transportation services.

Also contested is the issue of micromobility devices blocking access to sidewalks (Yue, 2019). While impeding the path of travel is a clear ADA violation, planners and researchers have not established the extent of this problem. While disability advocates contend that micromobility devices frequently present access barriers, some cities have addressed this issue more directly than others.

A recent study of five major cities found that only two percent of scooters are improperly parked, but due to the limited scope of observation, the “findings may not be generalizable” (Brown et al., 2020). In San Francisco, for example, the researchers observed 87 instances of bike and scooter parking and found no violations. These observations were limited to one city block in the Marina neighborhood, however, while the majority of scooters and bikes in San Francisco can be found in the Financial District and in SoMa (South of Market). Data from SFMTA, meanwhile, show 1,844 citations of scooter companies for improper parking or obstructing pedestrian space between October 2019 and April 2020.



# Methodology

This study uses survey analysis to understand how people with disabilities in San Francisco perceive new mobility technology. Currently, no quantitative data exist on attitudes toward new mobility services among the disability community. At the behest of SFMTA, I conducted a survey to understand how people with disabilities feel about new mobility. Disabled individuals who live, work, and/or routinely travel in San Francisco were eligible to take the survey (see **Appendix A** for demographic statistics of the sample).

In order to collect the largest number of survey responses possible, I partnered with Senior and Disability Action (SDA), a community-based disability rights organization in San Francisco. I received funding from the UCLA Institute of Transportation Studies for this work. Jessica Lehman, SDA's Executive Director, and Pi Ra, who leads SDA's work on transportation justice, distributed surveys and worked with SDA's members to collect responses.

I used convenience and snowball sampling, sending the survey to community organizations in the San Francisco Bay Area and asking them to pass along the survey link and/or paper survey to their members (see **Appendix B** for a complete list of organizations). I also posted information about the survey on Facebook and Twitter and asked contacts to spread the word via their own social media accounts. Senior and Disability Action brought the survey to various community meetings of disability and/or senior groups, asking meeting attendees to complete the survey. Additionally, a handful of SDA members collected survey responses at bus stops.

The sample is not random, however. Most notably, white people and women are overrepresented in the sample. Additionally, while paper copies of the survey were available in Spanish and Chinese, I only received a single response in Chinese and none in Spanish, indicating that this survey did not adequately reach non-English speakers. Furthermore, although the survey was offered both online and on paper, socially and/or technologically isolated disabled individuals are most likely underrepresented in the sample. The findings, therefore, provide insight into this topic but may not reflect the views of the entire population.

Additionally, because research on new mobility is still emerging, the survey results are in some cases difficult to compare to the general population. While comparisons are drawn where data exist, this report should be taken as a study of one particular population, rather

than as a comparison between a marginalized community and San Francisco residents as a whole.

Ultimately, I received 218 responses between December 2019 and February 2020, with the majority collected online via SurveyMonkey.

## Survey Design

The survey included 40 questions, with a variety of question types: closed-ended, Likert scale, multiple choice, open-ended, and demographic. The survey instrument was designed in partnership with Erin McAuliff and Annette Williams at SFMTA and Jessica Lehman and Pi Ra at Senior and Disability Action. I pre-tested the survey with SDA's Transit Justice group and adjusted the survey instrument based on their feedback. The final survey instrument is available in **Appendix C**.

The survey instrument was divided into three parts: perceptions of new mobility, experiences with new mobility, and priorities for future mobility options. Within new mobility, the survey primarily asked about four mode types: TNCs/ride hail, bike share, scooter share, and car share.

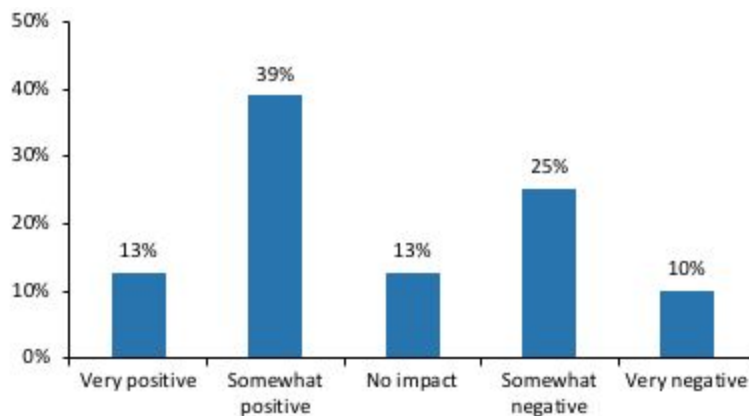
# Findings

Overall, people with disabilities in San Francisco have mixed views of new mobility services. While a slight majority (52 percent) believes that new mobility has a positive effect on their ability to travel (see **Figure 1**), survey respondents reported significant barriers to use, most notably physical and sensory inaccessibility.

Three findings are especially notable:

- 1) Out of all new mobility options, **people with disabilities in San Francisco are most interested in on-demand automobility**, e.g. accessible TNCs or accessible taxis.
- 2) Respondents expressed significant concern about scooters and dockless bike share blocking the path of travel, and **nearly 75 percent of respondents reported that an improperly parked scooter or bike created a mobility barrier for them on at least one occasion**. Only 16 percent indicated that bikes or scooters had *not* blocked their access to the street or sidewalk.
- 3) With broken sidewalks and missing curb ramps common, **people with disabilities still face many barriers to basic mobility**. Some people with disabilities are frustrated by the focus on new mobility services when many disabled people still cannot accessibly navigate their own neighborhoods.

