

Seattle Department of Transportation

E-SCOOTER SHARE PILOT EVALUATION



Seattle
Department of
Transportation

CONTENTS

Acknowledgments	4	Objective 3: Be safe and advance Seattle’s Vision Zero objectives	33
Executive summary	5	Safety strategies	34
Background.....	5	Injuries	36
Pilot objectives.....	5	Comparing our safety data and methodologies	38
Summary outcomes.....	5	Objective 4. Ensure sidewalks are safe and accessible for people of all ages and abilities	41
Next steps for scooter share in Seattle.....	7	Parking.....	42
Introduction	8	Sidewalk riding	45
History and context.....	8	Objective 5. Provide accessible and adaptive mobility options and expand use by people with disabilities	47
Why we did a scooter pilot	9	People with disabilities using scooters.....	48
Launching a scooter share pilot during the COVID-19 pandemic.....	10	Outdoors for All partnership	48
Scooter share pilot design.....	10	Conclusions and what’s next	49
Four vendors	10	Where we succeeded	49
Pilot objectives.....	11	Where we faced challenges.....	50
Centering equity.....	11	Focus areas for 2022 scooter share program	50
Evaluation process.....	11	Long term program sustainability.....	51
Objective 1. Reduce Seattle’s carbon emissions by providing active, low-carbon, and congestion-reducing mobility options	13		
Total trips and scooter availability.....	15		
Types of scooter trips	15		
Where people ride scooters.....	17		
Scooter rental reliability	19		
Trip replacement.....	20		
Life cycle and carbon footprint.....	20		
Objective 2. Ensure accessibility for and expand use by Black and Indigenous people, non-Black people of color, low-income people, immigrants and refugees, and people with limited English proficiency	23		
Who is using scooter share?	24		
Equity focus neighborhoods	28		
Reduced fare plans	29		
Equity-focused outreach.....	30		

FIGURES

Figure 1: Timeline of micromobility operations in Seattle	8	Figure 21: Map of equity focus neighborhoods.....	28
Figure 2: Cities with bike share and shared scooter systems in North America	9	Figure 22: Deployment in equity areas by vendors and month	29
Figure 3: Description of the four scooter vendors operating during the pilot.....	10	Figure 23: Reduced fare program unique riders	29
Figure 4: Scooter share summary statistics	14	Figure 24: Reduced fare program summary statistics	29
Figure 5: Trips and deployment by month, including bike and scooter share	14	Figure 25: Screenshot of required safety quiz ...	34
Figure 6: Average trip statistics.....	15	Figure 26: Survey results on riding location	35
Figure 7: Scooter trips by day of week and time.....	15	Figure 27: Survey results on how people choose where to ride	35
Figure 8: Survey responses on purpose of main trip	16	Figure 28: Scooter injuries in police reports.....	36
Figure 9: Total unique riders per vendor.....	16	Figure 29: Overall traffic fatality trends, 2010-2020	37
Figure 10: Survey results on frequency of scooter trips	16	Figure 30: Survey results on injury and medical attention.....	37
Figure 11: Heat map of trip destinations.....	17	Figure 31: Survey results on injuries by age group.....	37
Figure 12: Heat map of where scooters are deployed	18	Figure 32: Obstruction hazards by vendor by quarter	42
Figure 13: Percent of scooters available for rental, by vendor and quarter	19	Figure 33: Screenshot of Find It, Fix It app complaint form	43
Figure 14: Survey results on trip replacement.....	20	Figure 34: Vendor response times.....	43
Figure 15: Survey results on race and ethnicity	24	Figure 35: Photo of Alki parking location	43
Figure 16: Survey results on age	25	Figure 36: Map of Alki and Harbor Avenue parking locations	44
Figure 17: Survey results on gender	25	Figure 37: Results from Alki parking pilot	44
Figure 18: Survey results on disability	26	Figure 38: Designated micromobility parking on NE 65th St across from Roosevelt Light Rail Station	45
Figure 19: Survey results on language used at home	26	Figure 39: Emily gets ready to try an adaptive bike (pictured on right) at Magnuson Park	48
Figure 20: Survey results on household income	27		

ACKNOWLEDGMENTS

SDOT REPORT TEAM

Becky Edmonds | Shared and Micromobility Program Manager

Kelly Rula | New Mobility Manager

Ann Sutphin | Mobility Solutions Manager

Margo Dawes | New Mobility and Equity Strategic Advisor

Olivia Harber | Shared Mobility Intern

CONTRIBUTORS

Joel Miller | Public Space Management Program Supervisor

Stefan Winkler | West Seattle Transportation Demand Management Lead

Wyatt Hoffman | Micromobility Transportation Planner

Allison Schwartz, Bradley Topol, Chris Svolopoulos, Rafael Zuniga | SDOT Vision Zero team

Patrick McCall, Brandon Ha, Eric Asp | Seattle IT

REPORT SUPPORT

Anne Frugé, Hansini Munasinghe, Jade Henderson, Jennifer Rash, Kate Gunby | PRR, Inc.

Eric Holzapfel | INTI Consulting

Barry Wall, Nick Callahan | Logic 2020

COMMUNITY PARTNERS

Alecia McConnell, Taylor Moseley, and participants | Outdoors for All

Eunice How | Asian Pacific America Labor Alliance (APALA)

Aurora Martin | Duwamish River Cleanup Coalition (DRCC)

Mercedes Cordova-Hakim | King County Promotores Network (KCPN)

Michelle Merriweather | Urban League of Metropolitan Seattle

Analia Bertoni | Villa Comunitaria

EXECUTIVE SUMMARY

BACKGROUND

Seattle Department of Transportation (SDOT) launched a free-floating scooter share pilot in the fall of 2020, following lessons learned from other cities, our own experiences with bike share, and extensive feedback from stakeholders. Like our bike share program, SDOT issued permits to scooter vendors, for a fee, to operate shared fleets of electric foot scooters within the City of Seattle. We permitted four vendors, three with a fleet of up to 2,000 scooters each, and one with a fleet of up to 1,000. The Seattle pilot is entirely free-floating, meaning that devices may be parked in authorized locations throughout the city, and do not need to be returned to any specific docking locations. Riders find scooters and unlock them using a smartphone app.

This evaluation covers 12 months, from the pilot launch on October 1, 2020, through September 30, 2021. Additional information on trips outside of the evaluation period can be found on the SDOT [public dashboard](#) of real-time trip data.

PILOT OBJECTIVES

Five scooter share pilot objectives provide the structure for this evaluation. Objectives were informed by the existing bike share program, conversations with community stakeholders, and feedback from a citywide survey:

1. **Ridership and climate:** Reduce Seattle's carbon emissions by providing active, low-carbon, and congestion-reducing mobility options.
2. **Equity:** Ensure accessibility for and expand use by Black and Indigenous people, non-Black people of color, people with low-incomes, immigrants and refugees, and people with limited English proficiency.
3. **Safety:** Be safe and advance Seattle's Vision Zero objectives.
4. **Keeping sidewalks accessible:** Ensure sidewalks are safe and accessible for people of all ages and abilities.
5. **Adaptive cycles and access:** Provide accessible and adaptive mobility options and expand use by people with disabilities.

SUMMARY OUTCOMES

1. **Ridership and climate:** While scooters provide a low-carbon mobility option, exact carbon emissions produced or reduced through this pilot are not quantified. SDOT is concurrently working on a multimodal climate calculator to help quantify possible climate benefits in the future. During the pilot, there were over 260,000 unique riders who took over 1.4 million trips. This includes over 1,000 riders using reduced-fare plans who took over 67,000 trips. 54% of riders said they would have taken a taxi or ride hail service or used a personal vehicle to make their last trip, suggesting that scooters are replacing some vehicle trips in our city. In a question about why they use scooters, 21% of riders said one reason is to connect to public transit.
2. **Equity:** Scooter vendors met the goal of deploying at least 10% of devices in equity focus neighborhoods. To understand who was using scooters, we conducted a safety-focused survey of scooter users and found diverse representation, particularly in household income, where 14% of respondents reported incomes below \$25,000 annually. Six community-based organizations conducted focus groups and other outreach to better understand barriers to participation, particularly for

Black, Indigenous, and People of Color (BIPOC), and low-income people. Research showed these focus communities often don't know how to use scooter share apps and the scooters, and need safe infrastructure, access to helmets, and in-language customer support.

3. **Safety:** Safety is the top priority for SDOT. The program proactively includes best practices and permit conditions that center rider and non-rider safety and comfort, including safety education for riders, helmet requirements, and not allowing scooters on sidewalks. This evaluation also includes a review of available data about injuries. Police Department records show 17 collisions involving scooters from the start of the pilot period through October 2021. In many cases we were not able to determine whether the scooter involved was part of the scooter share program or privately owned. Sixteen of these collisions involved a scooter and a motor vehicle and involved injuries. The other reported a scooter and pedestrian collision with no injuries. Unfortunately, one collision of the 16 involving a motor vehicle resulted in a fatality for the scooter rider (in October 2021). In our safety-focused user survey, we asked people to self-report if they had experienced any injuries while using a rented e-scooter. Of the 5,189 respondents who had used scooters, 11% reported experiencing an injury. Of the 11% who reported an injury, 22% said they had sought medical attention for their injuries. Injuries ranged in severity, and the survey highlighted the type of issues that could lead to injury, including road conditions, weather, darkness, and interactions with cars. This helps provide SDOT direction on future areas of improvement. For full survey results, see Appendix A.

4. **Keeping sidewalks accessible:** SDOT staff conducted audits of parked devices at least once a week during the pilot period. In the first quarter of audits (Q4 2020), we found that 21% of devices were obstructions. In Q3 2021, the last quarter covered in this report, we found a total of 8% of devices characterized as obstructions. While this shows improvement over time, this does not meet our target of 3% or less. Vendors have been responsive to complaints about improperly parked devices and other issues, with 95% of problems responded to on time (generally within two hours). Geofences have been used in some areas to encourage proper parking. For example, the largest, geofenced shared micromobility parking hub area in the city is along the Alki waterfront in West Seattle. The effort improved parking behavior and improved access for people using the paths at Alki.
5. **Adaptive Cycles and Access:** Scooter and bike share program funds have been used to expand Outdoors for All's adaptive cycling program. The organization provided 394 adaptive cycling experiences to 165 unique riders during the pilot. The scooter user survey indicated 15% of scooter riders reported having some type of disability, suggesting scooters can provide an option for people with disabilities.

NEXT STEPS FOR SCOOTER SHARE IN SEATTLE

Scooter share is providing thousands of Seattle-area users a viable transportation option to get around the city or connect to transit, often replacing vehicle trips. As such, the program will start transitioning from a pilot to a permanent program. Safety investments and education will be a priority focus in the evolution of the program.

Within the first half of 2022, a competitive permit selection process will be conducted to choose vendors for our next stage of the program. The next round of permit selection will focus on addressing some of the challenges we experienced during the pilot. Areas of focus include:

- Safety and comfort of operating scooters
- Improvements to address parking obstructions and sidewalk riding, including education and technology solutions
- Approach to community engagement to expand who feels comfortable using scooters, enroll people in reduced-fare plans, and distribute helmets
- Performance over the course of the pilot and/or performance in other cities, if an applying vendor does not currently operate here
- Capability to integrate with and enhance transit, such as through designated parking and technology integration

For SDOT, upcoming plans include:

- Additional safety-specific education about helmet use, reducing sidewalk riding, improving parking, and driver awareness, complementing other safety education efforts offered via a variety of SDOT programs
- Evaluation including deeper analysis of injuries and injury prevention, as well as surveys to target non-users to better understand their experiences
- Continuing to use ride data to understand where people are riding and parking, using this to inform where we need to make investments in infrastructure, education, and technology

SDOT is committed to an iterative approach to improving this program, using lessons learned from the first year, best practices from other cities, and incorporating ongoing research to improve the program.

INTRODUCTION

HISTORY AND CONTEXT

Seattle has long been a leader in micromobility, having launched our first bike share system, Pronto, in 2014. Pronto operated from dedicated docking stations before it shut down in 2017. Later that same year, we were one of the first cities to introduce free-floating bike share. In 2019, most of our free-floating bike share vendors left Seattle, with only Lime remaining.

In 2018, e-scooters began to emerge nationally. Seattle chose to wait and learn from those early programs while collecting input from local communities. Over the course of 2019 and 2020, SDOT staff engaged community stakeholders to co-design an e-scooter permit process. The scooter share pilot program officially launched in fall 2020.

Micromobility includes shared-use fleets of small, fully or partially human-powered vehicles such as bikes, e-bikes, and e-scooters.

Free-floating means that micromobility devices are available at dispersed locations rather than restricted to docking stations. Riders locate devices by finding one or using a mobile app. Riders return devices to any authorized location within the service area.

