

# E-Scooters in Eugene, Oregon: Recommendations for Regulations

Karen Mason | June 2019

University of Oregon  
Department of Planning, Public Policy, and Management



Image Credit: Taj Mihelich

---

# Acknowledgements:

---

To my committee, **Anne Brown, Ph.D.** and **Marc Schlossberg, Ph.D.** Thank you so much for your patience and guidance on this project. Anne, thank you for reassuring me when I didn't think I could get this done, for pushing me to think more critically, and for your attention to detail. Marc, thank you for seeing the big picture and making me think more broadly.

To **Rebecca Lewis, Ph.D.**, without whom this project would not have been conceived. Thank you for navigating the road to project development and for your constant enthusiasm and for sharing your deep well of knowledge.

To the **Portland Bureau of Transportation, the San Francisco Municipal Transportation Agency, Santa Monica Planning & Community Development, Eugene Transportation Planning, The Street Trust, Santa Monica Spoke, Better Eugene-Springfield Transportation, and Lime**, for granting me interviews and being open to follow-up questions. You provided so much insight and richness to this project.

To my husband, **Paul Baidatsky**. Thank you for moving across the country with me for this experience. Thank you for your support and being my personal cheerleader. Thank you for the sacrifices you made so I could earn my master's degree. And thank you for giving me the ability to give myself permission to fail, so long as I put in all my effort.

To the **2019 MCRP Cohort**, for wading through the proverbial mud with me. You helped to lift me up when I was down, provided ears to listen and shoulders for support.

To my mother, **Constance (Quarnstrom) Mason**, for her love, support, and encouragement.

To my friends from home and the continuous Facebook Messenger conversation we have. Waking up to see 40+ messages filled with memes, cats, and a million other things puts a smile on my face and keeps me connected to home.

And to my two cats, Molly and Kitsa, and my dog Dusty, for their unconditional love.



Image Credit: Luke Eastman

---

*(page left intentionally blank)*

# Table of Contents

6 - Executive Summary
10 - Introduction
11 - Existing Work: A Literature Review
22 - Research Questions and Methods
25 - Findings
34 - Recommendations
38 - Appendix A: Content Analysis
55 - Appendix B: Interview Guide
56 - Appendix C: Interview Analysis
67 - Appendix D: E-Scooter Cities and Companies, May 2019
72 - References

# Executive Summary

E-scooters are a recent development in mobility that is rapidly sweeping the nation and is perhaps the most rapidly adopted form of transportation since the car. The first shared, electric fleet of scooters (e-scooters) appeared on the streets of Santa Monica, California in September 2017. Nineteen months later 14 e-scooter vendors operating in 97 American cities in 28 states. The City of Eugene, Oregon is preparing to join the ranks of those 97 cities by launching an e-scooter pilot program.

Many cities employ scooter pilot programs to test regulations. Through a pilot, regulations are established by the city up front and vendors agree to abide by those regulations. Both throughout the pilot and after its conclusion, it is evaluated, and its efficacy assessed. Evaluation metrics usually relate to goals established by the city for the pilot, such as mitigating climate change by reducing the number of vehicular trips taken. They can also be specific, such

as measuring the number of trips taken per day per e-scooter or the number of e-scooters observed to be improperly parked.

In this report, I examine how three cities—Santa Monica, CA; San Francisco, CA, and Portland, OR—approached the planning and implementation of their scooter pilot programs. I also explore Eugene’s current bike-share program regulations to understand how it might be adapted to an e-scooter pilot.

Research consisted of a content analysis of each city’s regulatory documents for their e-scooter pilot programs and interviews with city staff, e-scooter company employees, and representatives from active transportation advocacy groups in case study cities.



Source: Special Needs Answers.

## What Are City Goals for E-Scooter Regulations?

Pilot programs align with broad city goals centered around mode-shift away from automobile use, greenhouse gas emission reduction, safety, and equity outlined in cities' Comprehensive/General Plans and Transportation System Plans (or equivalent). The popularity and utilization of e-scooter service has helped each city inch closer toward achieving mode-shift, greenhouse gas emission reduction, and equity goals. There is room for improvement, however, in achieving equity goals. PBOT (2018) reports that equity goals are not being fully realized due to a fear of racial profiling, lack of knowledge about e-scooter laws and low-income plans, and subpar infrastructure that inhibits access for persons who want to use e-scooters but do not feel safe doing so (PBOT, 2018).

## How Have Cities Regulated E-Scooters to Date?

A 2018 study of e-scooter and bike-share policies in seventeen American cities<sup>1</sup> determined four regulatory key best practice areas — Fees, Fleet Caps, Enforcement, and Data Sharing (Remix, 2018). Four transportation public-interest organizations — the National Association of City Transportation Officials (NACTO), the North American Bikeshare Association (NABSA), the Shared-Use Mobility Center (SUMC), and the International Association of Public Transport (UITP) — support those categories and suggest a fifth best practice category: Community Engagement and Equity.

### *Fees and Funding*

**Cities use permit fees to cover the overhead administration of their pilot programs.** Because this type of program is so new, cities are still learning the amount of staff hours and city resources required to administer such a program. Expenses to be

considered include project startup, application review, program administration, monitoring, and evaluation, educational materials, and public outreach. As such, the degree to which each city's pilot program fees are adequately covering those expenses varies. Cities also use permit fees are being used to cover pilot program administration costs.

### *Fleet Caps and Size*

**Fleet caps can be either fixed or dynamic.** San Francisco and Portland both use a fixed cap of 2,500 vehicles and require a phased deployment strategy. Santa Monica, however, uses a dynamic cap on fleet size, which adjusted number of devices allowed to operate based on demonstrated usage. Companies may add more e-scooters if they can show demand exceeds the Minimum Utilization Rate (MUR) of four rides per day. If usership falls below the MUR, vendors must remove the number of devices necessary to achieve that MUR again. **Cities reported that prior experiences with bike share fleets were the dominant influencing factor in determining an e-scooter fleet size.**

**When deciding whether to increase fleet size, determining factors include utilization rates coupled with operating company performance measures. This is true for cities with a fixed cap and for cities with a dynamic cap.** Performance measures include but are not limited to: maintenance of fleet vehicles, responsiveness to service requests and safety/security concerns, measures taken to eliminate sidewalk riding and parking, community engagement and safety workshops, and steps taken to reduce vehicle miles traveled for units. A combination of user feedback and data about violations may also inform decisions to increase fleet sizes.

<sup>1</sup> Los Angeles, Chicago, Houston, Dallas, Austin, San Francisco, Columbus, Charlotte, Seattle, Washington DC, Nashville, Portland, Kansas City, Atlanta, Miami, Minneapolis, St. Louis

---

## *Enforcement*

Scooter regulatory documents in all three cities provide detailed instructions about the Do's and Don'ts of e-scooter parking. **Generally, e-scooters should not be parked in a way that impedes access for persons with disabilities and should be regulated to either dedicated parking areas or the curb/furniture zone of the sidewalk corridor.**

**Cities require deployment to certain stated geographic areas the rebalancing units with the intention of achieving equitable distribution.** Santa Monica does not define what equitable distribution means, but Portland (in its second pilot program) and San Francisco do. Failure to comply with deployment and redistribution requirements is met with fees, penalties, and possible permit revocation. In Santa Monica, the dynamic fleet size strategy allows fleet size reduction as a potential penalty for compliance failure.

## *Open Data and Reporting*

**E-scooter pilot programs require a real-time and archived data.** Following the e-scooter pilot program launch in Santa Monica, vendors were required to provide a weekly fleet report. This was used to assess and potentially adjust fleet deployment quantities. In interviews, city staff from both Santa Monica and Portland stated that they use the data to inform infrastructure and enforcement decisions. Infrastructure types mentioned by both cities include bike lanes, curb extensions, and designated parking locations. This includes “right-sizing” pick-up/drop-off zones and fleet sizes. Portland also used data to communicate numbers and facts through weekly Tweets on Twitter. “Numbers helped to make it real for people and helped to communicate facts... helped the city to learn what challenges and opportunities exist and how to reach goals, like access for more people” (PBOT Representative). The data helped to clarify the perception of who is using e-scooters and established that in Portland they are being used as a means of transportation and not just recreation.

## *Community Engagement and Equity*

**Cities require or prefer that vendors provide a low-income plan and that some provisions of service be available in multiple languages.** Santa Monica prefers that vendors establish low-income rates and service in multiple languages, especially Spanish, but does not require either. Portland's first and second pilot programs both require vendors to submit a User Equity Plan that includes discounted pricing and increasing adoption among low-income and historically underserved Portlanders. San Francisco requires vendors to maintain a website, app, and be able to respond to feedback in multiple languages, including at a minimum, Chinese and Spanish. It also requires that the app and other customer interface technology must be fully accessible to persons with disabilities and accessible to screen readers and must comply with Section 508 of the United States Workforce Rehabilitation Act of 1973. Both Santa Monica and the second Portland pilot require that access to e-scooter service be available without the use of a smartphone. Santa Monica additionally prefers, but does not require, vendors provide a means of access to its service that does not require a credit or debit card. Portland goes a step further by requiring vendors to provide an Economic Opportunity Plan that outlines how the vendor will hire and contract with persons from historically underserved communities, meaning people with low incomes, people of color, and people with disabilities.



---

*(page left intentionally blank)*

# Introduction

In September 2017, the first fleet of electric scooters (e-scooters) appeared in Santa Monica, California. By May 2019, fourteen electric scooter companies were operating across 97 American cities. The rapid proliferation of this new form of mobility has left many cities wondering how to prepare for the arrival of e-scooters within their boundaries; Eugene, Oregon is one such city. Within the year and a half that e-scooters have matured as a mode of transportation, pilot programs have grown in popularity. Many e-scooter

pilot programs require operating companies to apply for permits and, once granted a permit, agree to abide by an established set of regulations or risk paying fines, facing fleet-size penalties, or having their permit revoked. In this report, I examine how three cities—Santa Monica, CA; San Francisco, CA, and Portland, OR—approached the planning and implementation of their own pilot programs. I also explore Eugene’s current bike-share program regulations to understand how it might be adapted to an e-scooter pilot.



Source: Grab.

# Existing Work: A Literature Review

This chapter explores current literature about e-scooters, including media, blog posts, literature about shared-use mobility and the sharing economy, and recent industry reports and white papers.

## Shared-Use Mobility

Shared-use mobility is not a new craze sweeping across the cities of America. The Shared Use Mobility Center defines shared-use mobility as being “transportation services and resources that are shared among users, either concurrently or one after another (SUMC, n.d.),” it has existed for more than a century in the form of public transit, taxis, and jitneys. Recently, however, it has evolved to include additional forms supported by developments in technology.

Currently, much of the literature on shared mobility focuses on Transportation Network Companies (TNCs) such as Uber and Lyft, or bike share programs, both docked and dockless. This literature is pertinent to e-scooters because it provides a precedent through which to examine the potential impacts of e-scooters. The first dockless, shareable, electric scooters arrived in Santa Monica, California in September 2017. Since then, e-scooter use has grown exponentially. The rapid growth of this new form of shared mobility led reporting organizations like Forbes, Wired, and CityLab to dub 2018 “The Year of the Scooter.” Table 1 shows how much the industry has grown during between November 2018 and April 2019.