**Figure 1.** What type of effect do new mobility services have on your ability to travel?

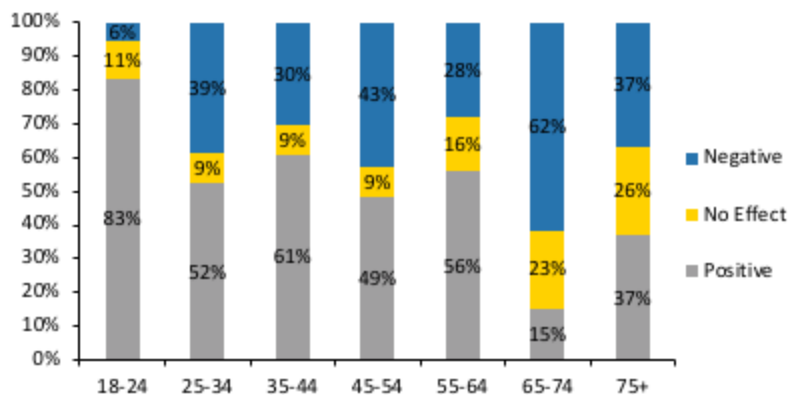


## Overall Perceptions and Experiences

While the majority of respondents had used Uber and/or Lyft, most had not tried scooters, bike share, or car share. This finding aligns with the new mobility use of the general population. Responses also varied among different demographics, with the most notable discrepancies among people of different ages, incomes, and disability types. Additionally, people of color had more positive opinions of new mobility than white people, with 61 percent expressing that new mobility had a positive effect on their ability to travel, compared with 47 percent of white respondents.

Aligning with the general population (City of Santa Monica, 2019), young people with disabilities were more likely to have tried new mobility services and also were more likely to perceive them positively (see **Figure 2**). Eighty-two percent of respondents between the ages of 18 and 24 described the effect of new mobility on their ability to travel as somewhat or very positive, while only 25 percent of those 65 and older said the same.

**Figure 2.** What type of effect do new mobility services have on your ability to travel?



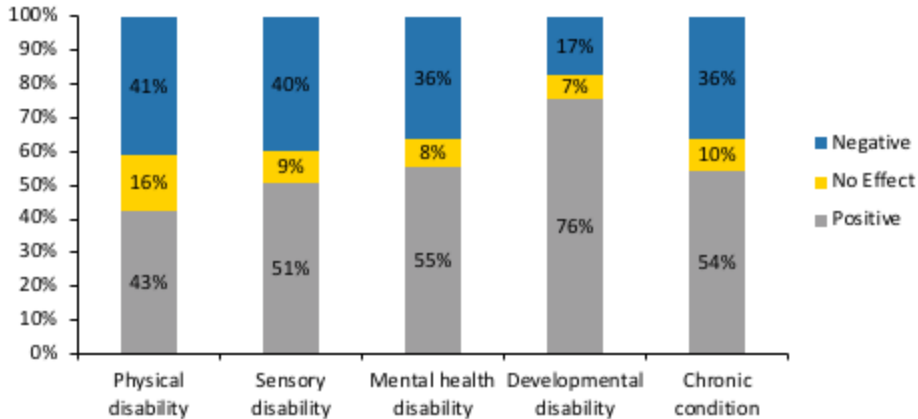
*Perceptions of new mobility services by age.*

High-income respondents are more likely to support new mobility services and to believe new transportation options such as autonomous vehicles will positively affect their ability to travel in the future. Unsurprisingly, higher-income respondents are much more likely to own smartphones and to report comfort with using an app to access transportation services, whereas lower-income respondents are more likely to report lack of smartphone or internet access as a barrier to use.

Attitudes also vary across disability (see **Figure 3**). Those with physical disabilities are least likely to report that new mobility services have positively affected their ability to travel (43

percent), while those with developmental disabilities are most likely (76 percent). People with physical disabilities were also most likely to have tried UberWAV or Lyft Access (20 percent), and least likely to have tried scooter share (8 percent).

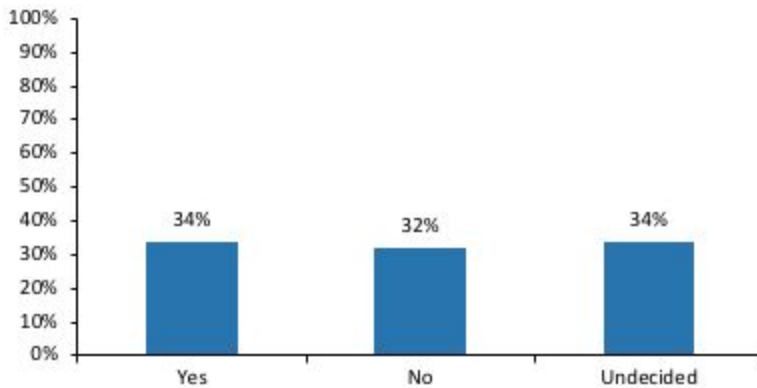
**Figure 3.** What type of effect do new mobility services have on your ability to travel?



*Perceptions of new mobility services by type of disability.*

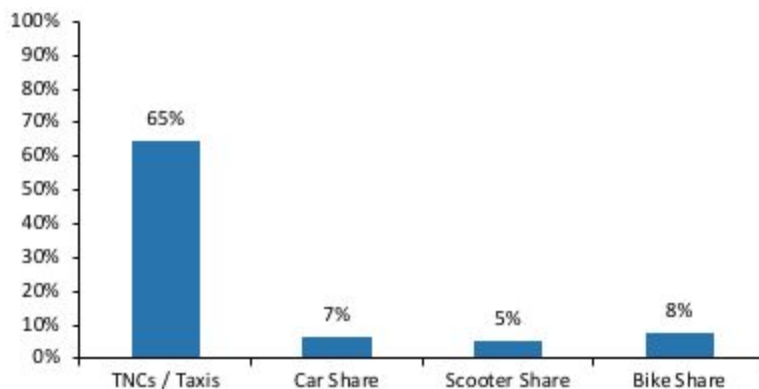
Overall, nearly 70 percent of respondents support the city allowing new mobility services if they are required to be accessible, with answers fairly consistent across disability types. When asked if they would support an inaccessible service if it provided enhanced funding for other accessible transportation options, however, the results are split (see **Figure 4**). One third of respondents are in support, one third are opposed, and the final third are undecided. Interestingly, those with physical disabilities are most likely to be in support of this proposition.

**Figure 4.** Would you support a new mobility service that is not accessible if it provided enhanced funding for an accessible service?



Finally, 75 percent of respondents said it was more important to them to have good, accessible transportation options than for every transportation mode to be accessible. When asked which new mobility service would be most useful for their daily life were it accessible to them, 65 percent selected on-demand accessible vehicles (see **Figure 5**).