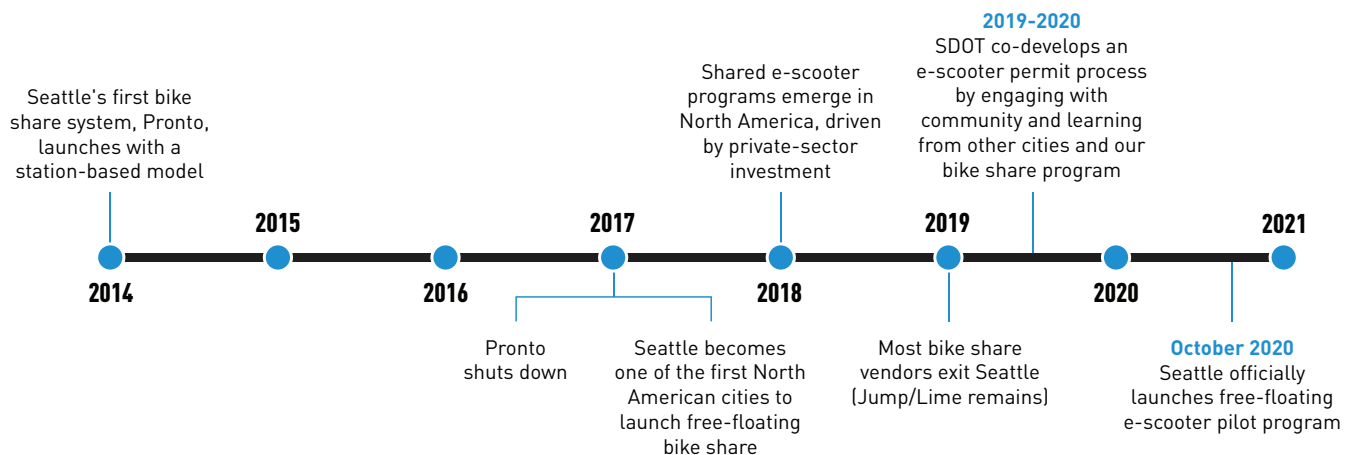
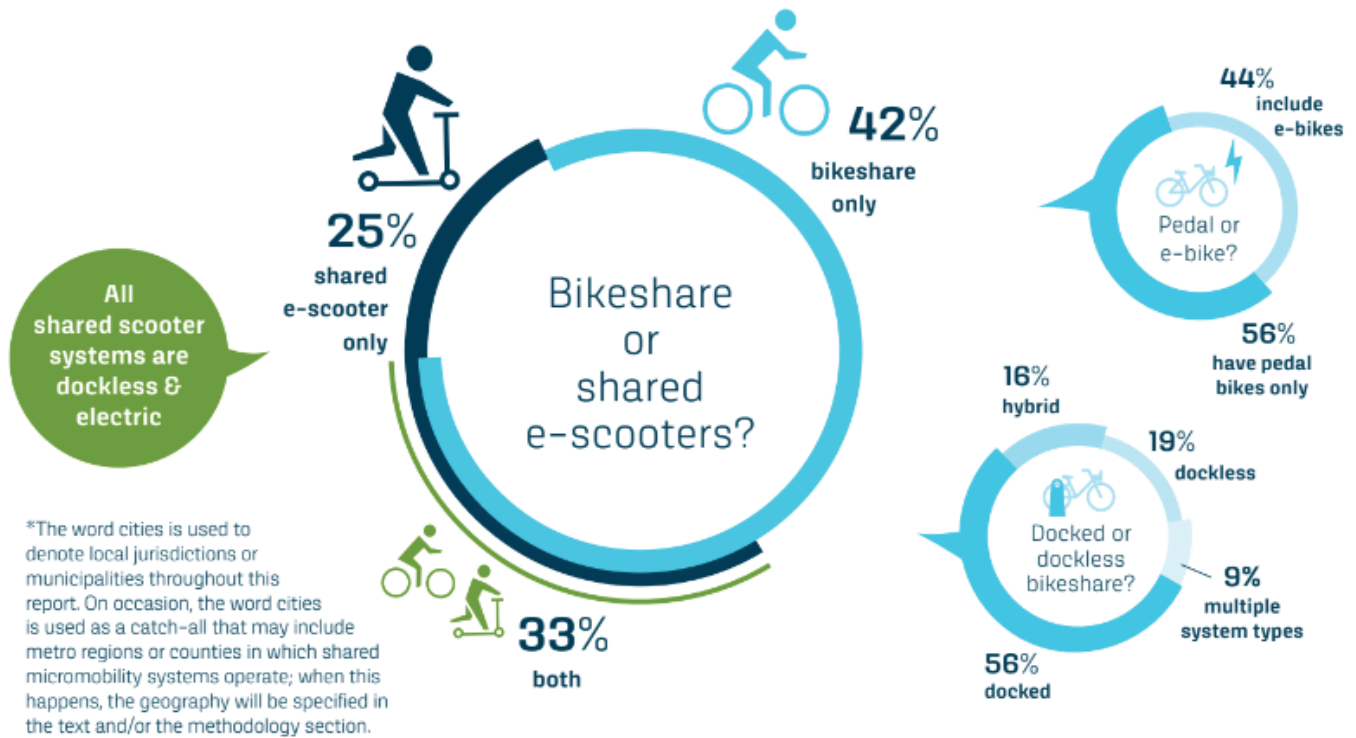


Figure 1: Timeline of micromobility operations in Seattle

Many cities throughout North America have bike share, scooter share, or a combination of both.

At least 224 cities in North America have a shared scooter or bikeshare system



NABSA | 2020 STATE OF THE INDUSTRY REPORT

Figure 2: Cities with bike share and shared scooter systems in North America. Image courtesy North American Bikeshare and Scootershare Association (NABSA). Note: this reflects early 2020, so Seattle was not included as a city with scooters.

WHY WE DID A SCOOTER PILOT

We launched a scooter share pilot after seeing the success and popularity of similar programs in other cities. Scooters offer a climate-friendly, electric mobility option and can be an extension of the public transit system. Based on data from other cities, we saw that scooters can serve a different population than bike share, thereby expanding the range of who has access to mobility options.

Locally, the West Seattle High Bridge closed in March 2020, a few months before we launched scooter share. Scooters can help people get

around West Seattle and across the Lower Spokane St Bridge to conveniently access Downtown and other locations, and we launched an incentive program called West Seattle Flip Your Trip to help connect people to scooter share, bike share, and transit. 107,104 trips ended in West Seattle, or approximately 11% of total trips.

The evaluation of this pilot period ran from October 1, 2020, through September 31, 2021. We used this time to evaluate pilot performance on key objectives—identified with community members—around ridership, safety, and inclusion.

LAUNCHING A SCOOTER SHARE PILOT DURING THE COVID-19 PANDEMIC

We launched scooter share at the end of September 2020, during the COVID-19 pandemic. In other cities where scooters had launched prior to the pandemic, they often saw major dips in ridership in 2020 (and some shut down their programs). We saw our highest ridership during the summer of 2021, while likely seeing fewer commute trips than we may have otherwise. Meanwhile, supply chain challenges for vendors caused growth in the program to be slower than it might otherwise have been.

Scooters also provide important mobility options to some during the pandemic. Several vendors offered free or discounted rides to essential workers and discounted rides to vaccine appointments.

SCOOTER SHARE PILOT DESIGN

We spent over 18 months developing the scooter pilot, co-designing objectives with community and advocacy organizations, especially groups representing the disability community. We also incorporated lessons learned from Seattle’s bike share program, other cities’ scooter share programs, and scooter vendors grappled with issues like whether to allow sidewalk riding, ultimately deciding not to allow scooters to ride on sidewalks. In September 2020, the Seattle City Council passed and the Mayor signed Ordinances 126160 and 126160 launching the scooter share pilot in Seattle.

Vendors submitted applications to operate scooters in Seattle and we selected four of them to participate through a competitive process. Vendors pay permit fees to the city, which cover the cost to operate the program, and vendors are subject to permit conditions we developed.¹

FOUR VENDORS

We designed the pilot intentionally to select four different vendors to evaluate the merits of different offerings.



- Also operates bike share
- Launched September 15, 2020
- Up to 2,000 scooters



- Standing style
- October 30, 2020
- Up to 2,000 scooters



- Sitting style
- November 6, 2020
- Up to 2,000 scooters



- Innovative Drover AI technology
- July 15, 2021
- Up to 1,000 scooters



Figure 3: Description of the four scooter vendors operating during the pilot

¹www.seattle.gov/Documents/Departments/SDOT/NewMobilityProgram/SDOT%20Scooter%20Share%20Pilot%20Permit%20Requirements%201.2%20.pdf

We hosted a competitive selection process to determine which four vendors we would work with. There were four specific permit slots available:

- Permit A was for a vendor also operating bike share in Seattle. We wanted to ensure continuity of the existing bike share offering, and therefore selected Lime for this permit.
- Permit B was for a vendor offering standing-style scooters. Link was the selected vendor.
- Permit C was for a vendor offering sitting-style scooters, as these may be more accessible and comfortable for some users. Wheels was the selected vendor.
- Permit D was selected later and prioritized vendors with innovative technology and/or new device types. For this slot we selected Spin, which uses Drover Artificial Intelligence (AI) technology to improve rider behavior and parking.

PILOT OBJECTIVES

We developed objectives based on those from our bike share program and feedback from a survey before the pilot. These frame the structure of this report.

1. Reduce Seattle's carbon emissions by providing active, low-carbon, and congestion-reducing mobility options.
2. Ensure accessibility for and expand use by Black and Indigenous people, non-Black people of color, low-income people, immigrants and refugees, and people with limited English proficiency.
3. Be safe and advance our Vision Zero objectives.
4. Ensure sidewalks are safe and accessible for people of all ages and abilities.
5. Provide accessible and adaptive mobility options and expand use by people with disabilities.

CENTERING EQUITY

Building an equitable transportation system is a top priority for SDOT, and to that end, the scooter share pilot has centered equity in its design. We included extensive public engagement, and we prioritized

engaging members of the disability community to understand their unique needs in navigating sidewalks where many devices are parked.

In addition, we require vendors to offer income-eligible reduced-fare plans, as well as materials translated into Seattle's Tier 1 languages, currently including Cantonese (written: Traditional Chinese), Korean, Mandarin (written: Simplified Chinese), Somali, Spanish, Tagalog, and Vietnamese.

We also require vendors to deploy at least 10% of their devices in equity focus neighborhoods (described under Objective 2), and vendors met that target this year.

SDOT also uses program funds to support Equity-focused outreach and engagement efforts in equity focus communities. During the pilot period, we funded community-based organizations to lead focus groups with Black, Indigenous, and People of Color (BIPOC) communities to better understand barriers and opportunities for using micromobility. These organizations also collaborated to run outreach events where people could receive instruction and try out scooters and bikes. Vendors also distributed helmets at these events.

In addition, SDOT provides funding for an Outdoors for All partnership to expand adaptive cycling opportunities for people with disabilities.

EVALUATION PROCESS

SDOT evaluated the scooter share pilot using the following data sources:


- Trip-level data feeds from vendors
- Aggregated membership reports from vendors
- Citywide device parking audits collected by SDOT staff
- Safety and rider behavior survey with 5,189 respondents, November 2021 (See Appendix A for full survey results)
- Police reports
- Constituent feedback collected through email, phone, and the Find It, Fix It app.

OBJECTIVE 1

Reduce Seattle's carbon emissions by providing active, low-carbon, and congestion-reducing mobility options

Seattle has set ambitious targets for climate action including being carbon neutral by 2050, and having 90% of all personal trips be zero-emission by 2030.^{2,3} Transportation accounts for 60% of Seattle’s total greenhouse gas emissions, and micromobility options provide crucial zero emission transportation choices for residents and visitors alike. To assess the impact and penetration of our program and its potential climate benefits, we analyzed the total volume of trips and riders, availability of scooters, the types of trips people use scooters for, and other available information about the climate impact of scooters. While scooters provide a low-carbon mobility option, we do not quantify exact carbon emissions produced or reduced through this pilot. SDOT is concurrently working on a multimodal climate calculator which will help us quantify these impacts in the future.

1,489,985 
 Total scooter trips in Seattle from 10/20-9/21

2,646 
 Average scooters deployed per day


5,134 
 Peak daily scooter deployment in 9/21

Figure 4: Scooter share summary statistics

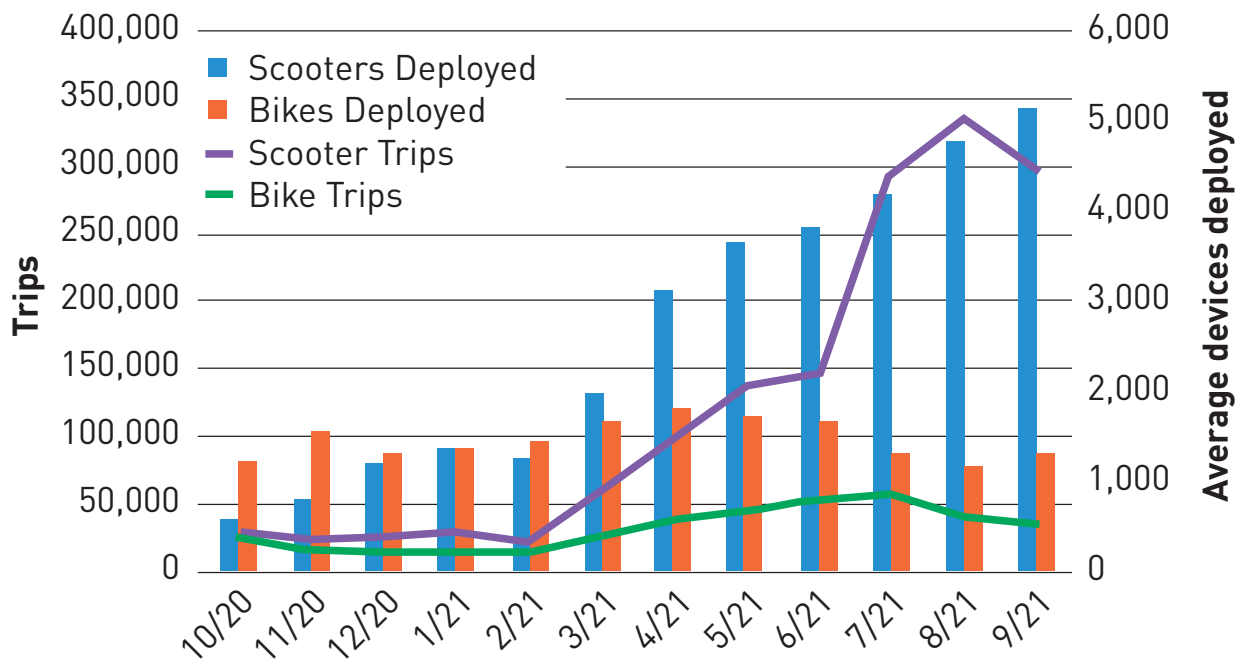


Figure 5: Trips and deployment by month, including bike and scooter share

²www.seattle.gov/environment/environmental-progress/climate-change

³<https://durkan.seattle.gov/2021/03/city-of-seattle-releases%E2%80%AFtransportation-electrification-blueprint-to%E2%80%AFcurb-climate-pollution-and-spur%E2%80%AFan-electrified-economy%E2%80%AF/>

TOTAL TRIPS AND SCOOTER AVAILABILITY

People took over 1.4 million trips during the pilot period. The average number of scooters available on any given day during the pilot was 2,646 – which includes the steady growth of devices to a peak of 5,134 in September 2021.

Scooter trips grew over the course of the pilot, hitting a peak in August 2021 before leveling off in September 2021. Bike share use remained lower than scooter use, with a similar increase in the summer.

TYPES OF SCOOTER TRIPS

Scooters are often used for relatively short trips, with an average trip length of 15 minutes and 1.4 miles. In comparison, pre-pandemic bike share trips averaged 14.2 minutes and 4.0 miles.

Under general per-minute pricing structures, a user taking a 15-minute trip would pay \$6.63. Vendors offer a variety of payment structures, including monthly passes and reduced fare rides, but cost may be a barrier for frequent riders and low- and middle-income riders who are not part of reduced fare programs.

The average scooter trip was



Figure 6: Average trip statistics

We found that 50% of scooter trips begin and/or end near frequent transit stops. Many users likely do use scooters to connect to or from transit, though this may be a correlation, with transit being available in the same neighborhoods as where scooters are popular, such as Downtown, South Lake Union, and Capitol Hill.