**Table 1. Number of Cities Each E-scooter Vendor Operates in, as of May 2019**

Company Name	Number of Cities Offered in November 2018	Number of Cities Offered in May 2019
Bird	73	70
Lime	37	54
Spin	14	31
Lyft	3	15
Jump	3	15
Razor	6	7
Bolt		4
Skip	3	3
Ojo		2
Scoot	1	1
Frog		1
Glide		1
Sun Scooter		1
Wheels		1

Source: SmartCitiesDive

# Shared-Use Mobility and the Sharing Economy

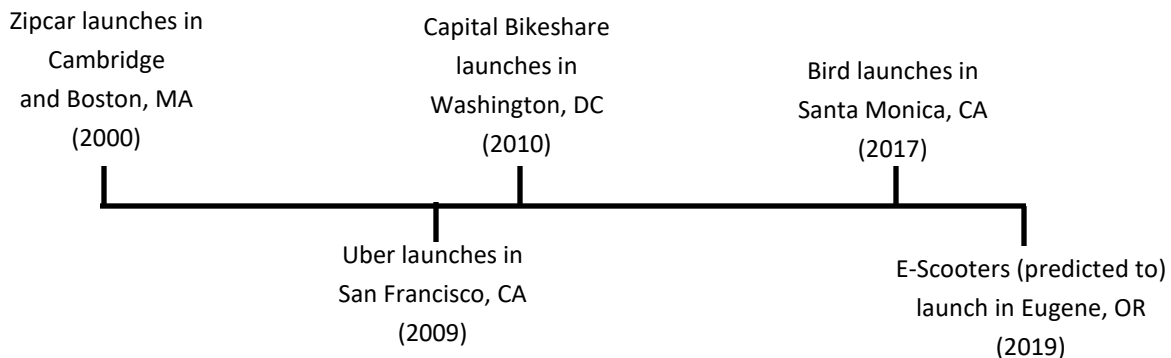
In June 2000, a revolution, facilitated by the modern sharing economy, occurred within shared-use mobility. The sharing economy includes “the use of online marketplaces and social networking technologies to facilitate peer-to-peer sharing of resources (such as space, money, goods, skills and services) between individuals, who may be both suppliers and consumers” (C. Standing et al, 2018). The shift was heralded by the launch of Zipcar. Zipcar was not hailing a taxi or sharing one car amongst a group of friends and/or neighbors. It was a membership-based, for-profit service that allowed users to pick up, use, and drop off a car to a set location without the presence of a paid driver.

Advances in technology coupled with the modern sharing economy birthed a new generation of shared-use mobility services. They are driven by (a) new technological platforms and developments, such as cellular phone applications (apps) and Global Positioning System (GPS) trackers, (b) the affordability and personal convenience that the

shared economy delivers, and (c) a new cultural acceptance of the sharing economy (C. Standing et al, 2018). Uber is one of the best-known examples of this. In March 2009, Uber (then known as UberCab) hit the streets of San Francisco (Uber, n.d.). In 2017 the company celebrated its five *billionth* trip (May 2017) and its two millionth autonomously driven mile (December 2017).

Meanwhile, the same technological developments facilitated a change in micro-mobility – “small, human- and electric-powered transportation solutions such as bikes, scooters, and mopeds” (Populus, 2018) – to allow for app and GPS-based bike share. The first modern American bike share system launched in Washington, D.C, in 2010 with 400 shared bikes across the county (Goodman, 2010). By 2017, the number of shared bikes had soared to more than 100,000, including the addition of dockless bikes (bikes could be parked anywhere) and electric-assist bikes that rolled out in bike-share systems that same year (NACTO, 2018).

**Figure 1. Timeline of Shared-Use Mobility**



---

## Electric Scooters

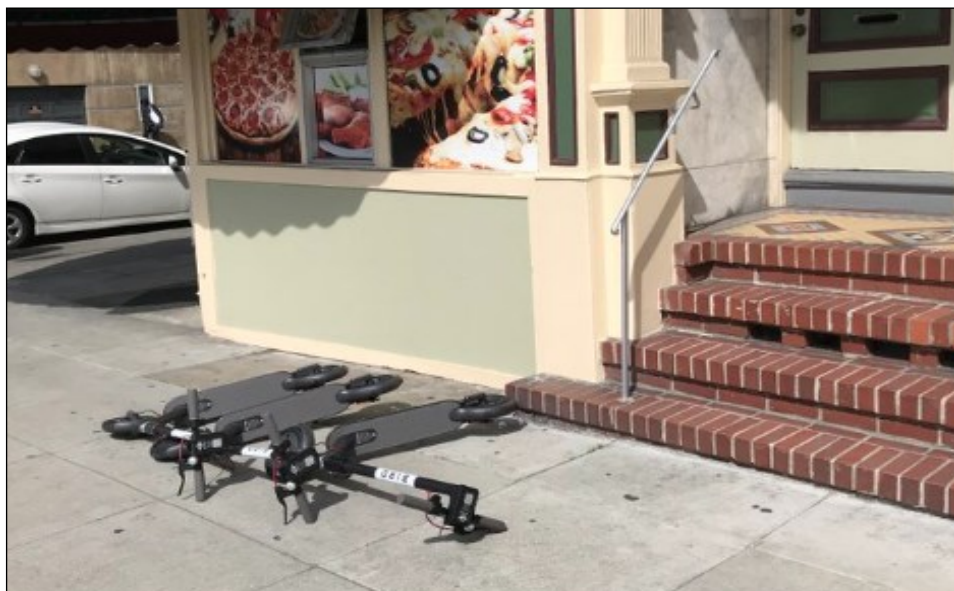
Shared mobility developments set the stage for the rise of e-scooters. The growth of the sharing economy and the electrification of personal transportation devices helped to create an environment in which the electric scooter could come to be. Handy and Shah (2017) pose several questions relevant to this report's study of regulatory practices for e-scooters. Among them are:

- What possible future developments may occur in the sharing economy that policy developers need to be aware of to plan transportation infrastructure for the future?
- How can cities redesign their public space to better accommodate new mobility devices in ways that keep users safe?
- How do e-scooters and other personal mobility devices (PMD's) impact Vision Zero planning and implementation?
- How do e-scooters and other PMD's fit into the Complete Streets model?
- To what degree should private companies be regulated?
- To what degree should various levels of government be held accountable for maintaining a well-functioning and orderly public space?
- How can city officials ensure equitable access to e-scooters and other PMD's?

Because e-scooters have been on the scene for only just over a year and a half, formal academic literature on them is scarce. Instead, literature exists primarily in the form of newspaper articles and blog posts that document topics such as safety and accessibility issues, industry reports and white papers that either suggest regulatory best practices or assess e-scooter use, and customer surveys that attempt to understand scooter use.

## The Early E-Scooter Media Narrative

When e-scooters first arrived in the public eye, the media response was immediate and primarily negative. They reported on public health and safety concerns over helmet use, speed limits, scooter-parking and sidewalk accessibility. Stories documented e-scooters haphazardly parked on sidewalks and in front of doorways posing obstacles for all—children, seniors, and persons both with and without disabilities alike (Fowler and Tsukayama, 2018; Garsd, 2018)—and stories sharing anecdotal evidence from emergency room doctors with safety implications for e-scooter use (Holley, 2018; Pritchep, 2018). Articles and blog posts such as the Washington Post's "Pedestrians and e-scooters are clashing in the struggle for sidewalk space" (Holley, 2019), Citylab's "Anatomy of an Electric Scooter Crash" (Holder, 2019), and Streetsblog USA's "Are E-scooters Safe At Any Speed?" (Schmitt, 2018) perpetuated the established narrative that scooters are inherently unsafe and a nuisance. The word "chaos" became synonymous with "e-scooter" through articles such as Mashable's "Nextdoor descends into chaos over e-scooter drama" (Kraus, 2018), the LA-ist's "A Guide to LA's Scooter Chaos: What You Can (And Can't) Do On Birds And Limes" (Fonseca, 2018), and The Philadelphia Inquirer's "Electric scooters have brought chaos and outrage to cities across the country. Is Philly next?" (Melamed, 2018). The poorly perceived behaviors of e-scooter users even inspired the social media hashtag #ScootersBehavingBadly (Garsd, 2018).



Source: Curbed SF.

Contrary to the frenzy of concern that the media generated, industry reports, white papers, and customer surveys revealed that e-scooters posed no more of a safety risk than bicycles and are generally parked well (Multnomah County, 2019; Fang et. al, 2018). Further, they show that most people actually hold a favorable outlook on e-scooters and that they have the potential to address issues of equity in micro-mobility.

## **Public Perception of E-Scooters**

In 2018, Populus, a transportation data analytics firm, surveyed 7,000 people across eleven major U.S. cities. In this study, 70% of respondents viewed e-scooters positively (Populus, 2018). The Populus study also states that e-scooters are viewed more favorably by people with lower incomes than those with higher incomes, and thus may enjoy a higher rate of adoption by people with lower incomes (Populus, 2018). The same positive outlook is echoed in Portland Bureau of Transportation (PBOT) e-scooter user surveys. Of approximately 4,500 e-scooter users, 62% viewed e-scooters positively by the end of the four-month pilot (PBOT, 2018). Cross-sectional data assessing perception of e-scooters with income is not provided in the PBOT report findings, but it is worth noting 23% of survey respondents earn less than \$30,000 per year, 42% earn between \$30,000 and \$75,000, and 36% earn more than \$75,000; the 2017 median household income for Portland residents was \$72,000 (Department of Numbers, n.d.).

## **E-Scooter Usage Statistics**

NACTO (2019) found people took 38.5 million trips on e-scooters across the United States in 2018. This number exceeds the number of trips taken on station-based bike share systems over the same timeframe (36.5 million) (NACTO, 2019). Meanwhile, PBOT (2018) reports that during its pilot program (July through November 2018) a total of 700,369 trips were taken on 2,043 e-scooters, covering a total of 801,887 miles. On average, Portlanders took 5,885 scooter trips per day with an average trip length of 1.15 miles.

## **Who Rides E-Scooters?**

Preliminary evidence shows that while most e-scooter users are the usual suspects of active transportation adopters (able-bodied, young-to-middle aged, white males), there may be an increased rate of adoption of them by women, people of color, and people with low incomes than with bike share. A study in Washington D.C. shows that a lower percentage of people of color (16%) use e-scooters than Caucasians (25%). However, the difference in the adoption rates shows a higher adoption rate of scooter-share over bike-share by people of color (16% versus 6%) than Caucasians (25% versus 20%) (Populus, 2018). Survey data also suggest that, while a gender gap in scooter adoption exists, the gap is narrower compared to docked bike share. Populus (2018) reports that 12% of women and 21% of men report using station-based bike-share (a 75% difference) compared to 3.2% of women and 4.4% of men who report having used e-scooters versus (a 38% difference) (Populus, 2018). This could be made especially so by the fact that by the end of 2018, 30% of all bike and scooter-share programs provided membership discounts for people with low incomes (NACTO, 2019). It is also worth noting here that the Populus study was released in July 2018, when scooter-share was still in its infancy. The PBOT study asked questions about previous experience with active transportation and demographics, but no cross-analysis is available. A more comprehensive analysis is needed to understand the relationship between income, gender, race, and adoption rates.