**Figure 5.** Which of these new mobility services would be most useful for your daily life if accessible?

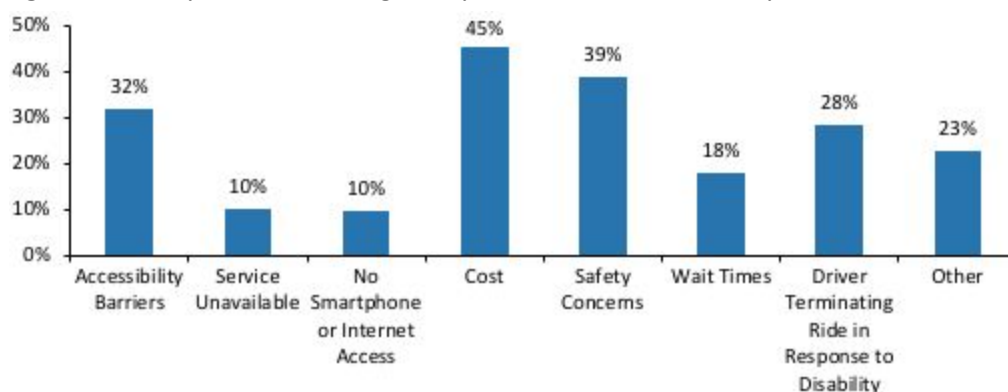


## Transportation Network Companies

People with disabilities were more likely to have used transportation network companies (TNCs) than any other new mobility service identified in the survey, an expected finding given the overall prevalence of TNCs. Seventy-two percent of respondents had used the standard Lyft or Uber service. TNC users were more likely than non-TNC users to think new mobility services have a positive impact on their ability to travel. Understandably, those who cannot access TNCs or are not interested in using TNCs are less likely to find them beneficial.

When asked about barriers to standard TNC use, however, the most common response was unaffordability, followed by safety concerns, and then physical access to the vehicle (see **Figure 6**), though among wheelchair users lack of physical access was the most prominent barrier. Additionally, among respondents who had used a standard TNC, 28 percent reported experience with a driver terminating or refusing a ride in response to their disability or service animal.

**Figure 6.** Do any of the following limit your access to Uber and Lyft?



*Note: respondents were allowed to select multiple responses.*

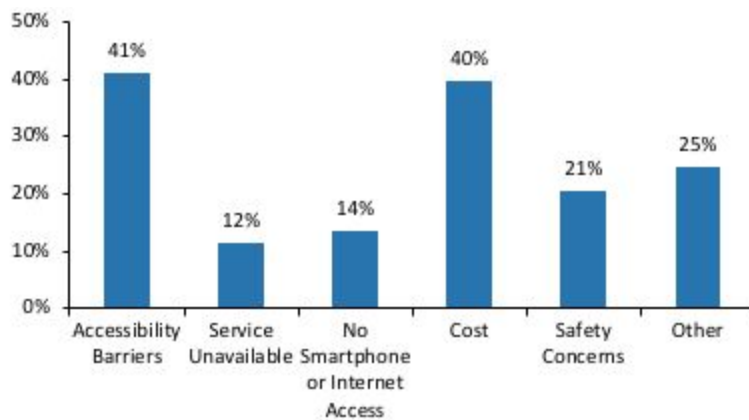
Only 15 percent of respondents reported using a wheelchair accessible vehicle (WAV) TNC. For those with TNC WAV experience, wait times were the most commonly identified barrier, with 43 percent of respondents noting them as a challenge.

When asked an open-ended question about improving access to TNCs, many respondents mentioned driver education as a major factor. Respondents related stories of canceled rides in response to their disabilities or service animals, insensitive disability-related comments, and driver refusal to assist disabled passengers. Several people noted that the issues went beyond interpersonal bias and suggested that the onus should be on the service providers to train and manage their drivers. One respondent suggested hiring people with disabilities to operate WAV vehicles as a way to ensure more disability-friendly drivers. Finally, some were opposed to TNCs for ethical reasons and for their effect on other forms of transportation. As one person stated, “I am NOT interested in anything that further increases their unethical and anti-worker business practices.” Another shared that they “fear that Uber/Lyft proliferation will negatively affect public transit and budget cuts are imminent.”

## Car Share

While not as widely used as TNCs, nearly one third of survey respondents had experience with car share, with dedicated parking car share (such as Zipcar) the most common type. Physical accessibility and cost were the primary barriers for respondents, with 41 percent and 40 percent of respondents identifying those factors, respectively (see **Figure 7**).

**Figure 7.** Do any of the following limit your access to car share?



*Barriers to car share use among all respondents.*

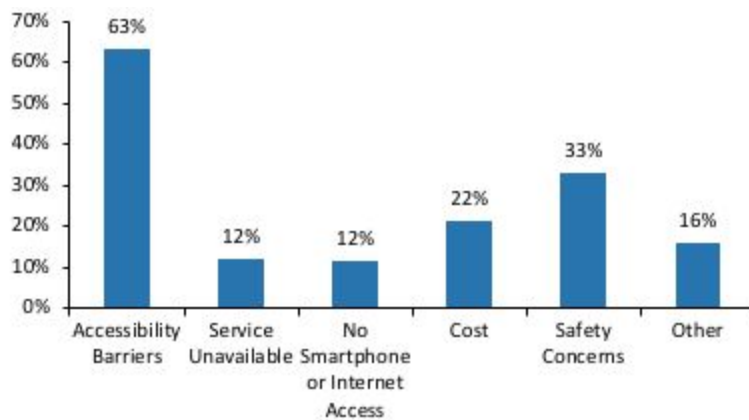
While some respondents noted in the open-response section that they cannot drive because of their disabilities and, therefore, have little interest in car share, others described the potential of accessible car share as “life changing.” One respondent explained, “I don’t have a car here (too expensive) but would love to use an accessible vehicle to go on day trips and get out of the city.” Several people also mentioned that accessible car share used to be more widely available in the Bay Area and expressed their desire to see better service return.

## Bike Share

Only seven percent of respondents reported using standard bike share (either Bay Wheels or Jump). When asked about barriers to use, 63 percent of respondents cited the inaccessibility of the bikes and 33 percent were concerned about safety (see **Figure 8**). When asked about bike designs that would be accessible to them, 26 percent selected fully electric bikes, 17 percent selected bikes with electric assist, and 25 percent said that other adaptive cycles would be accessible for them. People also noted that they would rather have expanded access for work or errands than recreation. Notably, 60 percent indicated that they do not intend to use bike share regardless of accessibility.