Launching scooter share during the pandemic may have resulted in fewer commute trips than we would have seen otherwise as companies and businesses shifted to remote work. Ridership peaked daily in the late afternoon, and there was no significant morning peak. The highest ridership days were Saturday and Sunday. By contrast, pre-pandemic 2019 bike share showed more typical peak commute patterns.

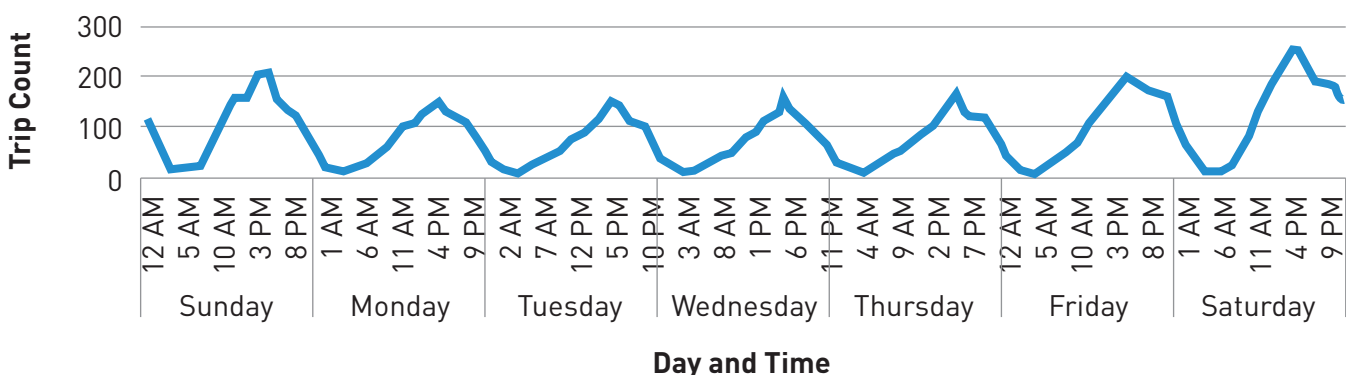


Figure 7: Scooter trips by day of week and time

In our user survey, the most common reason people used scooters (and bike share) was for social or recreational purposes (43%), such as going to a park, visiting friends or family, or other activities. People also used scooters for commuting (22%), going to restaurants (15%), running errands (12%), shopping (6%) and more.

What was the main purposed of your LAST scooter share trip?

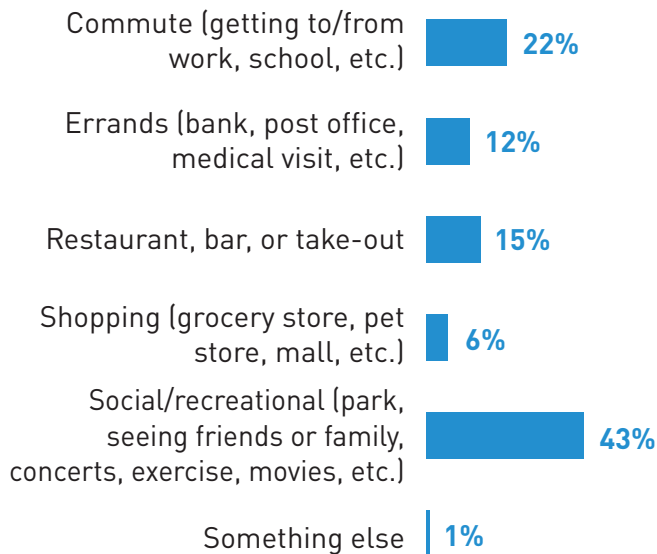






Figure 8: Survey responses on purpose of last trip

Vendors reported how many unique riders used their devices over time. Because many users may use multiple vendors’ scooters, we are reporting the total unique users per company. Therefore, we estimated that there were at least 262,000 unique riders (the highest number reported by a single vendor) during the scooter share pilot. This averages around 3 trips per person during the year.

	Total Unique Riders
	262,825
	121,317
	78,326
	22,965

Average of around 3 trips per user over the pilot period

Figure 9: Total unique riders per vendor

In our survey, most reported riding scooters less than once a month but more than once a year (33%) or 1 to 3 days per month (30%). About 23% use scooters at least once a weekly, with 8% riding scooters 4 or more days a week.

About how often have you used scooter share? Your best guess is fine.

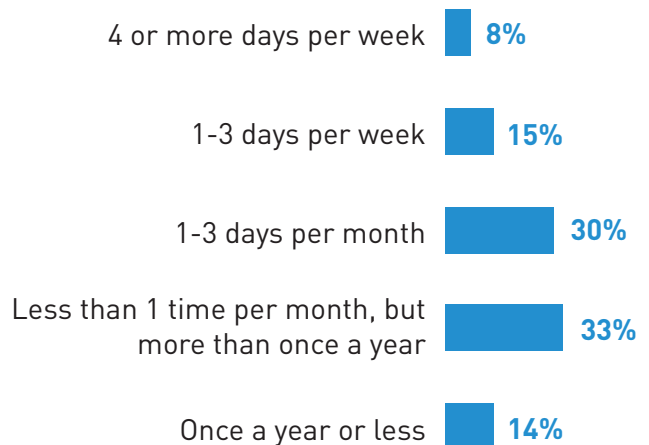


Figure 10: Survey results on frequency of scooter trips

WHERE PEOPLE RIDE SCOOTERS

In these heat maps, trips and scooter deployment are aggregated to approximately a 1-kilometer area, shown as dots on the map. Darker colors equate to more total trips in the area.

The most popular trip destinations were downtown and the larger center city area, with additional concentrated areas around the U-District, Fremont, Ballard, and Alki.

Trip destinations

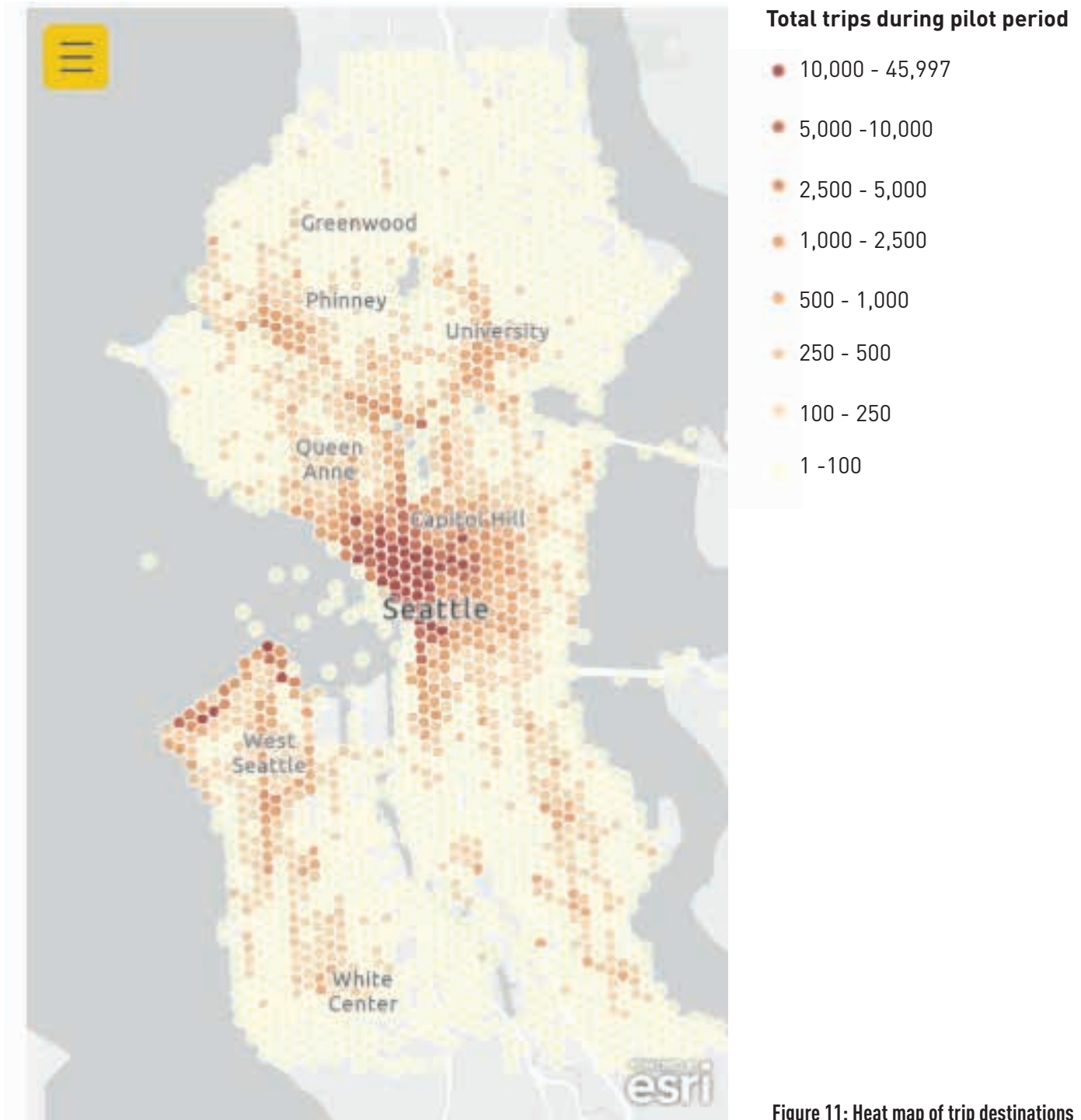
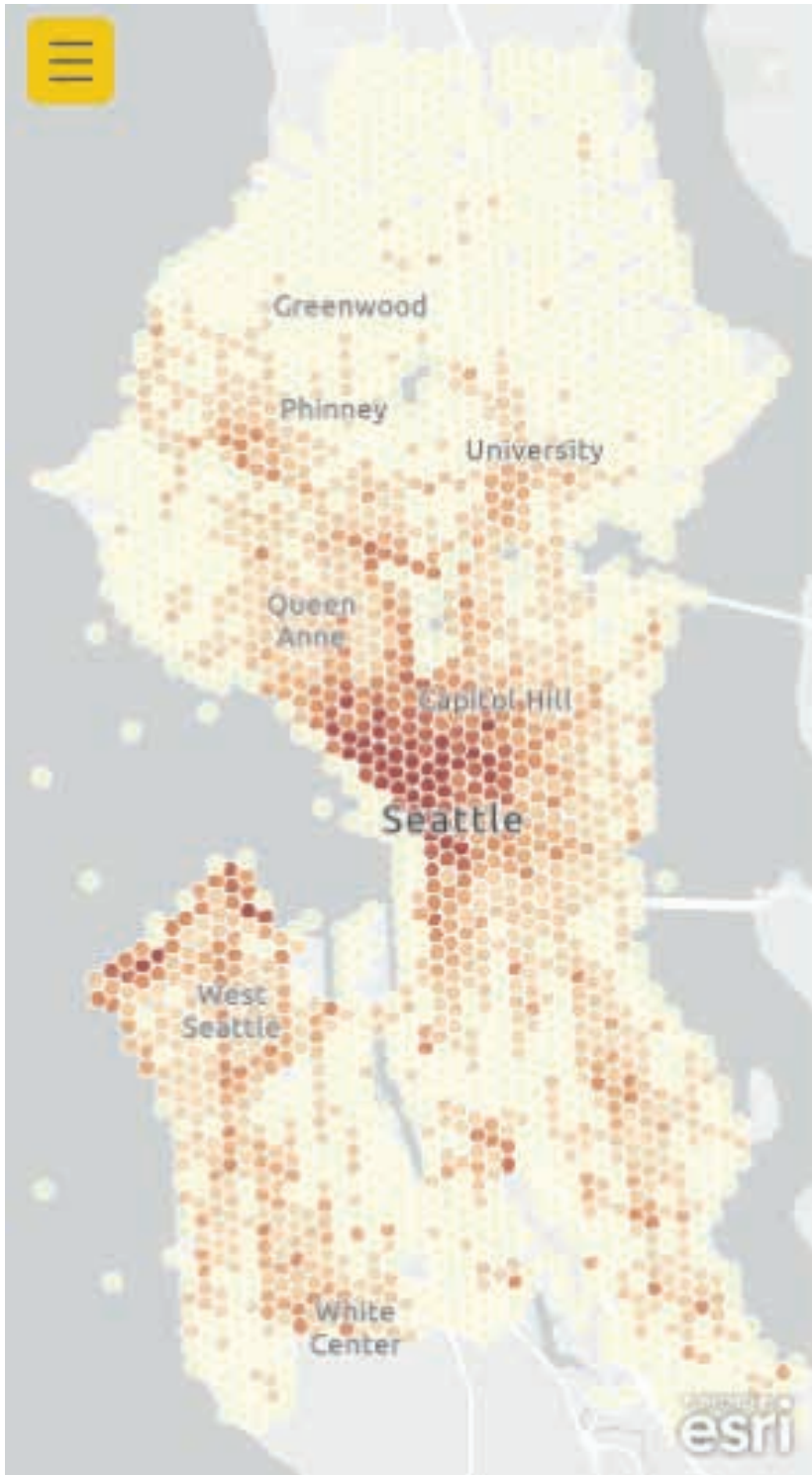


Figure 11: Heat map of trip destinations

Deployment refers to where vehicles are available. Scooters were largely available in the neighborhoods that were also popular destinations, including Downtown, Capitol Hill,

and First Hill. Other areas with higher availability included Alki and Harbor Avenue in West Seattle and around light rail stations in southeast Seattle, Fremont, and Ballard.

Scooter deployment



Total devices deployed during pilot period

- 5,000 or more
- 2,500 - 5,000
- 1,000 - 2,500
- 500 - 1,000
- 250 - 500
- 100 - 250
- Less than 100

Figure 12: Heat map of where scooters are deployed

West Seattle Flip Your Trip Program

- The Flip Your Trip Program is an incentive program that provides \$25 credit for use on transit or scooter share, for people who live and/or work in West Seattle, South Park, or Georgetown
- The program featured in-person outreach events where people could learn how to ride scooters
- 70 people have used this to take 260 trips
- This program is targeted to help people who are impacted by the West Seattle Bridge closure, but similar programs could be replicated elsewhere in the future



SCOOTER RENTAL RELIABILITY

Scooter rentability is a measure of whether someone walking up to a device can rent and then use it. We believe that for this program to be successful, devices need to be reliably available for users who want them, providing low-carbon transportation options that reduce carbon emissions. Scooters may not be rentable if the device is physically damaged or other problems prevent riders from being able to complete a rental. Multiple vendors have reported ongoing challenges with battery theft which may impact their scooters' rentability.