## Why Do People Ride E-Scooters?

Using data from Washington, D.C. and Portland, OR, NACTO found that e-scooter use reflects social, shopping, and recreational bike-share use, with peak use on weekday evenings and weekends (NACTO, 2019). PBOT's pilot report finds similar peak usage times (PBOT, 2018). The same PBOT report found that 71% of survey respondents reported using e-scooters as a form of utilitarian transportation, while 28% reported recreation as their primary use. Similarly, a Lime survey distributed in San Francisco (n=600 responses) found that riders primarily used e-scooters to commute (55%) and run errands (21%) (Lime, 2018).

Additionally, both Lime and Bird report that—for commuting, running errands, social activities—e-scooters have been able to facilitate a mode-shift away from cars. San Francisco Lime users reported that, were e-scooters not available, 51% would have hailed an Uber/Lyft/Taxi (Lime, 2018). The Lime (2018) report also notes that 61% would have walked and 34% would have taken public transit. As total percentages exceed 100%, it is assumed that respondents were able to select multiple options. Bird reports similar data indicating that 30% of e-scooter rides would have otherwise been completed by car (Bird, 2019). Importantly, both statistics are reported by e-scooter vendors, which may spin facts to market their product.



Source: The Brisbane Times



## Do E-Scooters Block Sidewalks?

One of the two major themes of preliminary reporting on e-scooters by media outlets and blogs was sidewalk obstruction, including poor parking practices. An analysis of e-scooter parking behavior in downtown San Jose revealed that less than two percent (2%) of e-scooters observed blocked access for persons with disabilities. Of the e-scooters that *were* observed to be on the sidewalk, 90% were parked out of the way of pedestrian traffic, either on the sidewalk edge or in the street furniture zone (Fang et al., 2018). PBOT's study indicates that e-scooter users prefer to ride on low-speed streets and in bike lanes (PBOT, 2018). Supporting this, only eight percent (8%) of Lime's San Franciscan survey respondents revealed that they had ridden on the sidewalk. Of those that did, the highest reported reason why (81%) was that riding on the sidewalk felt safer than riding in the street (Lime, 2018).

## Are E-Scooters Unsafe?

The second major theme of preliminary reporting by media outlets and blogs was e-scooter safety. Multnomah County's health department found that of 700,000 plus e-scooter trips, only 176 (0.25%) resulted in an injury requiring medical attention (Multnomah County, 2019). Additionally, the PBOT (2018) report reveals that e-scooter injury visits accounted for roughly five percent (5%) of total traffic crash injury visits to the emergency room (PBOT, 2018). Multnomah County's Health Department used these data to declare that there was no safety argument to discourage further pilot programming (Multnomah County, 2019). Similarly, Bird reports that on average, users reported on injury-resulting incident per every 27,000 miles ridden (less than 0.01% of trips), about the same as bikers (Bird, 2019).



Source: (Left) Transportation for America,  
(Right) Sarah Peterson, Earth Institute | Columbia University

## “Best Practice” Areas of Regulations for Shared-Mobility

In November 2018, Remix, a data platform and analytics firm, released a white paper assessing the e-scooter and bike-share policies of seventeen American cities.<sup>2</sup> From that analysis, they determined four key best practice areas — Enforcement, Fees, Fleet Caps, and Data Sharing. This section discusses the key best practice areas established by Remix and explores how the seventeen cities they assessed regulate micro-mobility. It also supports those best practices with micro-mobility regulatory recommendations from four transportation public-interest organizations: NACTO, the North American Bikeshare Association (NABSA), the Shared-Use Mobility Center (SUMC), and the International Association of Public Transport (UITP). Literature from these organizations suggest a fifth best practice category, Community Engagement and Equity, which is also included in this discussion.

### Enforcement

To date, cities have enforced three areas of scooter operation: parking, service areas, and maintenance/safety of scooters and bikes.

#### *Parking and Service Area*

Remix (2018) found that cities enforce parking through both digital infrastructure like geofencing, and physical infrastructure like drop zones and parking corrals. Vendors are often required to provide education and conduct outreach about proper parking. Service area perimeters can also be enforced through geofencing. Regulations concerning the deployment of vehicles to certain neighborhoods, and the redistribution of vehicles, are frequently included in service area requirements. Of the seventeen cities assessed, fifteen had policies for parking enforcement, and twelve had policies for service areas (Remix, 2018).

Parking and service area enforcement are in line with the recommendations by NACTO (2018) and NABSA (2018) that cities establish service area and parking area perimeters. NACTO and NABSA further recommend using geofencing, incentive programs, and user education programs to enforce perimeters. SUMC (2015) and UITP (2017) states that cities should allocate curb space for e-scooter parking while working with e-scooter companies to ensure designated parking areas are (a) available, (b) well-signed, and (c) overflow parking plans are in place and operational. UITP (2017) also recommends companies rebalance scooters throughout the day to ensure that they are equally distributed.

To enforce maintenance/safety, Remix (2018) found that many cities required vendors to provide them with maintenance logs and records at set intervals, usually weekly or monthly. Thirteen of the seventeen cities assessed had such policies in place.

#### *Maintenance and Safety*

Self-accountability via the provision of maintenance records, however, is not enough to protect users. The PBOT received 43 reports of collisions during its initial four-month pilot period (PBOT, 2018). Anecdotal evidence from Emergency Room (ER) doctors implies that injuries related from e-scooters are on the rise. “A growing number of critics - including doctors, former riders, scooter mechanics and personal injury lawyers - say the devices may look like toys but inflict the same degree of harm as any other motorized vehicle on the road (Holley, 2018).” To mitigate this and protect both e-scooter users and other road-users alike, NACTO and NABSA recommend that:

<sup>2</sup> Los Angeles, Chicago, Houston, Dallas, Austin, San Francisco, Columbus, Charlotte, Seattle, Washington DC, Nashville, Portland, Kansas City, Atlanta, Miami, Minneapolis, St. Louis

- Scooters be equipped with rear and front working lights to ensure visibility (NABSA, 2018).
- A working speed of no greater than 15 miles per hour (NACTO, 2018).
- A 24-hour customer service number to report malfunctioning scooters, or scooters in need of repair (NABSA, 2018; NACTO, 2018).
- Specific designation of who can use the sidewalks and public right of way (NABSA, 2018; NACTO, 2018).
- Ongoing servicing of scooters to ensure that they are in good working order (NABSA, 2018; NACTO, 2018).
- “Cities should require companies to remove small vehicles (e.g. damaged, abandoned, improperly placed etc.) within contractually agreed-upon time frames and assess penalties for failure to do so” (NACTO, 2018).
- “Cities should require companies to come to agreement with the city on procedures and protocol for extreme weather, emergencies, special events, maintenance, or small vehicle parking zones” (NACTO, 2018).

## Fees and Funding

Remix (2018) found three types of fees in the seventeen cities assessed – an annual permitting fee, an annual per vehicle fee, and a daily fee applied either per vehicle or per trip taken. SUMC (2015) suggests that cities use multiple funding sources, including federal sources, developers, toll revenues, employer TDM mandates, enhanced fleet modernization programs, Congestion Mitigation and Air Quality funds, and private vendors.

Cities most frequently use fees to offset the cost of administering the management and oversight of an e-scooter or bike-share program. Fees are also used to fund new infrastructure, such as designated parking areas or protected lanes (Remix, 2018). The transportation public-interest groups suggest that funds procured be used to cover costs incurred by cities related to administrative oversight such as permit review, safety inspection, the fielding of questions and complaints, and the removal of scooters either illegally parked or no longer properly functioning (NABSA, 2018; NACTO, 2018; UITP, 2017).

## Fleet Caps and Size

The 17 cities included in the Remix report (2018) employ three types of fleet caps. Seven (41%) cities use a fixed cap, which imposes a flat, static number of vehicles that can operate within city boundaries at any given time. Eight (47%) cities utilize a dynamic cap, which allows fleet sizes to increase or decrease. This flexibility is determined either by demand for service (the number of rides per vehicle per day), the vendors’ performance (are they satisfactorily providing maintenance logs and deploying vehicles to targeted neighborhoods), or a combination of both. Finally, two cities (11%) do not employ any cap.

NABSA (2018) and SUMC (2015) suggest that, in the interest of allowing for flexibility, cities should use a phased-implementation approach. They suggest establishing an initial minimum for e-scooters allowed in operation and use incremental additions to fleet size based upon user adoption rates, infrastructure responses, and travel patterns or system trends realized. They also recommend that cities determine if they want to allow for

---

## Data Sharing and Reporting

The cities Remix (2018) surveyed all require that vendors provide the cities with trip and fleet availability data. Trip datum include, but are not limited to, information relating to trip duration and trip route. Fleet availability data relate to real-time locations of active and inactive devices. Cities surveyed require fleet availability data in a range of formats: real-time, archival, standardized, and customized. Archival data is shared with cities at set intervals, usually weekly or monthly, opposed to real-time data in which the most current data can be accessed at any given moment. Standardized formats include the General Bikeshare Feed Specification and the Mobility Data Specification; these provide specifications for what type of data are collected and distributed and are the same from city to city, allowing for easy cross-referencing. This is different from customized formats in which cities pick and choose what data they require vendors share with them.

NABSA (2018) supports cities requiring data from scooter vendors. They take it a step further, suggesting that cities require vendors to report real-time data to the public about service availability. They also suggest that vendors provide monthly reports regarding the number of vehicles in and out of service, as well as

“aggregated system usage -- total unique users, total miles ridden, total number of rentals, average rental duration, monthly summary of bike distribution and GPS-based natural movement in heat map format, summary of customer comments/complaints and resolution, summary of theft/vandalism and resolution, summary of bike maintenance activities, summary of bike redistribution, de-identified point to point trip level data. Understand implications for City planning and operations, consider requiring vendors to conduct or assist in distributing an annual user survey to be conducted in collaboration with municipality, require customer data privacy protection that meets CPSC standards” (NABSA, 2018).

SUMC (2018) recommends that provision of this data occur at set increments to help ensure that cities can better plan their infrastructure, build in accessibility, develop standards for payment, and ensure privacy for users.

## Community Engagement and Equity

The public-interest organizations cited in this section – NACTO, NABSA, SUMC, and UITP – and Populus, a data analytics firm, all agree that cities should regulate micro-mobility to ensure equitable deployment set through community engagement. Equity considerations include accessibility, both physical and digital; not every member of the population has access to smartphones, internet, or credit services. Equity considerations also include the needs of low-income and rural populations (NABSA, 2018; NACTO, 2018; Populus, 2018). “The suburbanization of poverty has resulted in longer commutes, poorer job access, and greater reliance on car ownership for many who can least afford it. People without bank accounts may need accommodations related to cost and payment options” (SUMC, 2016). Rebalancing, customer service, hiring policies, and workforce opportunities are other opportunities for equity (NABSA, 2018; Populus, 2018).