**Figure 8.** Do any of the following limit your access to bike share?



*Barriers to bike share use among all respondents.*

When asked about their participation in accessible bike share programs, numbers were low, unsurprising given the low bicycle mode share in San Francisco. Only four percent had used accessible bikes offered in San Francisco and three percent used accessible bikes through Oakland’s program. Nearly half of respondents were not aware of the accessible bike share options.

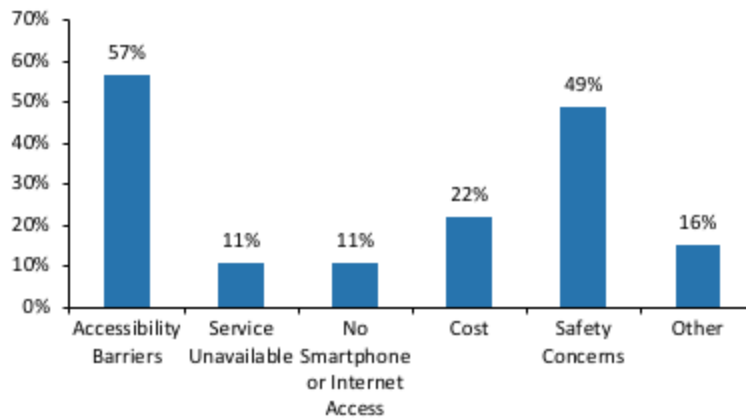
Furthermore, a number of people expressed doubt about the usefulness of this service for them. “I have not discovered a bicycle that I am able to use,” one respondent wrote. Another explained, “I just...don’t see this as a good option? It seems scary to be on a bike in SF, it is SO hilly. I have weak bones and it would only take one fall to cause a catastrophic injury.” Others, however, expressed interest. Said one respondent, “My biggest hangup was that I’ve never learned how to ride a bike, disability has gotten in the way! A lot of people I know, including myself, hadn’t heard of accessible bikes, and I’d hope that they become mainstream in these cities.”

To increase bike share use among the disability community, respondents suggested increased community outreach and education. Several also noted safe bike lanes as instrumental to their ability to access bike share. Finally, respondents noted constraints of the existing accessible bike share program, as “there’s no current option for commuting to work or running errands by bike.”

## Scooter Share

Slightly more people had used scooters than bike share, though at 10 percent of respondents, the share remains fairly low. By far the most common barriers identified were lack of physical access and safety concerns (see **Figure 9**).

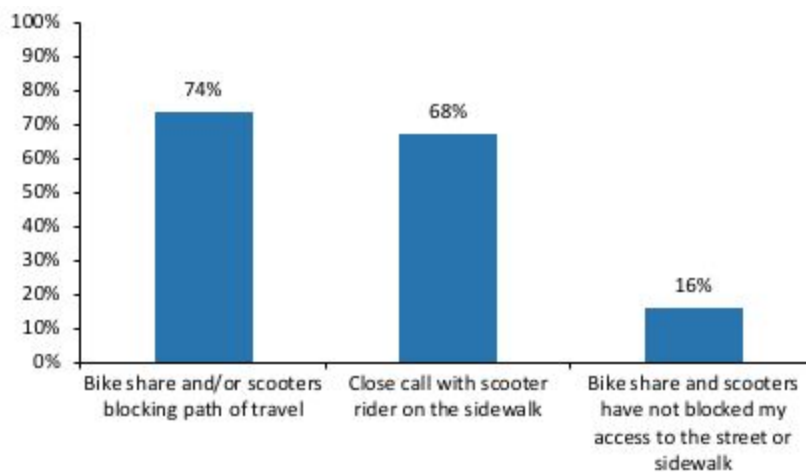
**Figure 9.** Do any of the following limit your access to scooter share?



*Barriers to scooter share use among all respondents.*

Furthermore, respondents indicated that dockless mobility devices were responsible for additional accessibility challenges. Seventy four percent of respondents had experience with bike share and/or scooters blocking their path of travel and 67 percent reported at least one close call with a scooter rider on the sidewalk (see **Figure 10**). Only 16 percent indicated that bikes or scooters had *not* blocked their access to the street or sidewalk.

**Figure 10.** Have you experienced any of the following with bike share or scooters?



In the open-ended response section, the most common sentiment expressed was the desire to remove scooters from sidewalks. While a few people shared their ideas for increasing scooter access for the disability community (seated scooters, three-wheeled scooters, integrated helmets), the majority were focused on eliminating the barriers introduced by scooters.

## Other Mobility Barriers

Throughout the survey, respondents shared barriers to using new mobility services that go beyond access to the vehicle or device itself. Respondents noted that uneven or broken sidewalks and missing curb ramps make it difficult to reach a new mobility vehicle or device. Additionally, respondents noted that these deficits in accessible transportation infrastructure require attention for their own sake, as navigating public space remains inaccessible for some. In the final open-response question about general hopes for the future of accessible transportation, several people expressed apprehension that new mobility services would be prioritized over transit and pedestrian accessibility. As someone shared, “we can’t just invest time and money in forcing private services to \*comply with federal and state laws\* to the detriment of public transit.” This sense of a larger transportation picture was present throughout the survey results, as was a frustration with long-term accessibility issues. As one respondent expressed, “Please enforce the ADA! It's been almost 30 years and the ADA is still in "transition" -- this is ridiculous!”

## Discussion

As reflected in the survey findings, people with disabilities have diverse experiences and differing access needs. While many disabled people have used at least one form of new mobility, barriers remain substantial and go beyond physical access. In particular, respondents cited affordability and safety as key concerns. The disability community has lower incomes than the general population, and therefore accessible services must include affordable options, or the “accessible” transportation services will in practice only be accessible to a small population of high-income disabled individuals. Safety concerns, meanwhile, align with concerns of the general public (City of Santa Monica, 2019), but also likely reflect that disabled people are more vulnerable to new mobility-related safety risks such as traffic fatalities (Kraemer and Benton, 2015) and driver sexual assault (Shapiro, 2018).

Additionally, perceptions and experiences vary somewhat between people with different disabilities. This is unsurprising: what is accessible to a blind person may not be accessible to a wheelchair user, and vice versa. As survey respondents expressed, offering a range of adaptive options and working with the disability community to test accessibility are important steps in making new transportation options available for people with disabilities.