In the randomized audits SDOT staff conducted of scooters deployed on city streets, staff evaluated whether the scooters are available to rent. This is a key component of user experience, as riders need to know that scooters will reliably be available. The target is for 70% of scooters to be available for rental at any given time. If they fall below the target consistently, they may face fines or other sanctions. Most vendors have consistently performed above this target. Lime was below the target for rentability for two quarters, received a warning, and showed improvement in Quarter 4 of 2021.

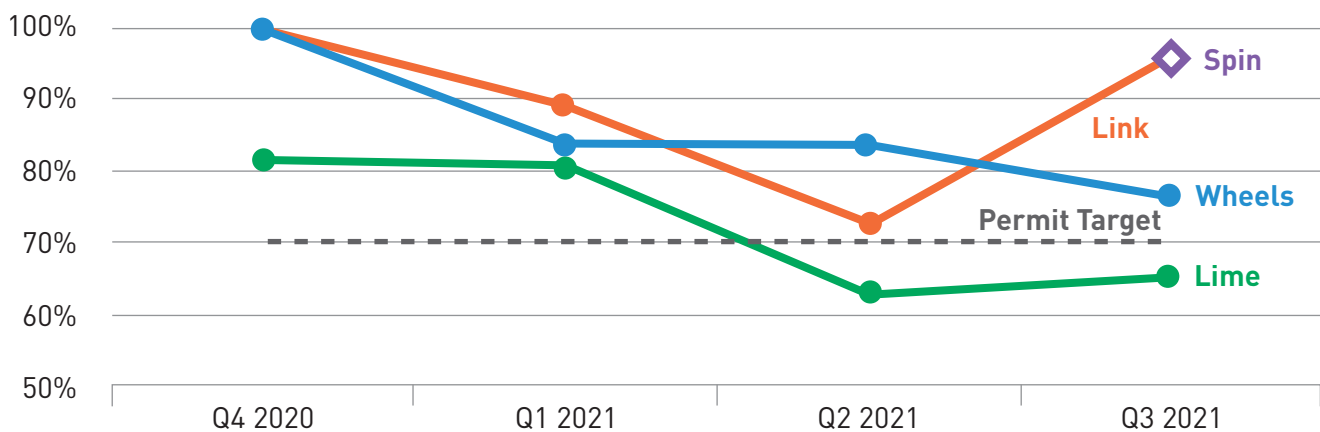


Figure 13: Percent of scooters available for rental, by vendor and quarter

TRIP REPLACEMENT

In our user survey, we asked how people would have made their last trip if not for scooter share. This can help us understand how much impact this program may have on our climate goals.

Riders could select as many options as applied. When we looked closer and accounted for the possibility of selecting multiple options, we found that 47% of users said they would have taken a taxi or ride hail service and/or used a personal vehicle to make their last trip. This suggests that for some trips, scooters do replace vehicle travel.

Meanwhile, 56% of users said they would have walked or used a mobility aid and 22% said they would have used transit. The role of scooters in trip choices may be complex, and we believe that regardless of the specific trip replaced, scooters can help support riders' low-carbon transportation choices. We are continuing to learn more about how scooters fit in with and complement the public transit network.

LIFE CYCLE AND CARBON FOOTPRINT

While we know scooter trips provide a low-carbon mobility option, we also want to better understand the carbon emissions associated with the operations of free-floating micromobility programs.

Vendors reported to us on the life cycle of their devices, batteries, etc., as well as on vehicle miles traveled. On average, vendors reported about 30,000 annual vehicle miles traveled by the vehicles they used to service all scooters. Total vehicle miles traveled in Seattle are estimated at over 4.5 billion⁴, so this represents a small percentage of the total.

⁴www.seattle.gov/Documents/Departments/OSE/ClimateDocs/2018_GHG_Inventory_Dec2020.pdf

Still thinking about the LAST time you used scooter share, how would you have made the trip if you did not use that service? Please select all that apply

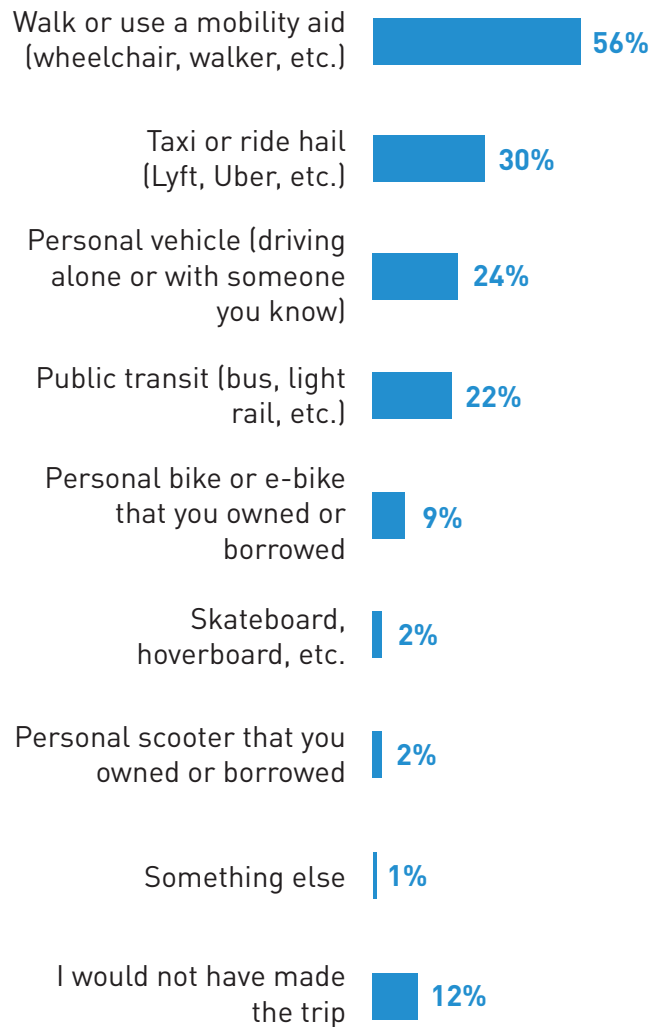


Figure 14: Survey results on trip replacement

OBJECTIVE 1: REDUCE SEATTLE'S CARBON EMISSIONS BY PROVIDING ACTIVE, LOW-CARBON, AND CONGESTION-REDUCING MOBILITY OPTIONS

Where we succeeded	Where we fell short
<ul style="list-style-type: none"> • Even though we launched in a pandemic, we still saw people take many trips on scooters. • People used scooters for a variety of trip types. • Scooters are replacing at least some vehicle trips. 47% of users said they would have taken a personal vehicle or taxi/ridehail if they had not used a scooter for their last trip. • We launched a successful incentive program in West Seattle that encouraged both scooter and transit use. 	<ul style="list-style-type: none"> • Lime fell below the target for device rentability for two quarters but continues to make improvements. • Many users reported that they would have walked or used a mobility aid (54%) or taken transit (22%) or used another low-carbon device. This is not necessarily a problem, but these scooter trips aren't actively reducing carbon emissions. • Deployments and trips are concentrated around central Seattle, with less availability and fewer trips in other neighborhoods.
<p>Next steps for the scooter share program in 2022</p> <ul style="list-style-type: none"> • Continue to monitor device rentability and ensure that all vendors are meeting their target. • Expand outreach to neighborhoods that currently have lower use, including riding demonstrations and helmet distribution. Consider expanding incentive programs like West Seattle Flip Your Trip into other neighborhoods. 	

OBJECTIVE 2

Ensure accessibility for and expand use by Black and Indigenous people, non-Black people of color, low-income people, immigrants and refugees, and people with limited English proficiency

When we were designing the scooter pilot, we knew that when bike and scooter share first launched in the US, companies primarily designed programs that worked best for higher-income riders who already had many options for getting around. From the outset of our bike and scooter share permit programs, SDOT’s goal has been to make these convenient and low-carbon mobility options that work for everyone. , and to do better to reach Black and Indigenous people, non-Black people of color, low-income people, immigrants and refugees, and people with limited English proficiency. SDOT instituted permit requirements for vendors to: deploy scooters in equity focus neighborhoods where vendors may otherwise not have identified a market; offer reduced-fare plans for qualified low-income users, capped at \$1.50 per hour; and offer translated materials about available programs. SDOT also partnered with community organizations to receive feedback and better understand barriers and opportunities for focus communities to better access scooter share. We aim to continue this engagement as the program moves forward so that we can make the program useful to more people.

We analyzed demographic data from our fall 2021 user survey to help us understand who is using scooter share (and in contrast who may not be). Because the survey was optional, these data points may not be a representative sample of all scooter riders, and may not be directly comparable to Seattle-area demographics per the US Census. For full survey results, see Appendix A.

Subsequently in this section we discuss performance on permit requirements related to equity deployments, reduced fare plans, and outreach.

WHO IS USING SCOOTER SHARE ?

In our user survey, we asked several questions to understand the demographic characteristics of scooter users. The survey was not designed to be a representative sample, so while these results provide insight into who uses scooters, this should not imply that this is a complete reflection of scooter users.

Race and Ethnicity

Most scooter riders in the survey identified as white (70%), followed by Asian or Asian American (14%), Hispanic or Latino/a/x (11%), Black or African American (7%), and American Indian or Alaska Native (3%). In our survey, riders could select as many options as applied. These percentages approximately reflect the proportion of racial identities in Seattle, per the US Census.

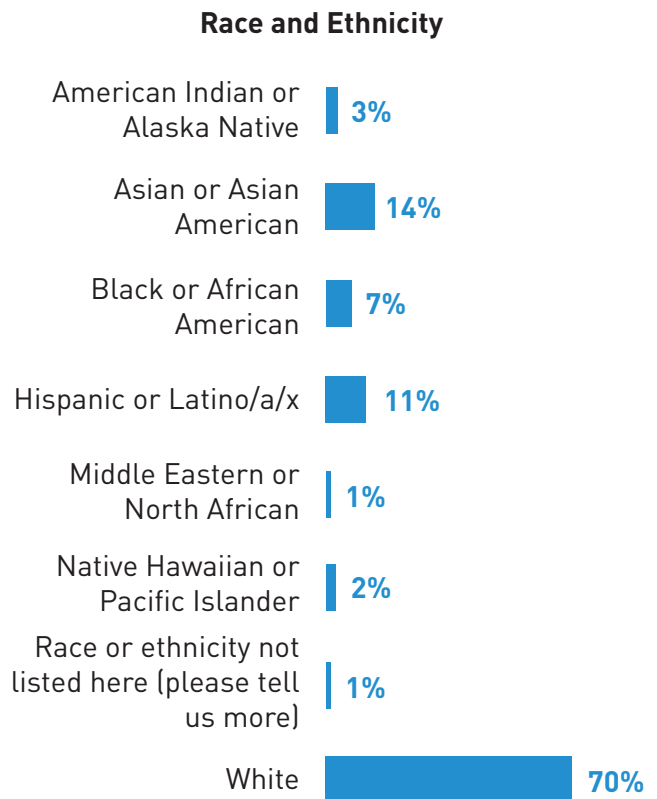


Figure 15: Survey results on race and ethnicity

Age

In the user survey, the most common age category was 25-34 years old (39%), followed by 35-44 (25%) and 18-24 (15%). This may be a reflection of who uses scooters, as well as the recruitment methods for the survey. SDOT and vendors can do more outreach and engagement with older community members to try out and get more comfortable with scooters, if they so choose. Most vendors do not allow use by people under 18, though there may be future opportunities to allow and expand access for youth.

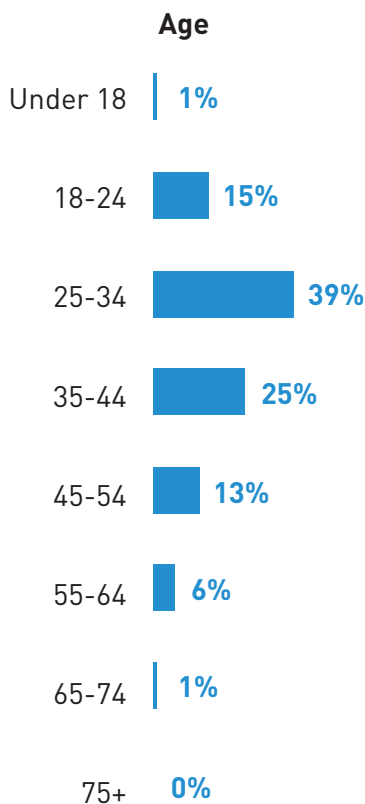


Figure 16: Survey results on age

Gender

65% of respondents identified as men, 33% as women, and 4% as genders not listed on the survey. Respondents could select multiple options. These percentages suggest an over-representation of men among scooter riders, which aligns with an over-representation of men in studies of bicycle riders.⁵

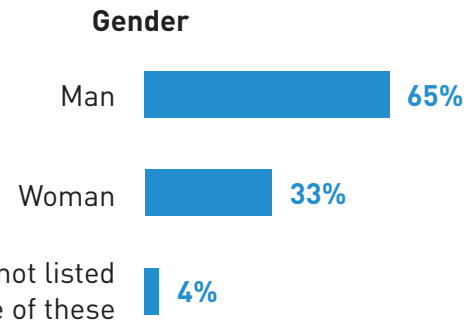


Figure 17: Survey results on gender

⁵www.seattletimes.com/seattle-news/data/who-bikes-in-seattle-bicycling-gender-gap-one-of-biggest-in-country/#:~:text=In%20the%20Seattle%20area%2C%20of,%2Dskewed%3A%20Sacramento%2C%20California

Disability

We asked participants to describe what, if any, disabilities they experience. 15% of respondents reported having some kind of disability, including 7% who had a condition limiting physical activity. Respondents could select as many options as applied, so some may have also indicated multiple disabilities.