Discount programs, such as reduced-fares, for low-income users are one option for enhancing equity. Cash-payment options are another option to enable those without access to amorphous banking and credit accounts to use the system. “For systems that rely on smartphones to locate and unlock bikes, cities may want to require companies to develop options for people who do not have smartphones” (NACTO, 2018). San Francisco’s Ford GoBike does this with its Bike Share for All program. The program offers in-person program enrollment at designated locations, cash payment options, and reduced-fare options for persons enrolled in assistance programs like CalFresh.

---

Community engagement by the vendor includes participation or attendance at public events and meetings, community-led events or gatherings, and scooter-education classes, distributed throughout all neighborhoods. Community engagement and equity also includes the provision of multilingual app and website interfaces, as well as pursuing grants to develop ambassador programs (NACTO, 2018). The Ford GoBike Bike Share for All program exemplifies the benefits of this; 20% of GoBike members are enrolled in the program, the highest rate of any American bike-share program (TransForm, 2018). This was made possible by coordinated outreach funded by both the Metropolitan Transportation Commission and Motivate, the private mobility operator of Ford GoBike (Transform, 2018).

## Putting It Together

Technological developments, coupled with the modern sharing economy, has transformed micro-mobility and facilitated the rapid proliferation of scooter-share programs. While these programs are still young, data about e-scooter travel use and patterns is becoming available. Preliminary studies such as “Where Do Riders Park Dockless, Shared Electric Scooters? Findings from San Jose, California” (Fang et. al, 2018) are emerging, but it will take time for comprehensive studies and analyses of such data to be made public. Planners and city officials should be proactive and use precautionary language to regulate emerging technologies such as the e-scooter. The above identified areas of concern and best practice regulations will provide guidance as the City of Eugene moves prepares to establish its own e-scooter pilot program. To better inform and guide the City, I conducted further research about e-scooter regulations.

*“We’ve had a 100-year pilot of the automobile. It has its benefits, but 467 people were killed in Oregon last year in automobiles. The way in which society has become complacent about that... have to put e-scooters in that context.”*

*- Representative from The Street Trust*

# Research Questions and Methods

In this research, I ask two questions:

1. How have cities regulated e-scooters to date?
2. What have cities' goals been through e-scooter regulations?

I assessed both with an eye toward providing the City of Eugene, Oregon a set of recommendations for best e-scooter regulatory practices.

## Methods

To answer my research questions, I selected four case cities: Portland, Oregon; San Francisco, California; Santa Monica, California; and Eugene, Oregon. Portland, San Francisco, and Santa Monica each have an e-scooter pilot program underway, while Eugene is preparing to establish one. I focus this research on the city/local level to inform Eugene's regulatory process as they prepare to launch their own e-scooter pilot program. Table 2 illustrates the brief history of e-scooter adoption in each city.

**Table 2. E-scooter Adoption Factors in Each Case Study City**

City	Level of Adoption	E-Scooter Arrival	E-Scooter Departure	Total # E-scooters Permitted Citywide	Companies in Operation
Santa Monica, CA	Pilot Program	September 2017	December 2019	2,000	Lime, Jump, Bird, Lyft
San Francisco, CA	Pilot Program	October 2018	October 2019	1,250	Skip, Scoot
	Ban	March 2018	June 2018	Unknown	Lime, Bird, Spin
Portland, OR	Pilot Program	April 2019	April 2020	2,500	Bolt, Lime, Spin
	Pilot Program	July 2018	November 2018	2,500 scooters	Lime, Bird, Skip
Eugene, OR	Planning	N/A	N/A	None	None

Sources: SmartCitiesDive, PBOT, SFMTA, City of Santa Monica.

## Content Analysis

I began my research by conducting a content analysis of each city's regulatory documents for their e-scooter pilot programs. This includes Santa Monica's "Shared Mobility Device Pilot Program Administrative Regulations," San Francisco's "SFMTA Powered Scooter Share Program Permit Application," and both the July 23, 2018 and March 22, 2019 versions of Portland's Administrative Rule TRN 15.01 - "New Mobility - Shared Electric Scooters." For Eugene, I analyzed the services contract with SoBi for dockless bike-share as a proxy for e-scooters.

In the content analysis, I searched for presence of certain words, themes, and concepts, aligned with the best practices cited above in the literature review. For example, I searched each document to determine if a city-imposed regulations relating to the requirement of service provision in multiple languages. Using the literature about best practices for shared mobility programs, I categorized regulations into themes — enforcement, fees and funding, fleet caps and size, data sharing and reporting, and community engagement and equity. **Appendix A: Content Analysis** provides a more detailed summary of the language found in those documents as per each regulatory category.



## Interviews

Informed by the content analysis, I conducted interviews with city staff, e-scooter company employees, and representatives from active transportation advocacy groups in case study cities. My interview questions sought to dive deeper into what cities' goals were through pilot program regulations, how the regulatory process was approached in each city, and what next steps are being pursued. Interview questions are provided in **Appendix B: Interview Guide**.

Interviews allowed me to develop an understanding of lessons learned from each city and demonstrate to the City of Eugene what has worked and not worked in other cities. Most interviews were conducted by phone. Interviews with city staff and an active transportation advocate from the City of Eugene occurred in person. Comments from an email exchange with a Bird representative and conference comments from a Spin representative are substituted in lieu of a formal interview. Table 3 shows the number of interviews, including substitutions, conducted for each interview group.

City staff include representatives from Santa Monica's Planning Department, Portland's Bureau

of Transportation (PBOT), San Francisco's Municipal Transportation Agency (SFMTA), and Eugene's Transportation Planning Department. The representative from San Francisco was involved only with the initial preparation for a pilot program and could not speak to anything that happened after the pilot was launched. No other representatives were available for comment.

Active transportation advocacy organizations represented in interviews include the Santa Monica Spoke, Street Trust, and Better Eugene-Springfield Transportation (BEST).

Lime was the only e-scooter company to formally grant me an interview. The Bird email exchange included an organizational mission statement, a company-authored safety report, and an article written by the company's Director of Policy and Advocacy. Comments from the Spin representative are derived from the "Innovation or Disruption: Electric Scooter Chronicles" panel held during the American Planning Association's 2019 National Planning Conference. A summary of interview responses is provided in **Appendix C: Interview Analysis**.

**Table 3. Number of Interviews Conducted for each Interview Group**

Interview Group	Number of Interviews
City Staff	4 interviews, 5 staff
Active Transportation Advocacy Group Representatives	3 interviews, 3 representatives
E-Scooter Company Employees	1 interview, 2 employees



# Findings

Using the regulatory categories recommended by the literature, I present here my findings from the content analysis and interviews

## **Pilot Program Development and Goals**

**Pilot program development processes engaged a variety of stakeholders ranging from internal city agencies and external interest groups.** Beyond those broad categories, the actual agencies/departments/groups engaged in the development process vary from city to city. Advocacy groups did not have formal role in developing a pilot program; their role was mostly supportive.

**Pilot programs align with broad city goals centered around mode-shift, greenhouse gas emission reduction, safety, and equity.** Goals can be found in

each city's Comprehensive/General Plan and their Transportation System Plan (or equivalent). The popularity and utilization of e-scooter service is in and of itself is mentioned by city staff from both Santa Monica and Portland as being a success in addition to the fact that the service's popularity/utilization level has helped each city inch closer toward achieving mode-shift, greenhouse gas emission reduction, and equity goals. There is room for improvement, however, in achieving equity goals. The PBOT report (2018) states that some reasons why equity goals are not being fully realized include a fear of racial profiling, lack of knowledge about e-scooter laws and low-income plans, and subpar infrastructure that inhibits access for persons who want to use e-scooters but do not feel safe doing so (PBOT, 2018).

*“Scooters are a transformative tool that shakes the calcium out of the arteries. It’s positively disruptive. People love it. Cities are saying that Amazon is killing their downtowns and retail but scooters help revive them because people love using them and thus spend more time downtown.”*

*- Representative from Lime Scooters*

---

**Pilot program regulations were proactive in intent, but timing issues presented complications.** Initial regulations instituted by Santa Monica, which was the first city to house e-scooters, were reactive by circumstance. After the initial shock passed, the city regrouped and developed a set of regulations and a pilot program that was more deliberate and intentional. San Francisco had already taken steps toward initiating a pilot program, but then e-scooters arrived without permission, forcing the timetable to be sped up.

**Vision Zero did not directly influence e-scooter pilot programs in each city, but rather came into play in tandem through safety education, outreach campaigns, and infrastructure improvements.** City staff from Portland and Santa Monica stated that data generated by e-scooters is used to help inform decisions about infrastructure improvements. This includes right-sizing decisions about where to add or remove protected bike lanes, curb extensions, and pickup/dropoff zones. Staff from Portland also stated that it is being used to clarify who is riding e-scooters where and for what purpose, providing validation of e-scooters as a legitimate mode of transportation and not just a recreational toy.

## **Fees and Funding**

**All cities discussed using the permit fees to cover the overhead administration of their pilot programs.** Because this type of program is so new, cities are still learning the amount of staff hours and city resources required to administer such a program. Expenses to be considered include project startup; application review; program administration, monitoring, and evaluation; educational materials and public outreach. As such, the degree to which each city's pilot program fees are adequately covering those expenses varies. City staff stated that permit fees are being used to cover the overhead administration of their pilot programs.

Staff statements are confirmed by the regulatory documents. The documents provide additional information about how additional fees and surcharges are being allocated. According to the documents, Santa Monica is pursuing creating a Use of Public Property fee to compensate for use of the public right-of-way, much like fees collected for outdoor dining. Portland uses its Street Use Surcharge and Right-of-Way Use Surcharge to fund additional active transportation infrastructure and expand equitable access. Likewise, San Francisco has created a Public Property Repair and Maintenance Endowment to ensure adequate funds are available to reimburse the City for public property repair and maintenance costs that may be incurred due to e-scooter use.

During the interview, city staff from Santa Monica also mentioned using funds obtained outside of the pilot program fees via a settlement agreement stemming from the period when e-scooter companies were operating unpermitted. That money was used to fund a safe riding education campaign.

Eugene does not receive funding from SoBi, but rather pays them for their services. This is because the City owns the equipment (a flat 300 units) and outsources program overhead and administration to the vendor. City staff from Eugene know they will need to sufficiently cover staffing and program administration for an e-scooter pilot. However, they have mixed feelings about enacting trip surcharges and leveraging large permit fees that might be kicked back on to e-scooter users. They are concerned that overcharging for the service will deter community members from using it, thus negatively impacting the city's goal of encouraging mode-shift behavior.

---

## Fleet Caps and Size

**Regulatory documents show that San Francisco and Portland use a fixed fleet cap, but Santa Monica uses a dynamic one.** San Francisco and Portland both use a fixed cap of 2,500 vehicles. They also both also allow for a phased deployment strategy. San Francisco limits the total number of scooters, both parked or in use, to the number assigned to each vendor by the SFMTA in their permit. This further includes units that are both ready for use or units that are unavailable due to needing recharging or other maintenance. The first Portland pilot required that within the first two weeks of permit issuance vendors had to deploy 100-200 units, with complete deployment of all allotted units within three weeks of issuance. The second Portland pilot amended this so that vendors must coordinate with the City regarding their fleet launch schedule, including making available a maximum of 50% of their allotted units during the first week. Santa Monica, however, uses a dynamic cap on fleet size. This means that the number of devices allowed to operate is flexible based on demonstrated usage. Companies may be allowed to add more e-scooters if they can show demand exceeds the Minimum Utilization Rate (MUR) of four rides per day. If usership falls below the MUR, vendors must remove the number of devices necessary to achieve that MUR again.