Furthermore, the survey findings indicate that some form of on-demand accessible vehicle travel is important for the mobility of many disabled people. This finding tracks with data from the National Household Travel Survey, which indicates that people with disabilities are most likely to travel as a passenger in a vehicle (NHTS, 2017). Moreover, the availability of San Francisco ramp taxis has decreased in recent years, leaving a gap in accessible vehicle transportation (J. Lehman, personal communication, January 3, 2020). Many respondents noted that they take a variety of modes, including transit, but indicated that the ability to access vehicle travel when necessary is important for them. Private vehicles provide benefits that transit cannot, such as flexibility of time and space, and disabled people would like access to these benefits.

In comparison with vehicle travel, people with disabilities are less interested in bike share and scooters. This finding squares with the overall mode share of bikes and scooters; in cities built for private vehicle travel, the general public is also less interested in bike share and scooters than in automobility. Still, the survey results indicate that these modes could be valuable options for some disabled individuals, especially if the adaptive options enable people to take one-way trips. The lower demand for micromobility may also reflect the

difficulty of imagining accessible options that are not yet widely available. As disabled people gain access to three-wheeled scooters, electric tricycles, and other forms of adaptive micromobility, interest may increase.

Perhaps more urgently needed than accessible micromobility options, however, are interventions to prevent bikes and scooters from harming disabled pedestrians. The overwhelming majority of survey respondents reported experience with bikes and scooters creating accessibility barriers, either by blocking the path of travel or through sidewalk riding. In addition to the logistical problem that an incorrectly parked or ridden scooter presents, respondents also explained that these experiences make them feel less welcome and less safe in public space. While some transportation planners and researchers have indicated that they believe this problem is overstated (Brown et al., 2020), safe and unimpeded access to the path of travel is clearly a major priority of people with disabilities in San Francisco.

Finally, many respondents expressed their frustration with transportation barriers that predate new mobility. Some barriers, like broken sidewalks and missing curb ramps, are both problems in and of themselves and also preclude new mobility use, even if adaptive options were available. After all, someone cannot reach an adaptive scooter if the sidewalks in their communities do not have curb ramps. Other respondents cited lack of seating at transit stops and along sidewalks and overcrowded Muni buses as barriers to nominally accessible transportation services. As planners discuss new transportation services, they should not forget that traditional transportation modes remain inaccessible for many.

Ultimately, it is not surprising that some disabled people are hesitant to try services that were launched without accessible options, and whose providers frequently battle with civil rights organizations over legal obligations to the disability community. As disability rights advocate Fiona Hinze notes, the fights over new mobility are arguments the disability community thought they settled nearly 30 years ago with the passage of the Americans with Disabilities Act (F. Hinze, personal communication, February 22, 2019). Yet despite some reservations about new mobility services, many respondents were optimistic about the potential for increased accessibility. The survey findings indicate that accessible new mobility services could play an important role for disabled individuals and help fill gaps left by traditional transportation options. So far, however, that potential is mostly unrealized.

# Policy Recommendations

## Continue advocating for more effective TNC WAV regulations at the state level

Because on-demand vehicle transportation is the most widely desired form of new mobility, improving TNC WAV service is a high priority. Cities like San Francisco should continue advocating through the CPUC's current SB 1376 rulemaking for more rigorous TNC WAV regulations that will provide equivalent service to wheelchair users as soon as possible. This requires adopting service standards for availability and wait times that are equivalent to the experience of the general public, and for data sharing requirements that ensure transparency on how fees collected from the public are being used to provide and improve TNC WAV service. The rulemaking process is ongoing, but concerns remain about the program's effectiveness. City government should stay involved and intervene if necessary.

Additionally, because the rulemaking process has been so opaque, SFMTA should consider sharing milestones and opportunities to provide feedback with the San Francisco disability community.

Furthermore, San Francisco should continue to press the CPUC to address disability discrimination on the standard TNC platforms. As a starting point, the CPUC should investigate disability-related discrimination claims from TNC passengers and make their findings publicly available. Additionally, the CPUC could compel TNCs to pay drivers a bonus for each trip where they transport users with mobility devices and/or service animals, creating an incentive to serve disabled users. San Francisco should also advocate for better driver education across service types, especially with regard to non-apparent disabilities.

Furthermore, SB 1376 provides a model that San Francisco could apply to other new mobility services under its purview, such as scooters. Fees from inaccessible micromobility trips could be used to help fund accessible transportation.

Finally, San Francisco should continue its ramp taxi incentive program, which provides financial benefits and priority airport access to drivers who serve wheelchair users. The program, which includes additional incentives for night time service and service in outlying areas, expands on-demand vehicle access in San Francisco.

In order to meet the need for timely service, SFMTA should consider expanding these incentives to ensure that wait times are reasonable. Additionally, because cost is also a major barrier, the service could be free or low-cost to participants in the Free Muni program—again, partially funded by fees on comparable yet inaccessible trips. Taxi subsidies are already available through the paratransit program and can be used for ramp taxis as well.

## Address the problem of scooters and bicycles on sidewalks

Because 74 percent of respondents reported scooters and/or bike share blocking their path of travel, and the open-ended responses so frequently noted this as a concern, new mobility companies need stronger incentives to keep sidewalks clear.

Some of San Francisco's policies here have proven effective and should be continued. Most notably, the SFMTA saw a decrease in sidewalk requests through San Francisco's 311 system after requiring a "lock-to" device on scooters. This, along with a simultaneous expansion of bike racks paid for by the scooter companies, has prompted many riders to park scooters correctly, locking their upright scooters to racks. These policies should remain in place.

Despite those interventions, however, people with disabilities still report that their access to sidewalks is impeded. San Francisco should consider placing additional requirements on the micromobility companies to increase user accountability, such as mandatory user fines for incorrect parking. Without a blanket fee policy, these companies have few incentives to penalize or remove users for poor behavior.

San Francisco could also pilot other options for encouraging better user behavior, including drop zones. Drop zones have been effective in other city neighborhoods with a high volume of scooters, such as Venice Beach in Los Angeles (Reynolds, 2019), and might be effective in neighborhoods such as the Financial District and SoMa. Under a drop zone system, micromobility companies deploy their devices in specifically marked areas every morning, and users are encouraged to leave their device in a drop zone at the end of their trip.