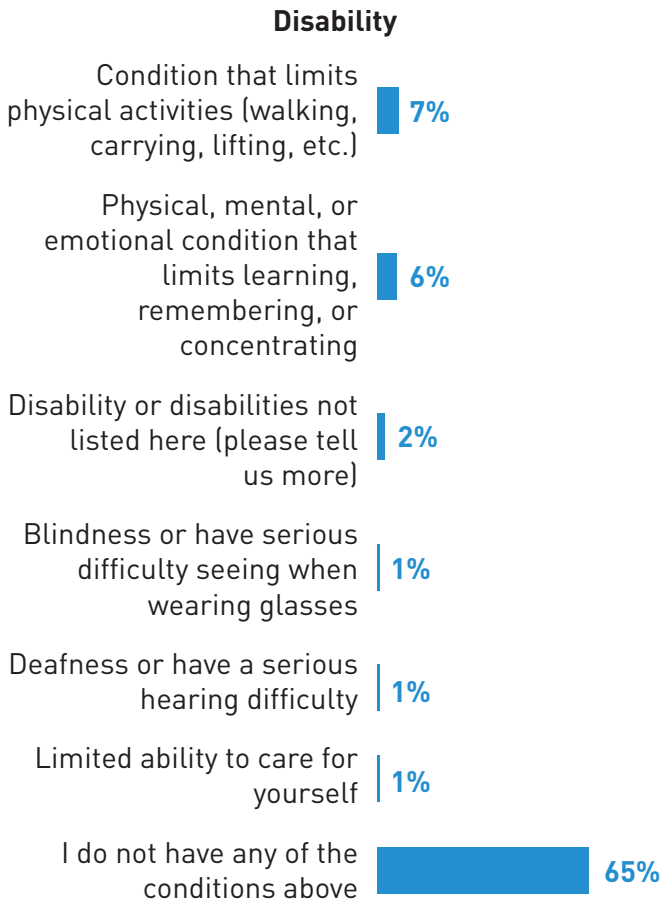


Figure 18: Survey results on disability

Languages spoken at home

Most people (96%) who responded to our survey speak English at home, and this is likely because scooter share apps as well as this survey are in English. Respondents could select more than one language, and 17% of respondents reported speaking a language other than English at home. The scooter program can work to improve access for people who speak languages other than English, especially those who speak or read English less than very well.⁶

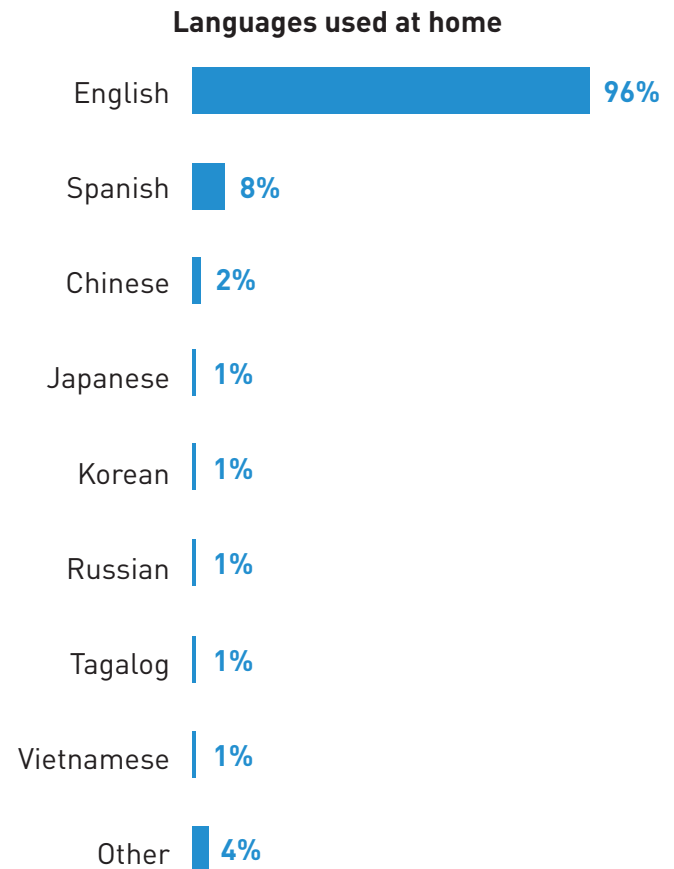


Figure 19: Survey results on language used at home

⁶For more information on languages spoken in Seattle: www.seattle.gov/Documents/Departments/OIRA/Seattle%20Top%20Tier%20Languages_Multisource%20Table_Updated%2011_14_2020.pdf

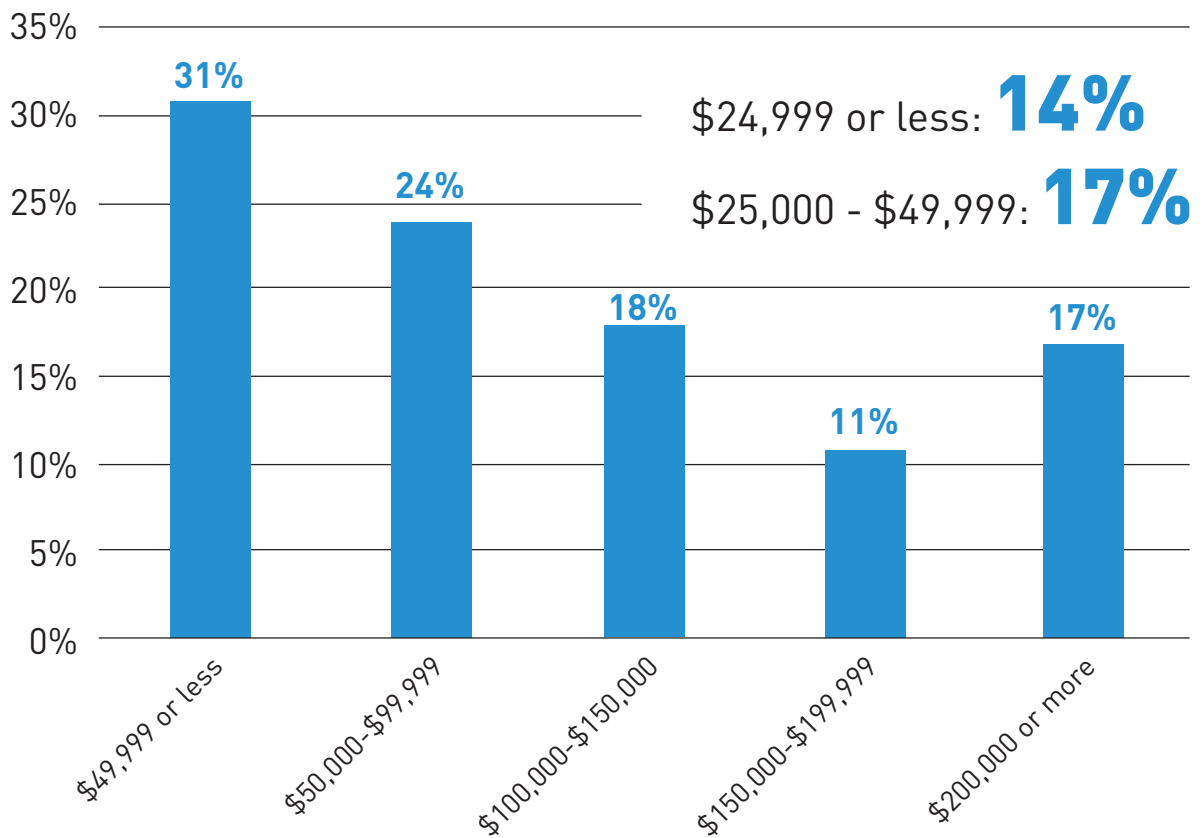


Figure 20: Survey results on household income

Household Income

Affordability is a key priority for the scooter share pilot, especially for reaching people with lower incomes. Survey respondents reported a diverse range of household income, with 31% of respondents reporting annual household incomes of less than \$50,000 and 14% with household incomes below \$25,000. Reduced-fare plans do not have one specific income eligibility range;

rather, riders can provide documentation that they are eligible for another government subsidy program (such as SNAP food benefits, ORCA LIFT, etc.) which have different income requirements. That said, the household incomes people reported in the survey suggest that there may be people who are eligible for reduced-fare plans who have not yet signed up.

EQUITY FOCUS NEIGHBORHOODS

We require vendors to deploy at least 10% of their fleet in equity focus neighborhoods, which SDOT established in 2019 based on areas of the city with low access to opportunity and low ridership during the bike share pilot. Combined with other efforts, this approach helps ensure that community members who might not otherwise be in a focus market for vendors have an opportunity to ride scooters. These neighborhoods include:

- **Northern:** Bitter Lake, Cedar Park, Haller Lake, North College Park, Olympic Hills, Pinehurst.
- **Central:** Atlantic, First Hill, Minor.
- **Southern:** Brighton, Dunlap, Georgetown, High Point, Highland Park, Holly Park, Mid-Beacon Hill, Rainier Beach, Rainier View, Riverview, Roxhill, Seward Park, South Beacon Hill, South Delridge, South Park.

As the holder of Permit D, Spin is required to deploy 20% of their fleet in southern equity areas, including 10% west of the Duwamish Waterway.

During the pilot, vendors averaged 15.5% of scooters deployed in these areas overall and stayed above their target most months. Of the scooters deployed in the equity areas, 55% were deployed in the southern areas, 42% in the central areas, and 2% in northern equity areas. While scooters were available in these equity areas, as required, we found that only 9% of trips started and 9% of trips ended in these equity focus neighborhoods, meaning that there continue to be opportunities to improve access and increase use in these areas.



Figure 21: Map of equity focus neighborhoods

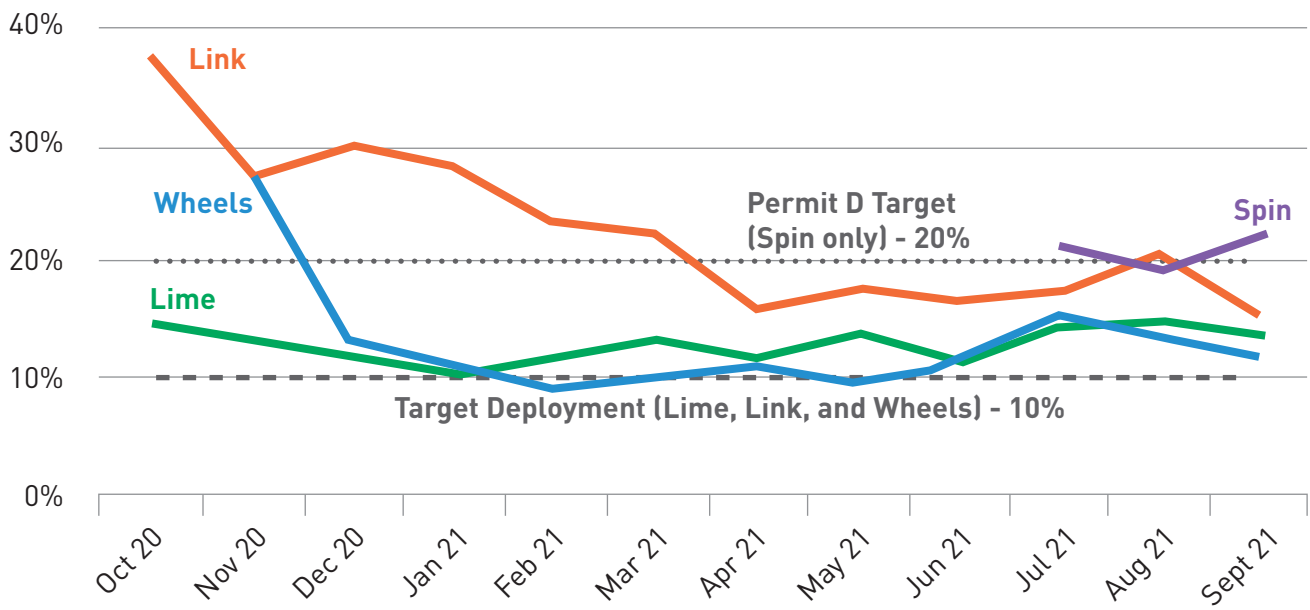


Figure 22: Deployment in equity areas by vendors and month

REDUCED FARE PLANS

Vendors are required to offer a reduced fare membership plan. Riders who provide documentation of eligibility for a government income-qualified assistance service (such as ORCA LIFT or SNAP) are eligible for a reduced-fare plan for scooter share. This equates to less than approximately \$25,760 annually for an individual.

Vendors may structure the plans differently, though SDOT requires a maximum fare of \$1.50 per hour. Most plans offer a lower price than that.

Unique reduced-fare riders per vendor are shown in the chart above. Riders may sign up for more than one plan.

Reduced fare riders represent fewer than 1% of users but took over 4.5% of rides, taking 64 trips per person on average, compared with just 3 per person overall. Our survey showed that many riders were not aware of how to sign up for a reduced fare plan. There is room to improve availability of information about and access to these programs.

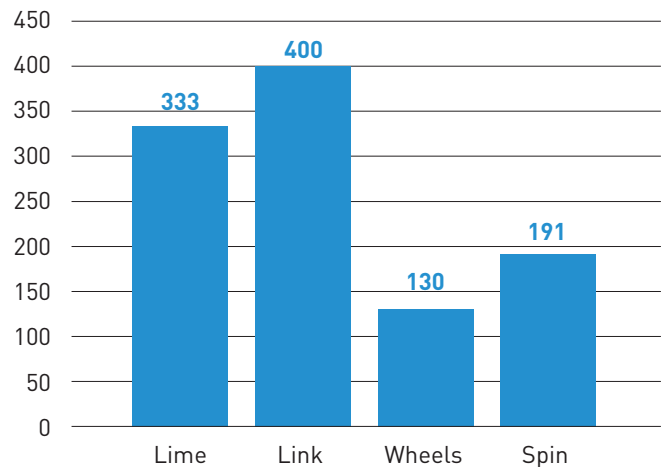


Figure 23: Reduced fare program unique riders

Reduced-fare riders took **67,706** trips

64 trips per rider for the year, compared to just 3 trips per rider overall

4.5% of total trips were taken using a reduced-fare plan



Figure 24: Reduced fare program summary statistics

Events included demonstrations and practice riding scooters and bike share bikes, and vendors offered free helmets.



APALA-hosted outreach event, October 30, 2021

EQUITY-FOCUSED OUTREACH

SDOT contracted with community-based organizations to run focus groups, conduct a survey, and do outreach events to better understand barriers to access. There were 72 participants across six focus groups.