**In interviews, city staff shared that the dominant influencing factor in each city when determining an e-scooter fleet size was their experience with a bike-share fleet.** In Portland, the city was already considering doubling their bike share fleet (which currently operates 1,000 units) and thus decided to use e-scooters to demo what that doubling would look like. For their first pilot, they allowed just over 2,000 e-scooters; for their second, they plan to increase that to 2,500. They have also built incentives into their second pilot to encourage better distribution of units.

San Francisco had the additional experience of e-scooters operating before a proper regulatory program was in place. The SFMTA staff member interviewed estimated that about 2,500 units were operating during that pre-regulatory program time. For a proper pilot they decided to allow up to this number, but with regulations in place to better enforce distribution throughout the city.

Santa Monica took a different approach, incorporating operating company perspective into knowledge from bike share. They took the approach of asking companies to tell *them* what they thought the proper number of units would be to equitably distribute them across the city without creating an oversupply. Most companies responded 500 units. The decision for a dynamic cap came from City Council.

**Interviews further revealed that when deciding whether to increase fleet size, determining factors are utilization rates coupled with operating company performance measures. This is true for cities with a fixed cap and for cities with a dynamic cap.** When asked about what might influence each city to adjust their fleet sizes, both Santa Monica and Portland mentioned a cocktail of factors consisting of utilization rates and scooter company performance measures. Such performance measures include but are not limited to: maintenance of fleet vehicles, responsiveness to service requests and safety/security concerns, measures taken to eliminate sidewalk riding and parking, community engagement and safety workshops, and steps taken to reduce vehicle miles traveled for units. Similarly, San Francisco stated that a combination of user feedback and data about violations would inform such a decision.

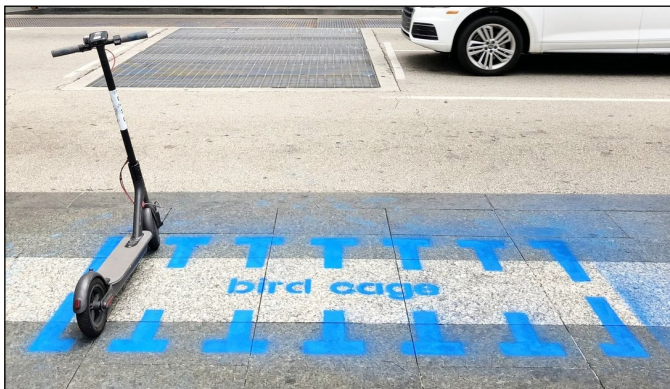
Eugene currently has 300 bike-share bicycles, but most e-scooter operating companies seek to deploy a minimum of 500 units. If this is the case, Eugene may find itself with more shared e-scooters than shared bikes. Staff are considering using a phased approach to deployment and, when the time comes to evaluate a fleet size increase, the utilization rate plus performance measures approach will be used. They have not yet decided on using a fixed or dynamic cap.

## Enforcement

Enforcement has three sub-categories – Parking, Service Areas, and Maintenance/Safety. In the interview, city staff from Eugene mentioned that when determining system regulations for a future e-scooter pilot, the predominant factor will be the ability to follow through with enforcement. They also mentioned that they would also want to limit the speed of e-scooters to no more than 15mph and are open to using geofencing to monitor and control device speeds as the technology progresses.

### Parking

**City staff stated that the major drawbacks to an e-scooter pilot program include sidewalk riding and improper parking.** The need for better infrastructure and educational outreach were mentioned numerous times as tools to mitigate this. They also stated that existing state and local laws and regulations, including those for bike parking, are the main factors that influence pilot program system



regulations. This includes speed limits, helmet laws, and laws/regulations concerning where e-scooters can and cannot operate and can or cannot park.

In the regulatory documents, all three cities provide detailed instructions about the Do's and Don'ts of e-scooter parking. Generally, e-scooters should not be parked in a way that impedes access for persons with disabilities and should be regulated to either dedicated parking areas or the curb/furniture zone of the sidewalk corridor. Portland enforces this by requiring vendors to distribute notifications, warnings, fines to users for non-compliant behavior; user accounts may also be suspended. Santa Monica requires that scooter vendors be responsible to resolving parking issues with private property owners. In San Francisco, vendors must remove the improperly parked e-scooter within one hour of notification by the City. If the e-scooter is not removed, the City may remove it itself and take it to a City facility for storage at the vendor's expense.

To encourage proper parking behavior, in-app messaging is encouraged and geofencing required to direct users to return units to designated parking areas. The geofencing requirement was made in Portland's second pilot, but not its first.

Staff from the City of Eugene will have to think about scooter parking as their contract with SoBi does not detail where bikes can and cannot park.



Source: (Left) 99% Invisible, (Right) TechCrunch.

---

## *Service Areas*

**Each city requires deployment to certain stated geographic areas the rebalancing units with the intention of achieving equitable distribution.** Santa Monica does not define what equitable distribution means, but Portland (in its second pilot program) and San Francisco do.

Santa Monica specifies that e-scooters must be distributed in a way that minimizes over concentrations in high demand locations like the Downtown and Beach areas. During their interview, city staff from Santa Monica stated that they believed an equity-based distribution requirement was the right way to go, but difficult to enforce. Enforcement is complicated by the ability to compel the behavior of private companies that are driven by financial profit when equitable redistribution may not behoove their bottom line.

Similarly, Portland's first pilot program required daily rebalancing of its fleet deployed in the downtown area. It also required that a minimum of 100 e-scooters or 20% of the vendor's fleet (whichever was less) be deployed each day in the historically underserved Eastern Neighborhoods as defined by the City of Portland's 2035 Comprehensive Plan. It's second pilot program does not mention fleet rebalancing. It does, however, still require that a minimum percentage of scooters (15%) be deployed in approved locations in the historically underserved Eastern Neighborhoods.

In San Francisco, while applying for a permit, vendors had to provide the SFMTA with a Distribution, Operation and Maintenance Plan that describes their commitment to maintain consistent distribution. The Plan had to include how vendors will insure equitable geographic distribution, including how e-scooters will be frequently redistributed to serve as a viable transportation option for all communities in a

service area, especially for Communities of Concern which have historically had fewer mobility options. Each daily e-scooter deployment must match agreed upon parameters for the number of scooters within sub-areas of the vendor's approved service area.

Failure to comply with deployment and redistribution requirements is met with fees, penalties, and possible permit revocation. In Santa Monica, the dynamic fleet size strategy allows fleet size reduction as a potential penalty for compliance failure.

## *Maintenance/Safety*

**Data collected from hospitals and urgent care centers show that e-scooter riding is no more dangerous than bike riding.** In both the PBOT (2018) report and interviews with city staff and vendors, it is stated that the most common cause of bodily injury is people falling off e-scooters (PBOT, 2018). That said, to improve safety, all three cities require that devices be operable. Only Santa Monica and San Francisco, however, require that Vendors provide them with maintenance logs. Santa Monica defines maintenance requirements as being regular device inspection for wear and tear, and stress-based damage, immediate replacement of worn or damaged parts, and a strategy for maintaining electric batteries, both for daily use and for long-term replacement. In San Francisco, the Distribution, Operation, and Maintenance Plan that vendors must submit during the permit application process also requires that vendors detail how they plan to ensure that their fleet will be kept in a state of good repair to ensure that their services are a dependably safe, viable, and reliable component of the transportation system.

---

All three cities cite design specifications that require each scooter display a unique identification number, customer service contact information, rules about proper e-scooter use in the right-of-way, and safety rules such as helmet use. Portland 2.0 and San Francisco further require all information be displayed in a way that meets display standards for persons with visual impairments.

Both Santa Monica and Portland require that operating companies cooperate with city staff during times of emergency to prioritize the safety of Users. Portland's regulations, however, only specifically mention coordination during times of inclement weather, but do not define what constitutes inclement weather.

## Open Data and Reporting

**All three cities require a publicly accessible Application Programming Interface (API), and that data be anonymized.** Santa Monica and Portland both specify the API requirements. Santa Monica requires that the API meets the requirements of the General Bikeshare Feed Specification requirements (<https://github.com/NABSA/gbfs>) and that the data shared meet the specifications of the City of Los Angeles Mobility Data Specification (<http://github.com/CityOfLosAngeles/mobility-dataspecification>). Portland requires data shared to meet The City's mobility data specification (<https://github.com/CityofPortland/mobility-data-specification>). San Francisco, on the other hand, only states that real-time data be shared via an API and that at a minimum, that data must include trip-level details including start/end location/time, duration, distance traveled, and trip-level breadcrumb trails listing all GPS readings for each scooter.

Following the e-scooter pilot program launch in Santa Monica, vendors were required to provide a weekly fleet report. This was used to assess and potentially adjust fleet deployment quantities. Santa Monica also requires vendors to provide accurate monthly reports to the City describing system operation, system use, reported complaints, customer service responses, and system maintenance. Personal information is required to be protected by the vendor, with such data being anonymized. That said, while it is strongly preferred vendors do not resell users' personally identifiable information, if they do, it is preferred (but not required) that (a) this is communicated clearly and transparently to users, and (b) users have a clear means of opting out if they do not want their data sold.

Portland and San Francisco require that both real-time and archival data be shared with both a third-party researcher and the city. Such data include, at a minimum, trip origin/destination locations, trip distances, and trip durations.

In interviews, city staff from both Santa Monica and Portland stated that they use the data to inform infrastructure and enforcement decisions. Due to limited space, sometimes adding certain types of infrastructure necessitates removing other forms of infrastructure. This is especially seen when bike lanes threaten to displace car parking. Usage data supports infrastructure decisions by city staff. Infrastructure types mentioned by both cities include bike lanes, curb extensions, and designated parking locations. This includes "right-sizing" pick-up/drop-off zones and fleet sizes. Lime representatives stated that they collect as little data as possible, and what they do collect they share with cities to assist with infrastructure decisions.

---

Portland also used data to communicate numbers and facts through weekly Tweets on Twitter. “Numbers helped to make it real for people and helped to communicate facts... helped the city to learn what challenges and opportunities exist and how to reach goals, like access for more people” (PBOT Representative). The data helped to clarify the perception of who is using e-scooters and established that in Portland they are being used as a means of transportation and not just recreation. This finding helped the City of Portland to decide to conduct a second pilot.

It is worth noting that despite the requirements for data to be anonymized, a Spin representative, through the conference panel they participated in, expressed concern about potential privacy laws being violated through data collection. Additionally, Eugene city staff stated that they will not seek to collect any data extra from the industry standard and are considering using data for enforcement purposes.