San Francisco could also consider a valet model in select high-use areas, where micromobility staff help riders rent devices and provide in-person guidance on riding and parking requirements.

## Build safer active transportation infrastructure to decrease conflicts between modes and make public space safer for vulnerable pedestrians

People with disabilities reported safety concerns with new mobility services, especially bike share and scooter share. Therefore, adaptive bikes and scooters, while important, are not enough to make these modes accessible. People are more likely to use alternative transportation in areas with safer infrastructure, and fewer collisions occur on streets where each mode has a designated space. As mentioned previously, several respondents specifically called for bike lanes and other safety interventions in their open-ended answers. Building protected bike lanes and wider sidewalks will increase safety among disabled road users, and will enable scooter and bike share riders (disabled and non-disabled) to use their devices without impeding pedestrian space.

In May 2019, San Francisco Mayor London Breed called for 20 additional miles of protected bike lanes over the following two years (Rodriguez, 2019). This directive provides a valuable opportunity for active transportation planners to conduct more extensive outreach to the disability community and to ensure their bike lane projects improve accessibility for disabled travelers. In addition to consulting existing resources (such as Walk San Francisco's *Getting to the Curb*, 2019), SFMTA should continue its recent practice of conducting project site visits with people who have various disabilities. To incentivize participation and provide compensation for their knowledge, SFMTA should consider paying site visit attendees a stipend. By gathering first-hand feedback on the challenges of a particular project site, planners will be better equipped to design accessible infrastructure.



# Conclusion

Thirty years after the Americans with Disabilities Act, people with disabilities still report significant difficulty accessing transportation. New mobility services, billed as “the future of transportation” by some starry-eyed transportation planners, risk excluding disabled people almost entirely, despite stated interest from the disability community. People with disabilities are cautiously optimistic about some new mobility services but require additional policy interventions from cities, states, and the federal government in order to access these modes.

San Francisco has been ahead of most cities on accessibility issues (SFMTA, 2017), but substantial work remains. By working with the State of California to take the civil rights of people with disabilities seriously, San Francisco can offer safe, affordable, accessible transportation for all of its residents and visitors, regardless of disability.

## Dreams for the Future of Accessible Transportation

The final question of the survey asks broadly about the respondent’s hopes for the future of accessible transportation in San Francisco. To let these voices speak for themselves, I conclude with some of the responses received.

“Please put benches on every block. Often I’m forced to take a car because there is no place to sit and rest for those of us who can walk but not very well.”

“Need more seating on transit and more awareness around invisible disabilities.”

“Make it free.”

“More accessible variety of transportation. Engagement of the disability community in all transportation planning processes. Keep the scooters, bike shares off the sidewalks!”

“Streamlined access to multiple options that looks and feels closer to how abled people use them. Fewer hoops to jump through.”

“Paratransit needs a reboot. I would really like for paratransit vans to become on demand using technology to track on time performance.”

“I hope there is more knowledge around various types of disabilities, more empathy and understanding how to treat each other equally regardless of any factor that makes us different from one another, so people with disabilities of all conditions can safely and easily commute and live as independently and affordably as possible.”

“Focus on improving mass transit. It is better for low income folks, it is better for improving traffic conditions, it is better for the environment. Stop trying to privatize a public good that is supposed to be accessible to all. Make every Muni stop accessible with a raised platform. That’s what would most improve my ability to navigate San Francisco.”

“If we expand powered scooters and bikes to adaptive use, please make charging stations available to all adaptive devices. I would love to be able to charge my power wheelchair, but it is difficult to find a place which allows this.”

“The gig economy has perpetuated the exploitation of non-unionized laborers, dissolving any possibility of value unification that is typically instilled within a company/collective. My hope is for an increase in standards across the board via unionized, accessible transit—all designed by disabled neurodivergent femme folk, of course. :)”

“Due to overcrowding, Muni has become increasingly "inaccessible" to me. Rideshare has been tremendously helpful, but I recognize that they are not accessible to everyone (in particular wheelchair users).”

“I would like a wheelchair repair shop where people can get a chair (manual and electric) fixed immediately or where people can get a loaner similar to their current mode (like a loaner car when your car is in the shop). This could be a wheelchair maker space where people could learn to fix their own or others chair(s). This could be a space where other mobility devices could be accessed.”

“I can envision a more accessible, more walkable city less dependent on car transportation, with better public transit options and a wide range of mobility options. It exists elsewhere, so there’s no good reason why it can’t here other than “the economy” and cultural expectations of vehicle ownership.”

“I’d like to be more independent. Having accessible affordable transportation helps me do that.”

“San Francisco seems to be shifting away from being a city that desperately needs cars! I've grown up here my whole life, and it's been exciting to see progress on accessible transportation, and I can only hope that we aim towards the endgame of accessible meaning accessible to everyone, of any ability/age, free of charge, rather than the endgame of accessible meaning accessible to the people with the right paperwork and money. <3”

# Appendix A: Survey Sample

**Table 1.** Disability/Disabilities of Respondents

Physical disability	75%
Sensory disability	29%
Mental health disability	39%
Developmental disability	16%
Chronic condition	32%
Other	8%

**Table 2.** Gender of Respondents

Female	66%
Male	21%
Non-binary	15%
Transgender	7%
Other	0%

**Table 3.** Age of Respondents

18-24 years old	9%
25-34 years old	23%
35-44 years old	12%
45-54 years old	18%
55-64 years old	14%
65-74 years old	14%
75 years or older	10%

**Table 4.** Race of Respondents

Asian and/or Pacific Islander	17%
Black and/or African American	11%
Hispanic and/or Latinx	8%
Middle Eastern and/or North African	1%
Native American	3%
White	66%
Other	5%

**Table 5.** Household Income of Respondents

Less than \$25,000	39%
\$25,000 to \$34,999	7%
\$35,000 to \$49,999	10%
\$50,000 to \$74,999	18%
\$75,000 to \$99,999	7%
\$100,000 to \$149,999	10%
\$150,000 or more	10%