These organizations included:

- Asian Pacific American Labor Alliance (APALA)
- Duwamish River Cleanup Coalition
- King County Promotores Network
- A Legacy of Equality Leadership and Organizing (LELO)
- Villa Comunitaria
- Urban League of Metropolitan Seattle

Findings from focus groups

Most focus group participants were interested in using shared micromobility, but cited barriers, including:

- Lack of knowledge about how to use
- Access to helmets, safe places to ride
- Affordability and knowledge about reduced fares
- Geographic availability
- Liability/insurance concerns
- Customer service and language assistance needs

Some people were not interested in using scooters because:

- Needed to carry items (e.g., work tools)
- Weather
- Physical accessibility concerns
- Rely on or prefer using a car

OBJECTIVE 2. ENSURE ACCESSIBILITY FOR AND EXPAND USE BY BLACK AND INDIGENOUS PEOPLE, NON-BLACK PEOPLE OF COLOR, LOW-INCOME PEOPLE, IMMIGRANTS AND REFUGEES, AND PEOPLE WITH LIMITED ENGLISH PROFICIENCY

Where we succeeded	Where we fell short
<ul style="list-style-type: none"> • We have seen a diverse user base grow over time in the scooter pilot. • All vendors met their target for deployment to equity focus neighborhoods almost every month of the pilot. • Many people signed up for reduced-fare programs and those who did sign up rode scooters much more than average. We required vendors to report on reduced-fare plan rides and riders, so we have data we can use to track year over year. • We successfully partnered with several community-based organizations to better understand barriers and opportunities for participation in the scooter share pilot. We also partnered with them to host events. 	<ul style="list-style-type: none"> • While our survey may not be a representative sample of all scooter riders, the responses on demographic questions suggest that we could likely do more to reach women; Black, Indigenous, and other People of Color ; and people who speak languages other than English; as well as older people. • While we saw strong use of our reduced-fare plans, we can do more. Based on the responses on household income in our survey, there are likely many eligible potential users who have not yet signed up. • There continue to be barriers to participation for BIPOC communities.

Next steps for the scooter share program in 2022

- We plan to expand our outreach and education efforts to reach communities who may be hesitant to try scooters. This includes hands-on instruction, helmet distribution, sign-ups for reduced fare plans if applicable, and other incentives.
- While we have some translated materials already, we will expand the reach of those and ensure that communities who need translation have access to in-language support.

OBJECTIVE 3

Be safe and advance Seattle's Vision Zero objectives

The City of Seattle’s Vision Zero initiative aims to end traffic deaths and serious injuries on city streets by 2030. Key strategies to achieve this goal include designing streets to prioritize the safety of people (not the speed of vehicles), education and engagement with the public, as well as partnership development with other agencies and organizations working in the space of transportation safety, climate action, and mobility justice.

Safety is SDOT’s top priority and we have proactively implemented best practices and permit conditions that center rider and non-rider safety and comfort. In the Seattle Municipal Code that enables scooter share, we required riders to wear helmets and disallowed riding on sidewalks in most cases. In our permit conditions, vendors are required to keep their devices in good working order, implement safety quizzes and slow the first ride a user takes from 15 miles per hour (mph) to 8 mph. This section discusses the strategies implemented by SDOT and vendors, followed by an analysis of injury rates obtained via our user survey.

SAFETY STRATEGIES

Vendor actions to improve safety

Vendors and SDOT have both implemented safety measures. For vendors, this includes riding and parking **safety quizzes** before riders take their first ride, as well as **reduced speed to 8 miles per hour on the first ride**.

Helmets

The City requires riders to **wear helmets** while operating e-scooters. However, in our user survey we found that only 11% of riders said they always or almost always wore a helmet, whereas 70% of riders reported never or almost never wearing a helmet. Helmet use varied significantly by age, with younger riders less likely to wear one.

The most common reasons for not wearing a helmet were not wanting to carry a helmet around, not planning to use a scooter that day, and not owning a helmet. Reasons for not wearing

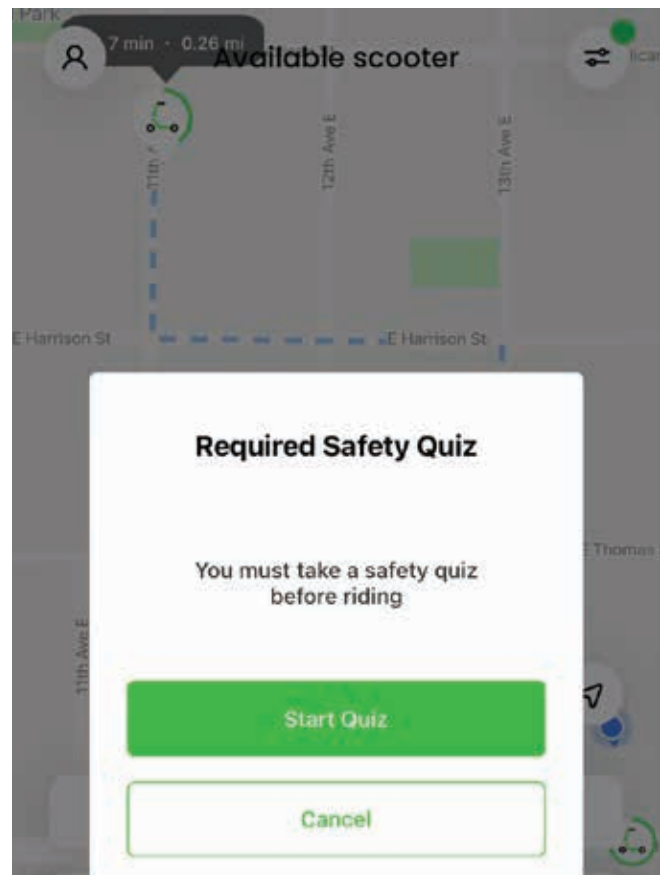


Figure 25: Screenshot of required safety quiz

a helmet varied across age groups – not owning a helmet was especially prevalent among 18-to-24-year-olds, whereas older age groups were more likely to mention challenges with carrying a helmet around and planning when to ride a scooter. In our user survey, some respondents expressed frustration about a perceived heavy focus on helmet use, preferring instead to focus on having safe places to ride.

Nevertheless, helmets remain a part of our safety strategy. SDOT and vendors can collaborate to distribute more helmets so that those who do not own one can have one. There are other promising opportunities, such as Wheels’ helmets that are attached to scooters, that can continue to be refined.

Safe places to ride

The City requires riders **not to ride on sidewalks**. This was a key decision we grappled with when designing the program. We want scooter riders to have safe places to ride, while also ensuring the safety and comfort of people walking and using wheelchairs and other mobility devices on the sidewalk. Riders are allowed to ride in bike lanes, shared use trails and paths, and streets.

In our user survey, 78% of riders reported using bike lanes, streets (with or without a bike lane), or shared trails and paths for most of their last trip. However, 22% of riders said they rode most of their last trip on the sidewalk.

Where did you ride most of the time on your LAST scooter share trip?

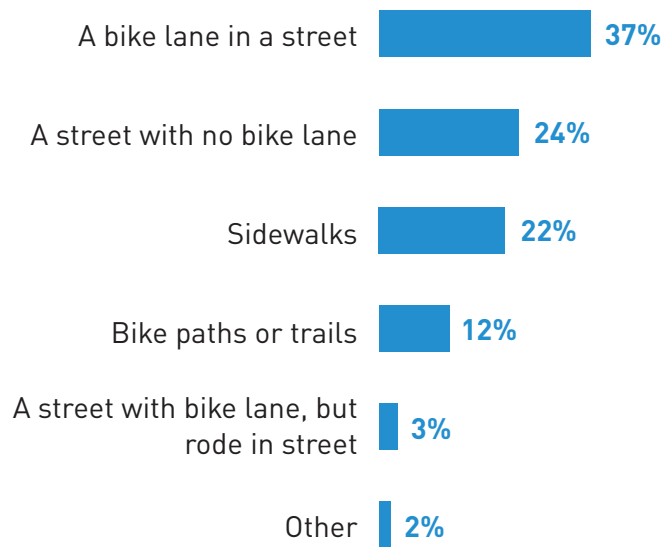


Figure 26: Survey results on riding location

Most riders (69%) reported that they chose where to ride based on where they felt safest, and 47% said that if there are a lot of cars on the road, they chose the sidewalk. How busy roads and sidewalks are seemed to be a factor for riders – those who say they rode on the sidewalk when there were a lot of cars on the road were more likely to say they rode in the street if there were a lot of people on the sidewalk.

Scooters riders on sidewalks continue to be a concern for many people who walk or use mobility aids on the sidewalk, but scooter riders may not feel safe in places that lack dedicated infrastructure. Given that 46% of scooter riders surveyed said they ride in bike lanes when one is available, SDOT can do more to build out a network of bike lanes so scooter riders can use them for more of their trips.

When you use scooter share, how do you decide whether to ride on the sidewalk on the street? Please select all that apply.

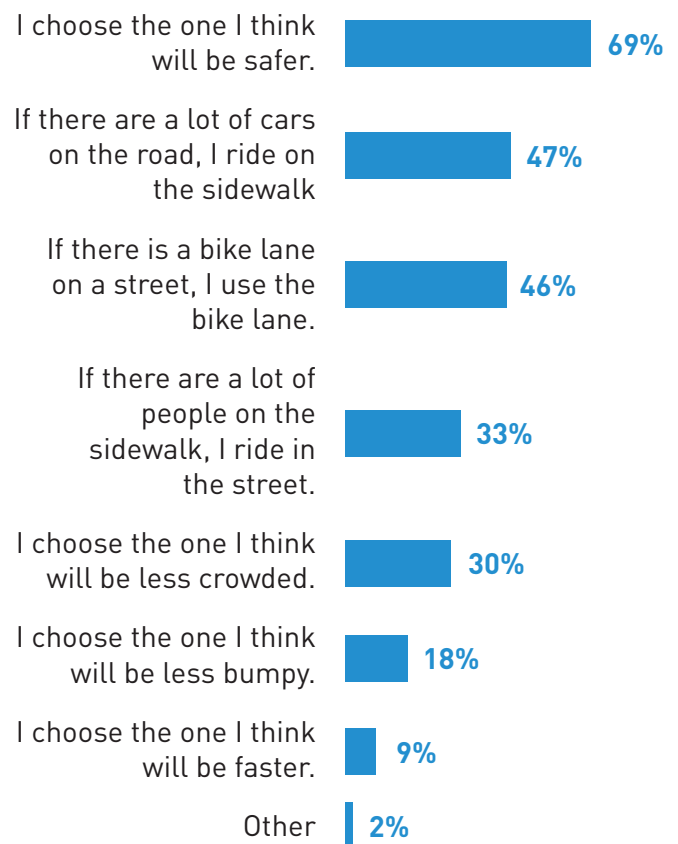


Figure 27: Survey results on how people choose where to ride

There have been no reported serious injuries to pedestrians due to scooter riders on the sidewalk, but SDOT and vendors can do more to educate scooter riders on proper behavior to make other sidewalk users more comfortable, such as messaging to walk the scooter if it is necessary to access the sidewalk. In our user survey, many riders were not aware that riding on sidewalks is not allowed. People are allowed to ride bicycles on sidewalks in Seattle, so this may be confusing for some riders. Education campaigns should also focus messaging to drivers to be aware of scooters, as interactions with cars were a significant cause of injury for people riding scooters.

Geofences

SDOT and vendors use geofences to prevent riders from riding in some areas (such as parks and non-permitted places such as the University of Washington campus), as well as to prevent parking in some areas (such as on bridges) where riding is still allowed. In our user survey, some users noted that these geofences could be confusing, and in cases of no-riding zones, could create unsafe situations if scooters shut off suddenly. This can occur due to GPS error where the GPS device appears to be in a different location from where the device actually is. This is a problem if someone is close to the edge of a geofence. SDOT and vendors should continue to refine the geography of the geofences to make room for potential error, as well as continue to refine technology to reduce errors.

INJURIES

Due to the ongoing pandemic, we were unable to obtain data from hospital emergency departments related to scooter injuries. We plan to do future research in partnership with the Harborview Injury Prevention Research Center to further understand the scope of injuries. For this report, we focused on data from police reports as well as self-reported injury data from the user survey to better understand safety for scooter riders.

Injury Reported	Number of Collisions
No injury	1
Minor injury	10
Serious injury	5
Fatality	1

Figure 28: Scooter injuries in police reports

Police report data

We obtained data from police reports and conducted a user survey in fall 2021 asking users to self-report injuries. SDOT’s Vision Zero program uses police reports as its main source of data for overall traffic injury and fatality information. SDOT staff collected over 8,000 police reports over the pilot period and found 17 instances in which a scooter rider was involved.

In many cases, we were not able to verify whether the scooter was privately owned or part of the scooter share pilot program. All injuries reported to police involved a collision with a motor vehicle. The first fatality for a scooter share user occurred in October 2021 (after the pilot evaluation period, but reported here for completeness). These injuries occurred in the context of rising fatalities and serious injuries for people walking, biking, and scooting in Seattle, Washington State, and across the country.⁷ Figure 8 shows overall trends in fatalities in Seattle between 2010 and 2020 by mode. Scooters were not included as a separate category since the scooter share program was introduced only in late 2020.

⁷www.seattletimes.com/seattle-news/transportation/2021-was-the-deadliest-on-washington-roads-in-15-years-puzzling-experts/

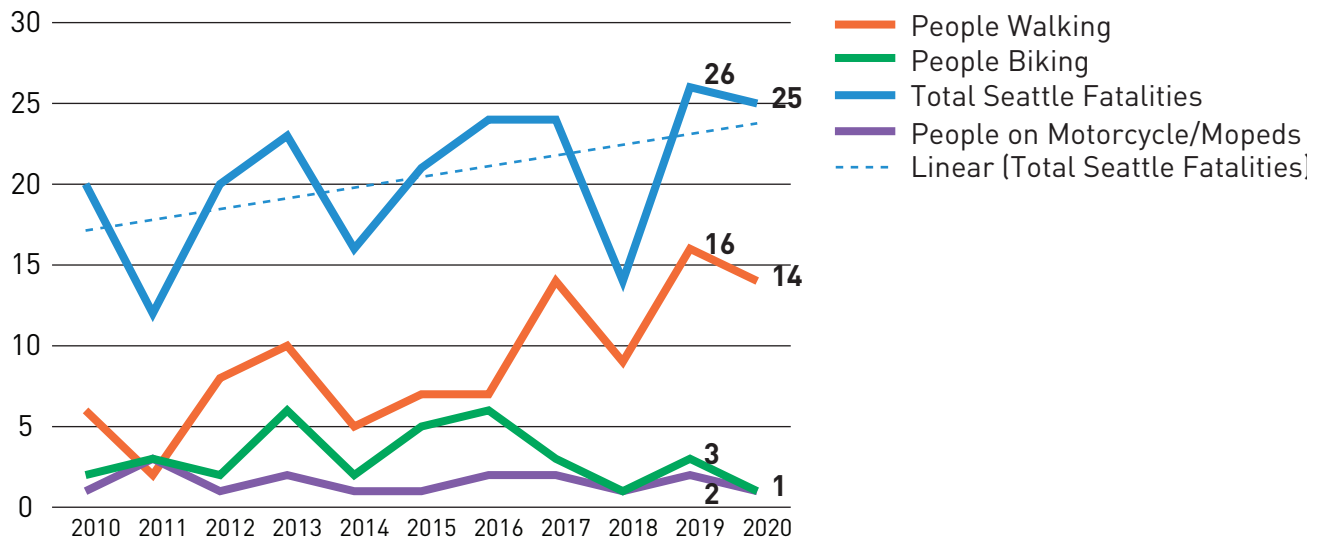


Figure 29: Overall traffic fatality trends, 2010-2020

User survey data

In our user survey, we asked riders to self-report injuries, including how frequently they were injured while using scooter share, if they sought professional medical attention, and additional details about their experience. A total of around 11% of survey respondents reported experiencing an injury. Of those injured, 22% sought professional medical attention (ER, clinic, urgent care, etc.), which equates to 2.3% of total respondents reporting injuries for which they sought medical attention, and 8% of respondents experiencing an injury for which they did not receive medical attention.