## **Community Engagement and Equity**

**All three cities either require or prefer that vendors provide a low-income plan and that some provisions of service be available in multiple languages.** Santa Monica prefers that vendors establish low-income rates and service in multiple languages, especially Spanish, but does not require either. Portland’s first and second pilot programs both require vendors to submit a User Equity Plan that includes discounted pricing and increasing adoption among low-income and historically underserved Portlanders. Its second pilot program goes a step further by defining “historically underserved Portlanders as people of color and people with disabilities. Additionally, its second pilot program requires print materials be available in multiple languages but does not specify what those languages should be. San Francisco requires vendors

to maintain a website, app, and be able to respond to feedback in multiple languages, including at a minimum, Chinese and Spanish. It also requires that the app and other customer interface technology must be fully accessible to persons with disabilities and accessible to screen readers and must comply with Section 508 of the United States Workforce Rehabilitation Act of 1973.

Both Santa Monica and the second Portland pilot require that access to e-scooter service be available without the use of a smartphone. Santa Monica additionally prefers, but does not require, vendors provide a means of access to its service that does not require a credit or debit card. Portland also goes a step further by requiring vendors to provide an Economic Opportunity Plan that outlines how the vendor will hire and contract with persons from historically underserved communities, meaning people with low incomes, people of color, and people with disabilities.

When addressing community engagement and equity, however, there is room for improvement. This was echoed during interviews with advocacy representatives. The Street Trust discussed the incomplete greenway network and unpaved streets in East Portland to illuminate the point that until better infrastructure is implemented, there will be access issues that prevent equity goals from being realized. They also called for a critical review of the entire transportation network, from bikes to buses to cars to the recent reliance on smartphones and bank accounts, because “just focusing on e-scooters isn’t going to get households what they need.” City staff from Portland pointed to their “2018 E-Scooter Findings Report” which states that, “E-scooters have the potential to expand opportunity and access for underserved Portlanders, though barriers exist.” Those barriers include the fear of racial profiling and lack of knowledge about e-scooter laws and low-income plans.

City staff from Eugene stated that while the contract with SoBi does not mention equity, they do value it. They are concerned, however, about the lack of success in other cities in this category for both e-scooters and bike share. They further expressed an interest in pursuing an equity policy that allows high schoolers to use e-scooters.<sup>3</sup>

## Lessons Learned

Persons interviewed for this research were asked about the successes and drawback of their city's e-scooter pilot program. They were also asked if they had any pearls of wisdom about lessons learned that they could share with other cities, like Eugene, planning to establish their own e-scooter pilot program. City staff from San Francisco were unable to comment on these questions.

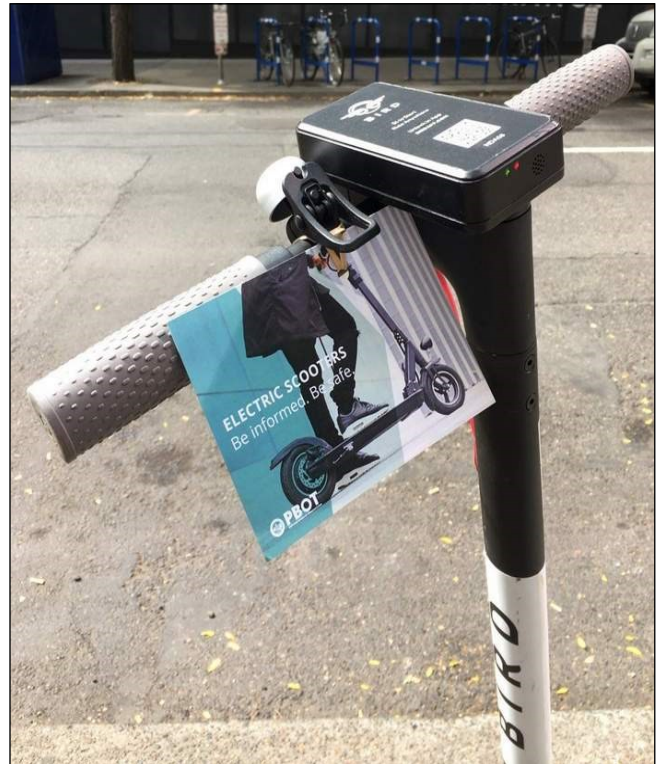
### Portland

City staff from Portland pointed to Portland's "2018 E-Scooter Findings Report" as being a summary of their lessons learned, including their successes and drawbacks. **The report cites meeting the program's established goals as a success. This includes a reduction in private vehicle use, the reduction of greenhouse gas emissions, and expanded access for underserved Portlanders.**

Regarding mode-shift and the reduction of greenhouse gases, the report states that 34% of *residents* surveyed claimed they would have used a personal vehicle if an e-scooter had not been available for the last e-scooter trip; 15% would have used a taxi/Uber/Lyft. Answering the same question, 34% of *visitors and tourists* surveyed responded that they would have used a taxi/Uber/Lyft; 14% would have used a personal car. Additionally, 74% of respondents claim to have never use Portland's bike-share system, and 42% do not use a bicycle at all. This suggests that e-scooters attracted new people to active transportation.

<sup>3</sup> High schoolers are not currently allowed to ride e-scooters due to age restrictions. The current age minimum for e-scooter rental is 18 years old.

PBOT reported that e-scooter use replaced approximately 302,000 automobile miles traveled (PBOT, 2018).



Source: (Top) Portland Bureau of Transportation, (Bottom) Promotional image from Bird



Regarding expanded access for underserved Portlanders, many black and east Portlanders expressed enthusiasm and support for e-scooters, but it was noted in the report that there was a fear that if they were to use e-scooters, they could be subject to racial profiling. Additionally, only one of the three companies operating during the pilot fully complied with the East Portland fleet distribution agreement (PBOT, 2018).

The report also cites that major categories of e-scooter drawbacks are sidewalk riding, improper parking behaviors, and inequitable access to services. According to the report, sidewalk riding reduced pedestrian comfort. However, users demonstrated a strong preference for using bikeways and other protected infrastructure. The report indicates that the act of sidewalk riding is correlated to the absence of protected infrastructure and/or the presence of high-speed streets (PBOT, 2018). This finding was echoed in interviews with both city staff and representatives from Lime. Also, while city staff observed most e-scooters being parked correctly, more work is needed to assure safety and access for pedestrians and persons with disabilities (PBOT, 2018). This was echoed by representatives from e-scooter vendors. They stated the need for educational tools on these topics to help create a new normal of behavior.

Staff did wish to speak to the bigger question of “Why?” Why launch an e-scooter pilot program in the first place? Portland’s ‘why’ was reaching congestion and pollution reduction goals - that if they kept with the status quo, they would never get there. City staff believe that while e-scooters weren’t planned, they are an opportunity that can be harnessed. Further, they believe that in relation to the bigger challenges of an increasing population, and of people dying due to cars, e-scooters are an opportunity that is worth experimenting with.

### *Santa Monica*

City staff from Santa Monica joked that “success” is a funny word, because the experience has been a messy one. However, **they do claim the successes of**

meeting the goal for partnership by companies being present at the table, achieving the goal of increasing mobility, and achieving a sense of order via the pilot because, “trying to define an ordinance in the absence of knowing what these things are would have been nearly impossible.” Drawbacks mentioned include the intensive demand on time and resources the pilot created, and that working with multiple companies at once has been challenging. They also noted the political capital that Council spent in taking a risk on the relatively new tactic of implementing a pilot program.

City staff issued warnings about depending on a private sector entity to provide a public service good. They also noted that during their “winter season,” when tourism is lowest, a higher percentage of people were observed to be riding correctly - not on sidewalks and with helmets on. This demonstrates that people can and do learn how to be safer, and that education is worth it.

Additional pearls of wisdom they wished to share include:

- More is not better, in terms of the number of companies you allow to operate at once.
- Be cognizant that it takes a considerable amount of time and energy it takes to build a functional partnership between the city and the operating companies.
- Data, especially consistent data, are really important.
- Enforcement is really hard. Because devices are frequently in motion, when a complaint is received, it is usually gone by the time an official gets to the scene.
- It costs more money than you think it will to run a pilot program.
- The people you think are the ones riding e-scooters (25-45 year old men who make money) are the ones primarily riding them.
- It is difficult to get private companies to engage with the education and equity components of the program.

# Recommendations

Using the content analyses and interviews conducted, we are better able to understand how Santa Monica, San Francisco, and Portland have regulated e-scooters to date and what their goals have been through e-scooter regulations. Coupled with an understanding of both Eugene's past approach to bike-share regulations and the City's goals for an e-scooter pilot program, I offer the following set of recommendations.

## Recommendations for Regulations

**Require both real-time and archival data.** Real time location data should be sourced from on-board GPS technology. Real-time data can communicate the locations of e-scooters for users to pick-up. Require companies to record and report a monthly summary of GPS-sourced data to the city including, but not limited to: the number of trips taken per e-scooter, trip length and route, and origin/destination information. Monthly reports should also include maintenance logs. The City should allocate FTE hours to a city staff person to source and log e-scooter collision information, including the type of injury reported and any type of citations issued.

**Use data to inform infrastructure decisions.** Numbers speak loudly. Trip patterns show where people are riding. If data show that a high number of people are riding where no dedicated infrastructure like protected bike lanes exist, it is likely that users are riding either on sidewalks or in less safe conditions, especially in areas where the speed limit

for automobiles is over 30mph. This information can then be used to support arguments for funding and location of new safe micro-mobility infrastructure. This is especially true in circumstances where providing new infrastructure will require the removal of existing car travel lanes or parking. Furthermore, providing additional safe infrastructure contributes to a protected and connected network, which is a strong tool for achieving the city's goals of facilitating safety for users and a mode-shift away from automobile trips.



Source: Strong Towns.

---

**Include device and maintenance specification requirements** to enhance the safety of scooter users and those surrounding them. Minimum specifications to include are: a unique identification number on each scooter, durable brakes, a warning bell, a white front light and red rear light, lock-to mechanisms, a non-combustion engine, the inability to exceed a speed of 15mph, and on-board GPS. The GPS shall be used to track devices, log data, direct users to preferred operating areas (such as away from sidewalks and toward designated parking locations) and to monitor speeds.

Maintenance requirements shall include weekly inspection for wear and tear and the immediate replacement of worn or damaged parts. Parts shall be independent of the whole scooter, allowing the component alone to be replaced instead of the whole scooter. This will minimize landfill waste and emissions generated during manufacturing, further enabling the city to achieve climate change goals.

**Require distribution across the entire city and within proximity to transit stations.** By locating deployment areas across the city not just the downtown core and communities neighboring the university, the city's stated goal of serving the broader community and not just university students will be better achieved. To do this, the City should require a set number of e-scooters, or percentage of total e-scooter fleet, to be deployed to areas designated as poverty hotspots by the Department of Human Services in 2015 (Oregon Dept. of Human Services, 2015a & 2015b). These include the Southeast Eugene, Bethel, Whitaker, Trainsong, Churchill, and Far West neighborhoods. Additionally, the City should require pick-up/drop-off locations to be located within proximity to transit stations. Stations that should be considered include Eugene Station, Commerce Station, by Lane Community College, by the Autzen Stadium and Matthew Knight Arena, and by the Winco.