**Table 6.** Smartphone Ownership of Respondents

Yes	88%
No	12%

## Appendix B: Survey Distribution List

Bay Area Association of Disabled Sailors  
Bay Area Outreach & Recreation Program (BORP)  
Bayanihan Equity Center  
California Alliance for Retired Americans  
California Foundation for Independent Living Centers  
Canon Kip  
Disability Justice Culture Club  
Disability Rights Education and Defense Fund  
Disability Visibility Project  
East Bay Center for the Blind  
Guide Dogs for the Blind  
Independent Living Resource Center San Francisco  
LightHouse for the Blind  
Mayor's Office on Disability  
Multimodal Accessibility Advisory Committee  
Oakland Department of Transportation  
Paratransit Coordinating Council  
Rooted in Rights  
SF Paratransit  
SOMA Philipinas  
San Francisco Coalition on Homelessness  
San Francisco Municipal Transportation Agency  
Senior and Disability Action  
South of Market Community Action Network (SOMCAN)  
The Arc San Francisco  
Universal Design Memes for Accessibility Oriented Teens  
World Institute on Disability

# Appendix C: Survey Instrument

## Survey of People with Disabilities and New Mobility in San Francisco

People with any type of disabilities who regularly travel through or within San Francisco and who are 18 years or older are invited to take part in this UCLA research study.

This survey will take approximately 10 minutes to complete. You can submit your answers anonymously or enter your email address or phone number at the end of the survey for the opportunity to win a \$50 Safeway gift card.

Are you 18 years or older?

- Yes
- No

Do you regularly travel through or within San Francisco?

- Yes
- No

Do you have a disability or disabilities (includes chronic conditions, mental illness, and functional limitations)?

- Yes
- No

If you answered Yes to the above 3 questions:

You are eligible to complete the survey. Please read the following research information.

### RESEARCH INFORMATION

Perceptions of New Mobility Among People with Disabilities in San Francisco

#### WHY IS THIS RESEARCH BEING DONE?

This research is being conducted to understand how people with disabilities in San Francisco perceive and experience new mobility services, such as ride hail (Lyft and Uber), bike share, scooter share, and car share. The information from this survey will be used to help the San Francisco Municipal Transportation Agency better plan to meet your transportation needs.

Madeline Ruvolo (Master's Student) and Professor Evelyn Blumenberg (Faculty Advisor) from the Department of Urban Planning at the University of California, Los Angeles are conducting this research study. Your participation is voluntary.

#### WHAT SHOULD I CONSIDER BEFORE PARTICIPATION?

There are few anticipated risks or discomfort associated with this study. If you have privacy concerns, you can complete this survey without submitting your contact information. If you would like to be part of a raffle prize drawing for the chance to win a \$50 Safeway gift card, you can submit your email address or phone number at the end of the survey. Participation in the study is not required in order to participate in the raffle.

If you have questions, have technical issues, or need an alternative format of the survey (like a print version or to take the survey by phone), contact Madeline Ruvolo at [mruvolo@ucla.edu](mailto:mruvolo@ucla.edu). If you have questions for the faculty advisor, contact Professor Evelyn Blumenberg at [eblumenb@ucla.edu](mailto:eblumenb@ucla.edu). If you have questions about your rights as a research participant or if you want to talk to someone other than the researchers, you may contact the UCLA Office of the Human Research Protection Program by phone: (310) 206-2040; by email: [participants@research.ucla.edu](mailto:participants@research.ucla.edu) or by mail: Box 951406, Los Angeles, CA 90095-1406.

#### WHAT ARE MY RIGHTS IF I TAKE PART IN THIS STUDY?

- You can choose whether or not you want to be in this study, and you may withdraw your consent and discontinue participation at any time.
- Whatever decision you make, there will be no penalty to you, and no loss of benefits to which you were otherwise entitled.
- You may refuse to answer any questions that you do not want to answer and still participate in the survey.

#### Part I: Perceptions of New Mobility

These questions ask about your feelings toward new mobility services (Uber/Lyft, electric scooters, bike share, and car share).

- 1) What type of impact do new mobility services (Uber/Lyft, electric scooters, bike



share, car share) currently have on your ability to travel within or to/from San Francisco?

- Very positive impact
- Somewhat positive impact
- No impact
- Somewhat negative impact
- Very negative impact

2) What type of impact do you think driverless cars or other new transportation options could have on your ability to travel in the future?

- Very positive impact
- Somewhat positive impact
- No impact
- Somewhat negative impact
- Very negative impact

3) How willing would you be to ride as a passenger in an accessible driverless vehicle?

- Very willing
- Somewhat willing
- Neutral
- Not very willing
- Not at all willing

4) How comfortable do you feel using an app on a smartphone to access transportation services?

- Very comfortable
- Somewhat comfortable
- Neutral
- Somewhat uncomfortable
- Very uncomfortable

5) Do you support San Francisco allowing new mobility services (Uber/Lyft, electric scooters, bike share, car share) if they're required to be accessible?

- Yes
- No
- Undecided

6) Would you support a new mobility service in San Francisco that is not accessible if it

provided enhanced funding for an accessible service (such as ramp taxis)?

- Yes
- No
- Undecided

## Part II: Experiences with New Mobility

The following questions ask about your experiences with new types of transportation services.

### 7) Ride Hail:

a) Have you used a ride hailing service, such as Uber or Lyft (not including wheelchair accessible vehicles such as UberWAV or Lyft Access)?

- Yes
- No

b) Do any of the following limit your access to Uber and Lyft (not including wheelchair accessible vehicles such as UberWAV or Lyft Access)?

[select all that apply]

- The vehicles cannot accommodate my physical and/or sensory needs
- Service not available where I live or travel
- I do not have a smartphone or internet access
- I cannot afford it
- I am concerned about safety
- Wait times are too long
- Experience with driver terminating or refusing ride in response to my disability or service animal
- Other: \_\_\_\_\_

c) Have you used a wheelchair accessible ride hail service, such as UberWAV or Lyft Access?

- Yes
- No

d) Do any of the following limit your access to wheelchair accessible ride hail (UberWAV or Lyft Access)?

[select all that apply]

- The vehicles cannot accommodate my physical and/or sensory needs

- Service not available where I live or travel
- I do not have a smartphone or internet access
- I cannot afford it
- I am concerned about safety
- Wait times are too long
- Experience with driver terminating or refusing ride in response to my disability or service animal
- Other: \_\_\_\_\_

e) What do you think would increase access to ride hail for people with disabilities?