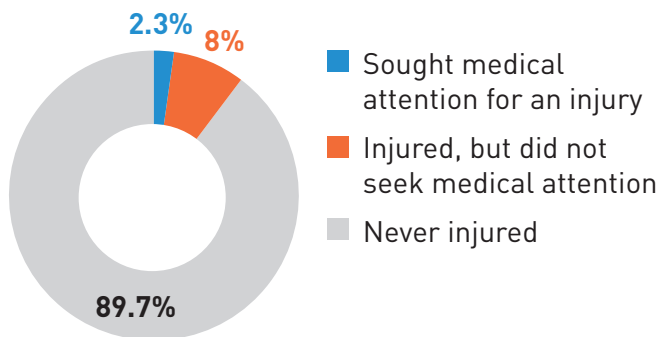
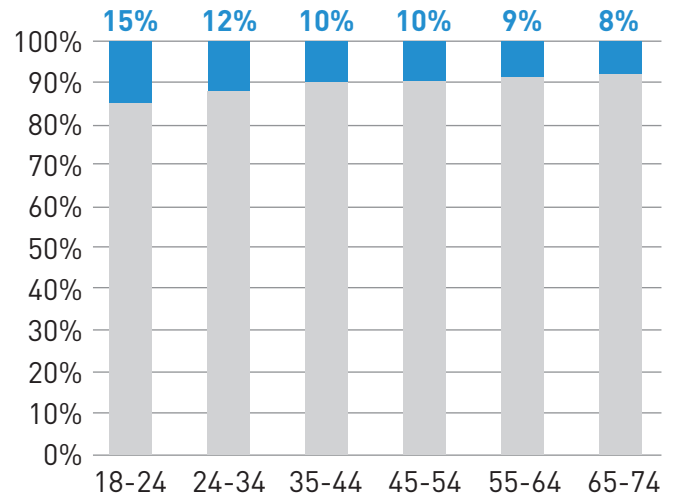


Figure 30: Survey results on injury and medical attention

In the user survey, injury rates varied by age and gender. Men were less likely to report being injured – 10% of those who identified as men reported having experienced an injury, whereas 14% of those who did not identify as men reported experiencing an injury. Younger people were more likely to report experiencing an injury than older people.



- Percent of scooter riders in age group who reported experiencing an injury
- Percent who did not report experiencing an injury

Figure 31: Survey results on injuries by age group

We asked survey respondents to voluntarily describe the circumstances leading up to, and effects of, injuries. Injuries reported ranged greatly in severity.

- Relatively minor injuries were the most common and included minor cuts, bruises, and abrasions that did not require medical care. This also included people hitting an ankle or shin on the scooter.
- Moderate injuries reported included more significant scrapes that may have warranted medical care, though not everyone sought care.
- Some people reported more serious injuries, including concussions, severe lacerations, and broken bones.

Below are selected quotes describing causes of injuries. The most common causes of injuries included:

- Weather conditions, such as wet conditions making the road slippery

Bad weather made the road slippery and I fell and scraped my knee.
— male, white, 25-34, \$25k to \$49k

- Road conditions, such as bumps, potholes, or cracks. Riders also reported particular challenges seeing obstacles at night.

Rough road. Poor lighting at night. Lost control. Fell off - against curb - going 12-13 mph. Severe road rash.
— female, Middle Eastern or North African, 45-54, \$25k to \$49k

- Interactions with cars, including both crashes as well as examples such as swerving to avoid being hit.

I was riding on a road with no bike lane, and a car behind me decided to pass me, and was pretty close to me - I flinched and the whole scooter wobbled and I fell on the sidewalk (better than falling towards the left/road). Hand was pretty scratched up but better than getting run over.
— male, Middle Eastern or North African and white, 25-34, \$150k to \$199k

Some education efforts can help reduce the likelihood of injury. Our planned demonstration events can give people a chance to try scooters and gain confidence in riding. Education may also include suggestions about reducing speed at night and when roads are wet. In addition, we need to educate people driving to look out for scooter riders, give plenty of passing room when driving, and look before opening doors from parking lanes.

COMPARING OUR SAFETY DATA AND METHODOLOGIES

Our user survey cast a wide net to understand the full extent of injuries experienced by scooter riders.

Because these injuries were self-reported and participation in the survey was voluntary, these data points are not directly comparable to other data SDOT receives about injury rates from police reports, or data from other cities which analyzed data from emergency departments.

In the near future, SDOT hopes to engage with medical researchers to better understand rates and severity of injuries, as well as understand the burden of injuries relative to the benefits of the scooter share program.

OBJECTIVE 3: BE SAFE AND ADVANCE SEATTLE'S VISION ZERO OBJECTIVE S

Where we succeeded	Where we fell short
<ul style="list-style-type: none">• Most people who have ridden scooters did so without experiencing injury. Less than 3% of scooter riders reported experiencing an injury more than once.• We had a few events where we distributed helmets to increase use.• Our survey cast a wide net to understand the types of injuries that scooter users can experience and inform future permit conditions and program design• There were no reported injuries to pedestrians or others due to being hit by a scooter rider.	<ul style="list-style-type: none">• At SDOT, we are concerned about injury rates for vulnerable users in our transportation system. We are deeply saddened by the fatality of a scooter rider in our pilot.• It is difficult to compare injury rates with results from other cities and studies because we used different methodology to collect the data.• Helmet use is low.• There may not be enough safe places to ride for people to feel comfortable using scooters.• We heard from some riders that geofences may cause unsafe situations if scooters shut off unexpectedly.
<p>Next steps for the scooter share program in 2022</p> <ul style="list-style-type: none">• We plan to ramp up efforts to distribute helmets via our outreach and education events. We will also develop additional messaging to encourage safe behavior around sidewalks, such as walking the scooter while on a sidewalk.• Many people reported lacking a safe place to ride scooters, so we need to continue to collaborate with others at SDOT to build out the bike network. Additionally, potholes and sidewalk cracks were another common cause of injury that SDOT can work collectively to address.	

OBJECTIVE 4

Ensure sidewalks are safe and accessible for people of all ages and abilities

When designing the scooter share pilot, we built on our experience with free-floating bike share and engaged organizations in the disability community. Scooters and bikes parked on sidewalks can constitute a major impediment for people who use wheelchairs, have low vision, or other considerations. Our scooter share permit conditions have an ambitious goal to have no more than 3% of parked devices found to be obstructing sidewalks.

In addition, when designing the scooter share pilot, whether to allow scooters on sidewalks was a major consideration. Ultimately, we decided not to allow scooters to ride on sidewalks. This is different from bicycles, which riders are allowed to operate on sidewalks. Scooter users operating on sidewalks has continued to be a concern for some other people using sidewalks.

PARKING

How vendors encourage proper parking behavior

Vendors have different methods to encourage riders to end rentals and park properly. These include:

- Submitting trip end photos (all vendors)
- Spin's Drover AI technology can automatically identify when a user parks at a bike rack, or within 2' of an appropriate space on the curb
- Wheels added a checklist for users to complete at the end of each ride in addition to a shadowbox for the trip-end photo. A shadowbox encourages users to take a step back for better parking photos which shows more detail about whether users are parked properly.

Parking Audit Process

While people are not allowed to ride scooters on sidewalks, they are allowed to park scooters on sidewalks if doing so will not obstruct access (they are required to leave at least 6 feet clear). Since the start of the free-floating bike share program and into the scooter share program, SDOT has devoted significant resources to auditing parking.

SDOT staff conduct randomized audits to check how well riders park their scooters. During the pilot period, we conducted audits on 68 days, evaluating over 4,000 devices.

Vendors are fined \$20 per obstructing device. SDOT auditing staff take a photo of the device when it is located during an audit, and vendors compare these photos to the required photo taken at the end of the last rider's trip to determine if the rider was at fault. For first offenses, riders receive warnings, and for subsequent offenses, the vendors pass the fine on to the rider. We have issued a total of \$6,460 in scooter parking fines.

There is still room for parking to improve, including in cases where someone other than the rider moves scooters to improper locations. We are already adding additional audit locations in the northern part of the city, where ridership is currently lower, but where it is still important to keep pedestrian pathways clear.

How well did people park scooters?

For Quarter 3 of 2021 (most recent data during the pilot), 8% of all devices were obstruction hazards.

Obstruction hazards are defined in the permit and include things that impede access for people with disabilities or otherwise cause safety hazards for people walking. We have seen improvement in parking behavior in our audits over time, but still have not reached our target of 3% or fewer obstructions.

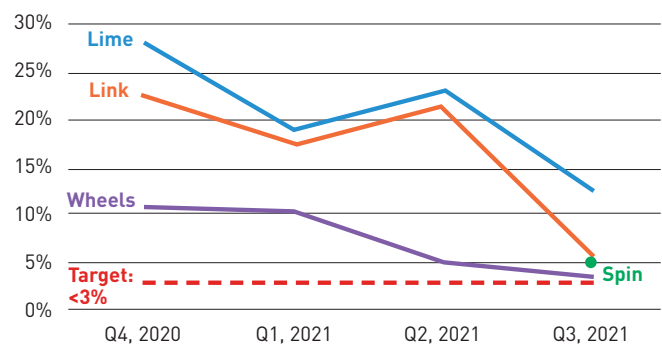


Figure 32: Obstruction hazards by vendor by quarter

Complaints and response time

In addition to random audits, people may report improperly parked devices and other issues through the Find It, Fix It app, the City of Seattle’s online customer service portal, by phone to SDOT, or directly to the companies.

Overall, vendors responded to reports on time 95% of the time (2-hour response window during the day), better than the goal of 75% on-time response. Vendors responded to 96% of reports within 48 hours, below the 99% target.

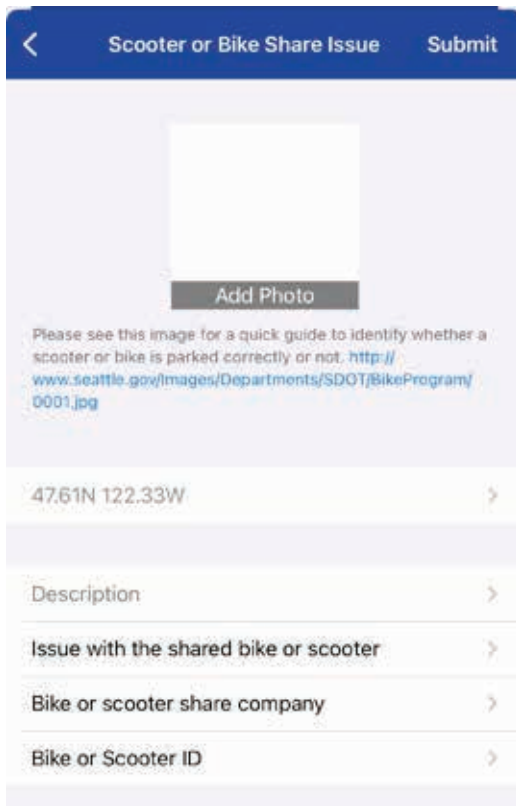


Figure 33: Screenshot of Find It, Fix It app complaint form

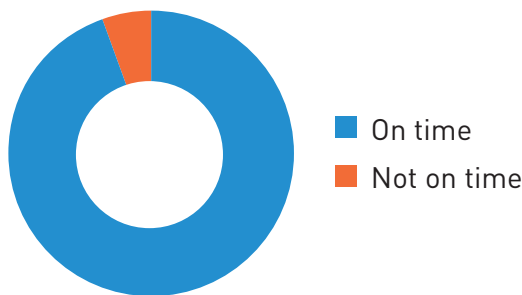


Figure 34: Vendor response times

Designated parking locations

SDOT has worked to establish dedicated parking areas over the arc of the free-floating micromobility program, focusing on areas with high micromobility use. This helps keep devices properly parked and out of the way of other users.

Alki

The largest effort during the pilot period was eight (8) new locations along Alki and Harbor Ave, to bring the total there to 17 locations, with room for a total of over 400 devices. We focused on this area due to high trip numbers and concerns about improperly parked devices blocking access for others at Alki.