Pickup/drop-off locations can also be located along planned future transit, such as along the key corridors identified by Moving Ahead, a planning project that is a combined effort between the City of Eugene and Lane Transit District (LTD). Key corridors are defined as streets that reduce reliance on automobiles. They enable short-distance walking and biking (and now also scooting) trips due to proximity of land uses such as higher density housing, parks, retail, and employment centers, plus current and planned frequent transit service. Key corridors identified by the City are Highway 99, Coburg Road, West 11th Avenue, River Road, and Franklin Blvd.

Locating scooter pickup/drop-off locations near transit stations can help ameliorate first/last mile transit accessibility issues and help facilitate mode-shift by making public transit more accessible. By enhancing access to public transit, especially for persons residing in poverty hotspots, the city can further achieve its equity goals by enhancing access to education and employment opportunities.

**Use all the tools in your toolbox for mitigating unwanted e-scooter parking behavior.** These include requiring lock-to mechanisms and unique identification numbers in design specifications, as well as the use of geofencing to direct users to return units to designated parking areas.

Lock-to mechanisms allow e-scooters to attach to structures, like bike racks, to prevent them from being knocked over and scattered about. This then mitigates accessibility obstructions for persons with disabilities. Additionally, require vendors to either directly provide parking stations or incorporate the cost of parking stations into the permit to operate charges vendors pay.

Unique identification numbers on units promote a disincentive strategy by allowing reported incidents of improper parking to be connected to the most recent e-scooter user who would then be issued a fine or surcharge, much the same way that a car driver is held responsible for improper parking behavior. Reporting should be allowed either by calling a vendor-operated customer service or by including a provision within a smartphone app. Require vendors to provide monthly reports containing log information about the number of incidents reported and how long it took to resolve.

Geofencing paired with GPS locationality allows scooter users to be notified that they are attempting to park in an undesignated area and direct them to the desired parking location. This takes the guesswork for users out of parking, thus enhancing the probability of desired behaviors occurring.

**Require that service be available in multiple languages.** This shall include, at a minimum, Spanish. The 2017 American Community Survey (ACS)<sup>4</sup> identifies that nearly 10% of Eugene’s total population is of Hispanic-descent, indicating Spanish as the most spoken language other than English. The next-largest non-white ethnic grouping identified by the 2017 ACS is “Asian”, but with so many sub-nationalities (in order of highest to lowest total population percentage: Chinese, Korean, Japanese, Vietnamese, and Filipino) included within this grouping, I believe the provision of service in so many languages is too complicated to pursue at this time.

**Use a dynamic fleet size cap.** Eugene city staff indicated 500 e-scooters as a fleet minimum. Use that quantity as starting point for launching an e-scooter pilot program. Require quarterly program evaluations (every three months). Use the results of

the evaluation to inform a potential increase or decrease in fleet size. Factors to be included in the evaluation are the of number of rides per day per e-scooter and company performance metrics. For reference, Santa Monica set four (4) rides per day per e-scooter as the minimum necessary to consider a fleet increase. Performance metrics that shall influence decisions about fleet size adjustments shall include, but not be limited to, how well the company has followed geographic deployment requirements, engaged in community outreach, followed equity requirements such as service in multiple languages and provision of low-income plans, and routine maintenance inspections.

## **General Recommendations**

**Coordinate with other agencies, departments, and organizations.** This can include the University of Oregon, LTD, and Eugene’s Planning and Development department. When organizations and department operate in silos, communication barriers often arise. These barriers create disjointed, disconnected, and detrimental ways of working (Resilient Organisations, n.d.). Coordination ensures that all agencies and departments are on the same page, delivering a united and seamless service. The University is a community within a community; it would not make sense for it to have a separate set of rules and regulations from the city. Foreseeable complications would arise around communication and enforcement of the separate governances. The same applies for LTD. If LTD and the City each have the same goal of mitigating e-scooter clutter from accumulating around stations, the two agencies need to work together in drafting regulations about parking. Use coordination with Planning and Development to incorporate infrastructure requirements for new residential and commercial buildings. This could take the form of a system development charge.

<sup>4</sup> DP05, ACS Demographic and Housing Estimates, 2013-2017 American Community Survey Estimates

**Incorporate educational programming into public events.** This shall include community outreach and engagement efforts such as helmet giveaways and the provision of information about safe riding of e-scooters and rules of the road into public programming such as the First Friday Art Walks, Party in the Parks, and Sunday Streets events.

**Incorporate education and outreach about e-scooters into the city's SmartTrips program.** This program is geared toward informing community members about various transportation options as a means of facilitating a mode-shift away from cars.

**Consider Public Fleet Ownership by the City.** The City's bike-share ownership model already diverges from that of the other case study cities. The City of Eugene owns the fleet of bicycles that are used in the city's bike-share program whereas the other case study cities do not own their e-scooter fleet; the operating companies do.

The benefit of the City owning the bike fleet is that if SoBi, the company that operates the Eugene bike-share program, fails, the city will be able to keep the

bikes and simply hire a new company to administer the program. Additionally, it minimizes the tension between the conflicting goals that arise from a public entity (a city) hiring a private entity (an e-scooter operating company) to provide a public service (transit). Public transit generally does not make a profit, but that is outweighed by public good it provides by connecting residents to opportunities such as education and employment. Private companies, however, tend to be motivated more by achieving an economic bottom line and less by providing a public good.

Currently, however, I do not advise the City to publicly own an e-scooter fleet. This is because the life-span of an e-scooter is currently estimated to be 28 to 32 days. While I do recommend that the City one day pursue public ownership of an e-scooter fleet, they should wait until the technology advances to a point where shared e-scooters can last for at least a year.

*"If you build infrastructure that only acceptable for 20-year-old men, then you'll only get 20-year-old men using them. There's a different risk matrix for a mom or grandpa versus a young man."*

*- Representative from Lime Scooters*

*"It would be nice to see outcomes first before start legislating conditions as part of a pilot program."*

*- Representative from the City of Eugene*

# Appendix A: Content Analysis

This appendix references language from each case study city’s regulatory document. Each section is prefaced with the document section it is sourced from. ‘Vendors’ refer to e-scooter operating companies, and ‘Users’ are the people who use e-scooters.

**Table 4. Regulatory Categories Met by Case Study Cities**

	Fees and Funding	Fleet Caps and Size	Enforcement			Open Data and Reporting	Community Engagement and Equity
			Parking	Service Area	Maintenance/Safety		
Santa Monica, CA	X	X	X	X	X	X	X
San Francisco, CA	X	X	X	X	X	X	X
Portland, OR	X	X	X	X	X	X	X
Eugene, OR		X		X	X	X	

## Fees and Funding

### *Santa Monica*

#### 3.5 – Permitting Fees

The City is pursuing the creation of a Use of Public Property fee to compensate for the use of the public right of way, like the fees collected for outdoor dining. Vendors will be subject to the payment of the fee once it is in effect.

### *Portland 1.0*

#### 10 – Permit Fees and Per-Trip Surcharges

Fees, surcharges, and penalties were placed in a New Mobility Account to be used for administration, enforcement, evaluation, safe travel infrastructure, as well as expanded and affordable access. Per-Trip Surcharge invoices were submitted to vendors monthly. Invoices were based on trip data provided by the Vendor and verified by PBOT.

---

## *Portland 2.0*

### 10 – Permit Fees and Surcharges

The Director provides Street Use Surcharge and Right-of-Way Use Surcharge invoices to vendors monthly. Invoices will be based on trip data provided by the Vendor and verified by PBOT or a PBOT designated third party.

Shared Scooter Fees, surcharges and penalties will be placed in a New Mobility Account and used for the following purposes:

1. The Application Fee will be used for permit development and application review
2. The Pilot Permit Fee will be used for administration, enforcement, and pilot program evaluation

The Street Use Surcharge and Right-of-Way Use Surcharge will be used for safe travel infrastructure, dedicated parking, and expanding equitable access.

## *San Francisco*

### Permit Costs

Like Portland, San Francisco's pilot program regulations detail how each fee will be used.

1. The Application fee covers time to review applications
2. The Annual Permit Fee recovers costs associated with administering the pilot
3. The Public Property Repair and Maintenance Endowment ensures adequate funds are available to reimburse the City for future public property repair and maintenance costs that may be incurred per specifications in the Permit Requirements. This endowment will only be accessed if Vendor fails to reimburse the City for costs incurred within 30 days of being notified. If the endowment is unused at the end of the Permit term, the funds may be returned to the Vendor or rolled over to a future program year. Should the value at any point fall below the halfway point, the Vendor must replenish to the original level to maintain their permit.

## *Eugene*

### Exhibit C – Compensation Schedule

The Contractor bills the City for Services via monthly invoices. This is because the City has agreed to provide the materials, equipment, and supplies for use in the Contractor's performance of Services. The Contractor collects all Subscribed User Fees, collects all Sponsorships fees, and creates any other revenue sources for the services of the Bicycle Sharing System that it deems appropriate.

**Table 5. Fees and Charges Applied to Pilot Programs**

Fees and Funding			
Santa Monica		San Francisco	
Annual Operator Fee	\$20,000 per Operator	Application Fee	\$5,000
Annual Device Charge	\$130 per device	Annual Permit Fee	\$25,000
Business License Tax	\$75	Public Property Repair and Maintenance Endowment	\$10,000
Portland 1.0		Portland 2.0	
Application Fee	\$250	Application Fee	\$500
Pilot Period Permit Fee	\$5,000	Pilot Period Permit Fee**	\$80 per device
Per-Trip Surcharge	\$0.25		**\$20 per device per quarter if allotment increased
Eugene		Right-of-Way Use Surcharge (per scooter, per day)	\$0.20 in Central City; \$0.10 in Inner Neighborhoods, Western Neighborhoods, River Pattern Areas; \$0.05 in Eastern Neighborhoods
Terms of Contract Do Not Allow This Information to Be Shared			

## Fleet Caps and Size

### *Santa Monica*

#### 3.3 – Permitted Device Quantities

Santa Monica uses a dynamic cap on fleet size, meaning that the number of devices allowed to operate will be flexible based on demonstrated usage. Companies may be allowed to add more e-scooters if can show demand exceeds the Minimum Utilization Rate (MUR) of four rides per day. If use falls below the MUR, vendors must remove the number of devices necessary to achieve that MUR again. The City limits the number of devices allowed to operate in the City’s Downtown District to one-third of vendor’s total devices in the city.

### *Portland 1.0*

#### 8A – Deployment and Fleet Minimum

Within the first two weeks of permit issuance Vendors had to deploy 100-200 units, with complete deployment of all allotted units within three weeks of issuance.

### *Portland 2.0*

#### 8A – Deployment

Vendor will have to coordinate with the City regarding their fleet launch schedule, including making available a maximum of 50% of their allotted units during the first week.



## San Francisco

### I – General Requirements Item 9

The vendor must limit the total number of their scooters parked or in use in San Francisco to the number assigned by the San Francisco Municipal Transportation Agency (SFMTA) in their permit. This number includes the total number of scooters that are either being rented or that have been left on public property. This further includes units that are both ready for use or units that are unavailable due to needing recharging or other maintenance.

## Eugene

### Exhibit B – Scope of Services

300 available bikes were required by the commencement date of the program. If the Contractor secures the necessary funding for additional equipment and operations, they will provide an additional 150 bicycles for the Bicycle Sharing Program in year 3 or 4 of the program.