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8) Bike Share:

a) Have you used bike share (e.g. Ford GoBike / Bay Wheels or Jump), not including the adaptive bike share program?

- Yes
- No

b) Do any of the following limit your access to bike share services?

[select all that apply]

- The bikes cannot accommodate my physical and/or sensory needs
- Service not available where I live or travel
- I do not have a smartphone or internet access
- I cannot afford it
- I am concerned about safety
- Other: \_\_\_\_\_

c) Which vehicle design features would improve your access to bike share?

[select all that apply]

- Electric assist pedaling
- Fully electric bikes that require no pedaling
- Other adaptive cycles
- I do not intend to use bike share even if it were accessible to me

d) Have you used any of the accessible bicycles at the Bay Wheels pop-up events in San Francisco or Oakland? [select all that apply]

- Yes, in San Francisco

- Yes, in Oakland
- No
- I was not aware of these accessible bike share events

e) What do you think would increase access to bike share for people with disabilities?

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9) Scooter Share:

a) Have you used scooter share (such as Scoot, Spin, Jump, or Lime)?

- Yes
- No

b) Do any of the following limit your access to scooter share services?

[select all that apply]

- The scooters cannot accommodate my physical and/or sensory needs
- Service not available where I live or travel
- I do not have a smartphone or internet access
- I cannot afford it
- I am concerned about safety
- Other: \_\_\_\_\_

c) Have you experienced any of the following with bike share or scooters?

[select all that apply]

- Bike share and/or scooters blocking my path of travel
- Close call with scooter rider on the sidewalk
- No, bike share and scooters have not blocked my access to the street or sidewalk

d) What do you think would increase access to scooter share for people with disabilities?

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10) Car Share:

a) Have you used car share?

- Yes

No

b) If Yes: Which types have you used? [select all that apply]

- Dedicated parking car share (such as ZipCar)
- Free floating car share (such as GIG and Car2Go)
- Peer-to-peer car share (such as Turo)
- None of the above

c) Do any of the following limit your access to car share? [select all that apply]

- The vehicles cannot accommodate my physical and/or sensory needs
- Service not available where I live or travel
- I do not have a smartphone or internet access
- I cannot afford it
- I am concerned about safety
- Other: \_\_\_\_\_

d) What do you think would increase access to car share for people with disabilities?

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### Part III: Priorities for Future Mobility Options

These questions ask you to think about current and future transportation scenarios.

11) Setting aside new mobility for a moment, think about the current types of transportation you use, which might include public transit, walking/rolling, taxis, a personal vehicle, a personal bicycle, etc. How would you categorize your current access to transportation?

- I find it very easy to get around using existing transportation options
- I find it somewhat easy to get around using existing transportation options
- I find it neither easy nor difficult to get around using existing transportation options
- I find it somewhat difficult to get around using existing transportation options
- I find it very difficult to get around using existing transportation options

12) Which statement is more accurate?

- I care most about having accessible options for each new transportation mode (ride hail, bike share, scooter share, car share)

I care most about having good transportation that is accessible for me, even if I can't access every single mode

13) Which of these new mobility services would be most useful for your daily life?

Accessible on-demand vehicle transportation (ride hail or taxis) with wait times of 15 minutes or less

Car share vehicles with a variety of accessible options (wheelchair accessible driver's seat, hand and foot controls for brake and accelerator, wheelchair accessible passenger space, fold out ramps for wheelchair, etc.)

Scooter share with a variety of accessible options (more than 2 wheels, a seat, wheelchair attachment, wider base, etc.)

Bike share with a variety of accessible options (electric pedal assist, fully electric, three-wheeled cycles, adaptive hand cycles, etc.)

Other: \_\_\_\_\_

14) Which of these bike share models would be most useful for you?

Expanded access to bike share for recreation purposes

Expanded access to bike share for travel to work, school, appointments, or running errands

Neither: I do not intend to use bike share even if it were accessible to me

#### Part IV: Demographic Information

These questions are optional, but responses are strongly encouraged.

15) Which disabilities do you have? [select all that apply]

Physical disability (ex. Difficulty walking, using arms or hands, limited stamina)

Sensory disability (ex. Blindness, Deafness, sensitivity to noise or light)

Mental health disability (ex. depression, anxiety, schizophrenia, bipolar disorder)

Developmental disability (ex. Autism, learning disability, ADHD)

Chronic condition (ex. Multiple sclerosis, Crohn's disease)

Other: \_\_\_\_\_

16) Do you use any of the following mobility devices? [select all that apply]

Manual wheelchair

Power wheelchair

Personal motorized scooter

Walker

- Cane
- Crutches
- Other: \_\_\_\_\_
- None of the above

17) Do you own a smartphone?

- Yes
- No

18) What is your gender? [select all that apply]

- Female
- Male
- Non-binary
- Transgender
- Other: \_\_\_\_\_

19) What is your age?

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 75 years or older

20) What is your race and/or ethnicity? [select all that apply]

- Asian and/or Pacific Islander
- Black and/or African American
- Hispanic and/or Latinx
- Middle Eastern and/or North African
- Native American
- White
- Another race or ethnicity:  
\_\_\_\_\_

21) What is your relationship to San Francisco? [select all that apply]

- I live in San Francisco
- I work in San Francisco

- I attend school in San Francisco
- I run errands and/or attend appointments in San Francisco
- I socialize in San Francisco
- Other: \_\_\_\_\_

22) What is your home zip code?

\_\_\_\_\_

23) What is the total annual income (before taxes) of everyone in your household?

- Less than \$25,000
- \$25,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 or more

23) How many people are in your household?

- 1
- 2
- 3
- 4
- 5
- 6+

24) Finally, is there anything else you'd like to share about your hopes for the future of accessible transportation in San Francisco?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Thank you for your participation in this survey. If you'd like to be entered into a prize drawing for the opportunity to win a \$50 Safeway gift card and/or if you want to receive

updates about this survey, please provide your email address or phone number here. Your contact information will be stored separately from your survey responses.



Email address: \_\_\_\_\_

Phone number: \_\_\_\_\_

Select all that apply:

- I would like to receive updates about the survey
- I would like to enter the raffle

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