Figure 35: Photo of Alki parking location

Alki Beach Bike and Scooter Parking Hubs

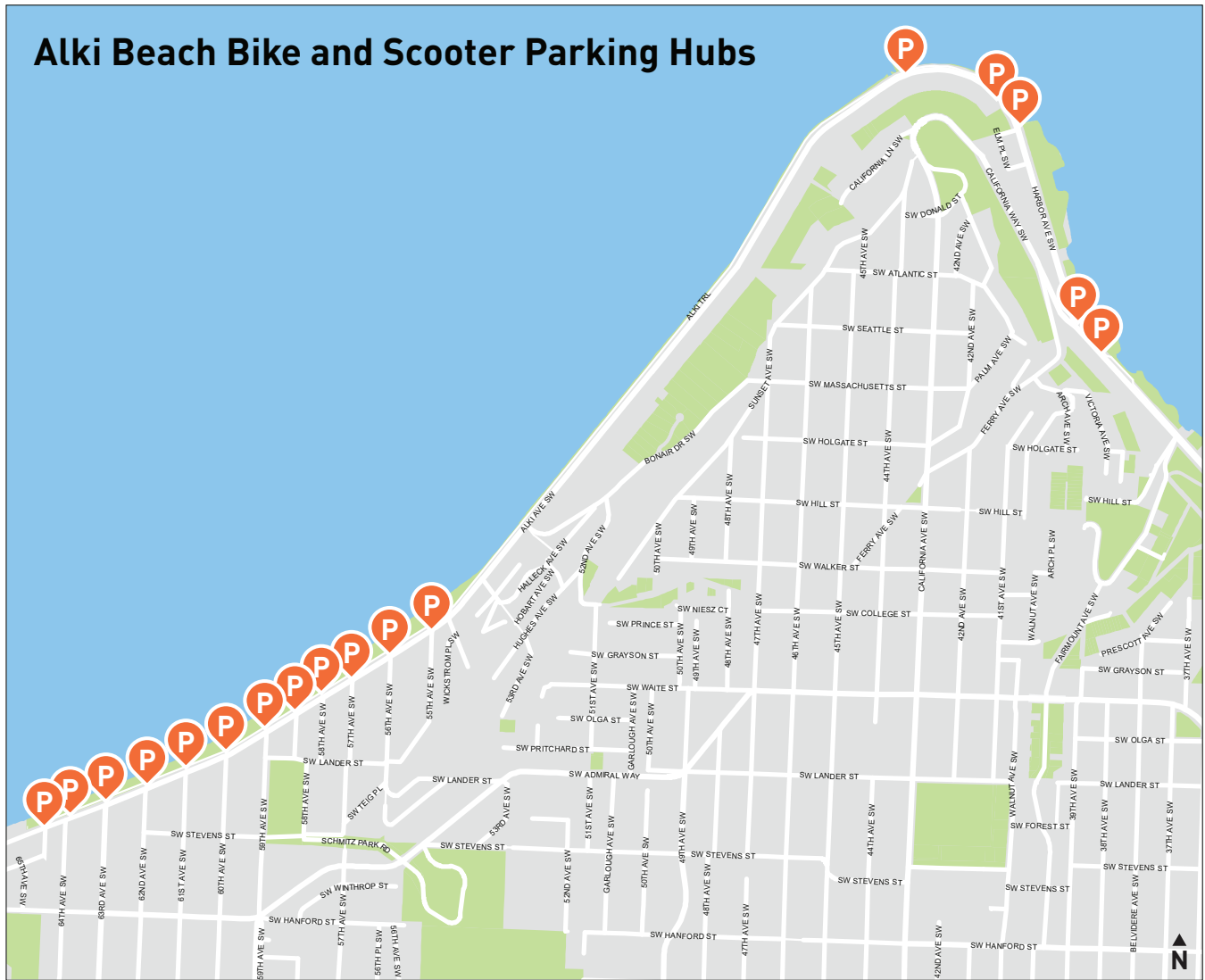


Figure 36: Map of Alki and Harbor Avenue parking locations

In coordination with vendor attention to this area, as well as geofences preventing parking in other areas, we saw improvement in how devices were parked and how well they worked.

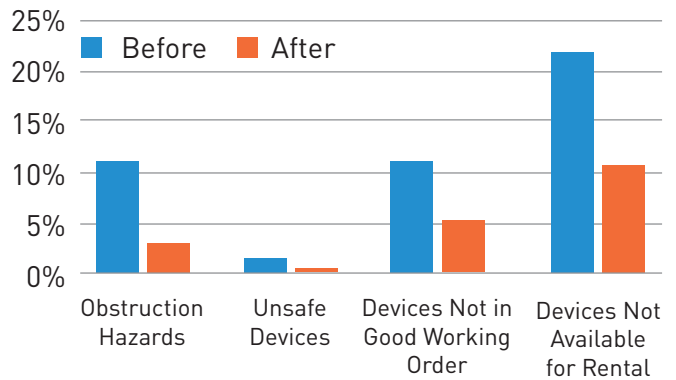


Figure 37: Results from Alki parking pilot

Light Rail Stations

SDOT worked with partners at Sound Transit and King County Metro to establish dedicated scooter and bike share parking near light rail stations that newly opened in fall 2021. SDOT established dedicated parking in SDOT right-of-way near Roosevelt Station, as well as a location on the west side of I-5 across the John Lewis Memorial Bridge from Northgate Station. Vendors have successfully staged scooters near these stations, allowing for a first and last mile connection to high-capacity transit for riders.



Figure 38: Designated micromobility parking on NE 65th St across from Roosevelt Light Rail Station

Other locations

SDOT staff also collaborated internally, with capital projects such as the 4th Avenue projected bike lane in downtown Seattle, to add micromobility parking in appropriate adjacent locations. Establishing dedicated parking areas, especially when paired with geofencing technology, holds promise for improving parking behavior and ensuring that riders park their devices correctly. This will continue to be an area of focus for the program moving forward.

SIDEWALK RIDING

Even though it is not legally allowed, we know – from our user survey and from public feedback – some people do ride on sidewalks, largely because they feel safest there. Preliminary findings in Seattle and from other cities show that where there are bike lanes, people tend to use them for scooter riding; where there are no bike lanes people use a mix of sidewalk and roadway.

As mentioned in the previous section, Safe places to ride, 22% of scooter riders reported taking most of their last trip on sidewalks. Other sidewalk users have complained that it does not feel safe to share sidewalks with scooter riders, so this is something we need to continue to address.

We have taken the following actions to reduce sidewalk riding:

- Selecting Spin as a vendor, which uses artificial intelligence to give riders real-time auditory feedback and direct them off the sidewalk, as well as provide data about the prevalence of sidewalk riding
- Stickers on devices that say sidewalk riding is not allowed
- Messaging in vendor apps and on SDOT communication channels that sidewalk riding is not allowed

Future actions may include:

- Continuing to push for technology solutions that help prevent sidewalk riding by giving points in the permit application to vendors with sidewalk detection technology
- Education and outreach, potentially including street teams to educate people in real time
- Working with vendors to direct riders to locations with safer places to ride (such as lower-speed streets or streets with bike lanes)
- Supporting ongoing SDOT efforts to build out a full network of protected bike lanes

**OBJECTIVE 4. ENSURE SIDEWALKS ARE SAFE AND ACCESSIBLE
FOR PEOPLE OF ALL AGES AND ABILITIES**

Where we succeeded	Where we fell short
<ul style="list-style-type: none"> • We saw an overall decrease in obstructions on sidewalks during the pilot, as people learned how to properly park. • Vendors responded to concerns in a timely manner. • We established designated parking locations in high-use areas, and in combination with geofences we saw great improvement in parking behavior along Alki. 	<ul style="list-style-type: none"> • Obstruction hazards continue to be above our target. • While vendor responses to complaints met their targets for speed, we have limited ways to audit this. • We have not established dedicated corrals at the U District or Northgate light rail stations (which opened in 2021), and have also had difficulties finding locations at other older stations. • Beyond self-reported data from our survey, we have very minimal data on how frequently people ride scooters on sidewalks.

Next steps for the scooter share program in 2022

- We plan to do additional education and emphasis on proper parking and riding behavior.
- We will do additional auditing to include data collection about sidewalk riding.
- We continue to work with Sound Transit and King County Metro to identify locations for designated micromobility parking near transit facilities and may expand our use of geofences so that people use dedicated parking areas where appropriate.

OBJECTIVE 5

Provide accessible and adaptive mobility options and expand use by people with disabilities

In the design of the scooter pilot, it was important for us to avoid negative outcomes for people with disabilities. We also wanted to provide opportunities for people with disabilities to access scooters, bikes, and other forms of active transportation. To that end, we looked at how many scooter riders reported having a disability. Separately, we also allocate a portion of funds from the bike share and scooter share programs to offer an adaptive cycling program in partnership with Outdoors for All, a local nonprofit organization. This partnership helps us reach communities who otherwise may not participate in the scooter share program.

PEOPLE WITH DISABILITIES USING SCOOTERS

In our user survey, 15% of riders reported that they have a disability, including 7% who have a condition limiting physical activity. However, we know that scooters and bike share bikes remain inaccessible for many potential users. We have partnered with Outdoors for All since 2019 to provide adaptive cycling experiences.

OUTDOORS FOR ALL PARTNERSHIP

To support a diverse range of adaptive cycling experiences, SDOT provided \$47,000 from micromobility permit fees to Outdoors for All to expand access to adaptive cycles. The partnership began in 2019, was on pause in 2020 due to the COVID-19 pandemic, but SDOT and Outdoors for All are now in our second year of this partnership. Outdoors for All has a fleet of 200 adaptive bicycles that can serve a wide variety of people. Funding from SDOT allows them to offer their program for free and to expand program hours.

In addition, SDOT required that Outdoors for All attend additional outreach events to expand the reach of the program, which typically operates out of Magnuson Park. The goal for the partnership was to serve 100 riders for 400 unique ride

experiences. The program operated from May 1 through September 30, 2021, and there were:

- 165 unique riders
- 394 ride experiences
- 575 total hours (average ride 1.5 hours)
- Average satisfaction of 4.8 out of 5

Given the ongoing COVID pandemic, the results of this program are encouraging. SDOT plans to continue to fund this program in the warmer months of 2022.

In addition to allocating permit funds, the 2022 adopted City budget also included an additional \$25,000 to support increased hours, days of the week, or months of the program. We look forward to continuing this partnership, as well as potentially providing adaptive cycles as part of our regular bike and scooter share programs in the future.



Figure 39: Emily gets ready to try an adaptive bike (pictured on right) at Magnuson Park. Image courtesy Outdoors for All.

OBJECTIVE 5. PROVIDE ACCESSIBLE AND ADAPTIVE MOBILITY OPTIONS AND EXPAND USE BY PEOPLE WITH DISABILITIES

Where we succeeded	Where we fell short
<ul style="list-style-type: none"> • 15% of scooter riders in our survey reported having a disability, so the scooter pilot reached some people with disabilities. • Our partnership with Outdoors for All was successful at providing adaptive cycling experiences and received additional funding from City Council to expand programming. 	<ul style="list-style-type: none"> • Scooters are likely not accessible to many people with disabilities despite our efforts to fund Outdoors for All and offer a range of scooter device types. • Most of the experiences Outdoors for All provided were at their Magnuson Park location and were recreational in nature. There may be opportunities to expand where this programming is available.
<p>Next steps for the scooter share program in 2022</p> <ul style="list-style-type: none"> • Through the 2022 budget process, the program is receiving an additional \$25,000 to fund Outdoors for All programming, which we can use to expand the months of the year, days of the week, hours, or locations the program is available. • We continue to research the feasibility of directly providing adaptive cycles or more inclusive device types as part of our ongoing program. 	

CONCLUSIONS AND WHAT'S NEXT

After a year of a scooter pilot program in Seattle, we believe scooter share has many benefits for Seattle's transportation system and we are moving forward with a permanent program. We will continue to evolve and improve.

WHERE WE SUCCEEDED

We established a competitive permitting process. We permitted vendors with a range of devices and measurable success in other cities. We established strong, collaborative relationships between SDOT and vendors to continue to improve the program.

We took in a robust amount of data to help us understand how the program is working. We used real-time trip data feeds provided by vendors using the Mobility Data Specification (MDS), as well as data sources from surveys and vendor ridership reports. We continue to collect this type of data to inform and continuously improve the program.

People used scooters. We saw 1.4 million trips during the pilot period, with people reporting using them for a variety of trip purposes and to replace what otherwise would have been a car trip.

We reached a wide range of people interested in scooter use. We saw strong interest in reduced-fare plans and high ridership by reduced-fare plan users.

We built relationships with community organizations who conducted outreach and education events. We can continue to build on this in the future.

We partnered with Outdoors for All and offered hundreds of adaptive cycling experiences for people with disabilities.

WHERE WE FACED CHALLENGES

We failed to meet our ambitious goal of having fewer than 3% of devices obstructing sidewalks. While we saw a great deal of improvement overall in the number of obstructions, we still have room to improve how many devices cause obstruction hazards.

People experienced injuries on scooters. Injuries ranged from minor to severe, and were caused by a range of factors, including road conditions, weather, and interactions with cars.

Reduced fare plans may be underutilized. Our survey results suggest that there may be many more income-eligible riders who could be using reduced fare plans.

Scooter users surveyed are disproportionately male. We can do work to improve access and interest among people of all genders.

FOCUS AREAS FOR 2022 SCOOTER SHARE PROGRAM

Vendor selection

The first major focus of 2022 will be a vendor selection process, including evaluating performance of existing vendors. Current vendors will need to reapply. Our focus is to balance stability for customers in the program with promoting innovation through competition and other means. We anticipate the next permit application being available by the end of the first quarter of 2022 (March 31, 2022), though the selection process will likely take several weeks beyond that. We plan to extend current vendors' permits until new vendors are selected.

Outreach and encouragement

SDOT, in collaboration with vendors, plans to enhance our focus on education and outreach. We've seen good outcomes from in-person demonstrations where people can try out scooters. This can help expand the reach to people who, per our survey, may not be participating as much in riding scooters, including women, older adults, and people who speak languages other than English. This can be done in partnership with community-based organizations focused on these communities. These events and other outreach opportunities also serve to distribute helmets, sign people up for income-eligible plans or monthly passes, and educate riders on proper parking and riding etiquette.

In addition, we see potential opportunities to replicate the West Seattle Flip Your Trip Program, which provided incentives for people to try bike share, scooters, and transit, using an integrated app.

Education

In addition to events focused on increasing use, we would like to have a broader campaign to educate riders and non-riders about scooters. This includes critical components to encourage scooter users not to ride on sidewalks via a variety of messaging strategies, including on-site signs or stencils in high pedestrian traffic areas.

In addition, safety education can and should reach people driving to encourage them to look out for scooter riders and other vulnerable users. Many injuries reported involved scooter riders involved in collisions with cars or near misses.

Further research

SDOT will continue to monitor our existing data sources to evaluate how the program is working. We anticipate two potential opportunities for further research:

1. We plan to partner with the Harborview Injury Prevention Research Center to better understand the prevalence of scooter injuries.
2. We hope to conduct a broad survey that reaches both riders and non-riders of scooters to better understand the role of scooters in the transportation system. In addition, we are working with a student researcher at the Evans School of Public Policy and Governance to better understand how to improve affordability and access for low-income members of our community.

LONG TERM PROGRAM SUSTAINABILITY

This program is becoming a vital part of our transportation system, especially as light rail and RapidRide expand in Seattle and regionally and people ride scooters as a first- and last- mile connection to transit. Scooters can play a key role in reaching the City's goal of 90% of personal trips being zero emission by 2030.

The world of shared micromobility is consistently evolving and we will continue to track what scooter share looks like in other cities and evolve our approach as the industry shifts. We see this program as valuable and need to continue to work to make the program sustainable in the long term. SDOT is committed to invest and focus more on outreach, public awareness, and education in future years to improve safety and rider experience, as well as expand access to scooters to more of our community.

APPENDICES

Appendix A: Scooter and Bike Share
Safety Survey

The Seattle Department of Transportation
700 5th Avenue, Suite 3800
PO Box 34996
Seattle, WA 98124-4996
(206) 684-ROAD (7623)
www.seattle.gov/transportation



Seattle
Department of
Transportation

3.2022