**Table 6. Number of E-Scooters Each Vendor is Allowed to Operate in Each City**

<b>Fleet Size and Caps</b>	
<b>Santa Monica</b>	<b>San Francisco</b>
Two (2) e-scooter operators	1250 units in first 6 months
2000 units at launch (1000 per company)	2500 units in second 6 months
<b>Portland 1.0</b>	<b>Portland 2.0</b>
2500 units total	May issue multiple permits Initial allotment of 250-1250 units per Vendor
<b>Eugene</b>	
300 units	

## Enforcement : Parking

### Santa Monica

#### 3.9 – System Design & Distribution, 3.10 – Deployment and System Operations

Geofencing should be employed to inform and direct users to return equipment to designated areas. Incentivization should also be used to encourage proper parking. When parked, devices must be upright, leave at least 48 inches of pedestrian clear zone, and may not impede access defined by the Americans with Disabilities Act (ADA) or violate ADA accessibility requirements. Use of public sidewalks must not adversely affect the streets or sidewalks, inhibit pedestrian movement, or create conditions that are a threat to public safety and security. Additionally, no device may be parked in one location for longer than 48 hours. Devices parked immediately adjacent to or within a transit zone, loading zone, accessible parking zone or other facilities specifically designated for handicap accessibility, fire hydrant, curb ramp, entryway, driveway, or parklet, can be considered an immediate hazard or obstruction and are subject to impoundment. Further, vendors are responsible for resolving all parking issues with private property owners.

---

To encourage proper parking behavior, vendors are encouraged to provide clear and specific parking information during every ride through in-app messaging. Additionally, it is preferred that photo verification of parking be used and systems to review and link users to violations be developed.

### *Portland 1.0*

#### 8D – Shared Scooters within the Right-of-Way, 8E – Limitations on Scooter Parking

Scooters could be parked in the right-of-way, but with limitations. They had to be parked either (a) in the Sidewalk Corridor and fully contained in the Furnishings Zone, or (b) within a City-designated Scooter Parking Area.

### *Portland 2.0*

#### 8C – Shared Scooters within the Right-of-Way, 8D – Limitations on Shared Scooter Parking, 8E - Geofencing

The second pilot in Portland employs the same parking limitations but adds that e-scooters can also be parked in a way that attaches to a bicycle rack in the right-of-way. This additional option is only allowed if the device includes a lock-to mechanism and requires making sure the unit is oriented parallel to the rack. Vendors must obtain permission for use of property outside PBOT jurisdiction from property owner or agents thereof.

Vendors must use and maintain geofencing in specified areas. Geofencing must be displayed on both the vendor’s mobile and web application, notify and prevent users from ending a trip in a no-parking zone, and notify users if they have entered a no-ride zone. The City reserves the right to create geofenced Dedicated Parking areas where scooter shall be parked.

### *San Francisco*

#### VII – Distribution of Scooters, Appendix I – Parking Requirements

The vendor is required to apply geofencing specifications provided by the SFMTA to prohibit parking/locking e-scooters in specified areas. Geofencing should also direct users to specified designated parking area. Upon notification from the City of improper parking of a e-scooter, the vendor must remove the scooter within one hour. If the scooter is not removed, the City may remove it itself and take it to a City facility for storage at the vendor’s expense.

E-scooters should be parked upright near the curb. They should not obstruct pedestrian space. This means that scooters should not be parked at corners, blocking curb ramps, on narrow sidewalks, or along buildings. They should not block bus stops, loading zones, fire hydrants, or access points, and should not interfere with sidewalk amenities and landscaping. The vendor is responsible for removing any improperly parked scooter within one hour of notification from the City.

### *Eugene*

#### Exhibit B – Scope of Services, Item 2: Stations

The document does not enumerate all the places a bike may or may not be parked like the above scooter pilot regulatory documents. Instead, it describes the design and number of parking stations and racks to be provided by the City: 35 stations that contain a total of 650 racks.

**Table 7. E-Scooter Parking Do's and Don'ts for Case Study Cities**

Parking Do's and Don'ts	
<b>Santa Monica</b>	
<i>Parking standards for device deployment</i>	
Devices must be upright when deployed	
Devices must be deployed in the part of the sidewalk adjacent to the roadway curb (so long as 48-inches of pedestrian clear zone is maintained)	
Devices must not be deployed within: Ocean Front Walk, The Beach, beach parking lots, Third Street Promenade, The Pier or Pier Bridge, Palisades Park, public parks, and transit stops.	
Devices must not be deployed in a manner that violates ADA accessibility requirements or impedes ADA access	
No device shall be parked in one location for more than forty-eight hours	
Any device that is parked incorrectly shall be re-parked or removed by the operator within 2 hours of receiving notice between the hours of 7am and 10 pm daily	
<b>Portland 1.0</b>	<b>Portland 2.0</b>
Shared Scooters cannot be parked	Shared Scooters cannot be parked:
<ul style="list-style-type: none"> <li>Within a traffic island, median or traffic circle;</li> <li>Within five feet of any Crosswalk;</li> <li>Within five feet of a bicycle rack;</li> <li>Within five feet of a fire hydrant;</li> <li>Within five feet of a drinking fountain;</li> <li>Within five feet of any public art;</li> <li>Within five feet of any driveway, alley, or curb cut;</li> <li>Within five feet of any portion of an ADA Ramp;</li> <li>Within five feet of a marked disabled parking space;</li> <li>Within five feet of a marked loading or taxi zone;</li> <li>Within a Transit Platform unless allowed by Portland Streetcar or TriMet;</li> <li>Within 30 feet of a bus stop, as measured from the bus stop sign counter to traffic flow;</li> <li>Within the corner of two intersecting sidewalk corridors, as determined by the adjacent property lines extended;</li> <li>Where the unobstructed Through Pedestrian Zone is less than 6 feet;</li> <li>Where the Shared Scooter may cause damage to any landscaping, including but not limited to lawn, flowers, shrubs or trees;</li> <li>Where the Shared Scooter may cause damage to or interfere with the use of pipes, vault areas, telephone or electrical cables/wires or other utility facilities;</li> <li>On any grating, manhole cover or access lid;</li> <li>Where the Shared Scooter obstructs access to parked vehicles;</li> <li>Where the Shared Scooter obscures any fixed regulatory or informational sign;</li> <li>Within City parks;</li> <li>Within Pedestrian Plazas.</li> </ul>	<ul style="list-style-type: none"> <li>On sidewalks where the Furnishing Zone is less than three feet wide, or where there is no Furnishing Zone;</li> <li>Within a traffic island, median or traffic circle;</li> <li>Within five feet of any Crosswalk;</li> <li>Within five feet of a bicycle rack, unless the Shared Scooter includes a lock-to-mechanism that requires fastening to a bicycle rack;</li> <li>Within five feet of a fire hydrant;</li> <li>Within five feet of a drinking fountain;</li> <li>Within five feet of any public art;</li> <li>Within five feet of any driveway, alley, or curb cut;</li> <li>Within five feet of any portion of an ADA Ramp;</li> <li>Within five feet of a marked disabled parking space;</li> <li>Within five feet of a marked loading or taxi zone;</li> <li>Within a Transit Platform unless allowed by Portland Streetcar or TriMet;</li> <li>Within 30 feet of a bus stop or TriMet Lift stop, as measured from the bus stop sign counter to traffic flow;</li> <li>Within the corner of two intersecting sidewalk corridors, as determined by the adjacent property lines extended;</li> <li>Where the unobstructed Through Pedestrian Zone is less than 6 feet;</li> <li>Where the Shared Scooter may cause damage to any landscaping, including but not limited to lawn, flowers, shrubs or trees;</li> <li>Where the Shared Scooter may cause damage to or interfere with the use of pipes, vault areas, telephone or electrical cables/wires or other utility facilities;</li> <li>On any grating, manhole cover or access lid;</li> <li>Where the Shared Scooter obstructs access to parked vehicles;</li> <li>Where the Shared Scooter obscures any fixed regulatory or informational sign;</li> <li>Within any PBOT designated "No Parking Zone";</li> <li>Within City parks, unless otherwise posted;</li> <li>Within Pedestrian Plazas.</li> </ul>

*(continued on next page)*

**Table 7. E-Scooter Parking Do's and Don'ts for Case Study Cities (Con't)**

San Francisco	
<i>DO Park Near The Curb</i>	<i>DON'T Park Along Buildings</i>
<p>Scooters shall only be parked in the street furniture zone.</p> <p>Scooters may only be parked on hard surfaces within the furniture/ furnishings zone (e.g. concrete, asphalt) between fixed objects.</p> <p>The furnishings zone is defined as the area of the sidewalk where street furniture— such as light poles, sign posts, street trees, USPS mailboxes, trash cans, et cetera—is placed. This zone is located between the pedestrian thoroughway and the curb.</p> <p>Scooters shall not be parked on blocks where there is no furniture zone.</p>	<p>Scooters shall not be parked along building facades.</p>
<i>DO Park Scooter Upright</i>	<i>DON'T Block Bus Stops and Loading Zones</i>
<p>Scooters that are parked in any orientation other than upright (i.e. leaning on an object or on their side) will be considered improperly parked.</p>	<p>Scooters must be parked more than 15 feet from curb-side bus zones, transit shelters, transit access points (e.g. stairs, elevators, escalators), yellow commercial loading, white pedestrian loading and blue accessible parking spaces/zones, except where bike parking is provided.</p> <p>Scooters must not be parked in or adjacent to MUNI transit stops, platforms, islands, stairs, escalators, or elevators.</p> <p>Scooters must not be parked adjacent to any blue accessible parking space, except where bike parking is provided.</p>
<i>DON'T Obstruct Pedestrian Space</i>	<i>DON'T Block Fire Hydrants</i>
<p>Regardless of the width of the sidewalk, a parked scooter should in no way obstruct the pedestrian space.</p>	<p>Scooters must be parked at least 15 feet from fire hydrants or other fire hose access points, emergency exits, and cannot block access to utility boxes.</p>
<i>DON'T Park at Corners or Blocking Curb Ramps</i>	<i>DON'T Block Access Points</i>
<p>Scooters must be parked at least 15 feet from any incline portion of curb ramps.</p> <p>Scooters must be parked at least 15 feet from any street corner (defined as any curved portion of the curb where two or more streets intersect). Scooters must not be parked where two paths of travel intersect (e.g. a T-intersection). This includes the intersection of any walkways or paths.</p>	<p>Scooters must not be parked in a manner that blocks access to driveways, stairs, doors, door entry systems, handrails, or other access points.</p> <p>Scooters must not block or be parked within six feet of building entrance controls, which include power door operator buttons, intercom speakers, handsets, keypads, card scanners, and turnstiles.</p> <p>Scooters must not be parked in bike lanes or vehicle lanes.</p>
<i>DON'T Park on Narrow Sidewalks</i>	<i>DON'T Interfere with Sidewalk Amenities and Landscaping</i>
<p>Scooters must not be parked on sidewalks that are less than 9 feet wide.</p>	<p>Scooters must not be parked in a manner that blocks access to sidewalk amenities such as seating areas, kiosks, ATMs, mailboxes, and news racks.</p> <p>Scooters must not block street furniture that requires pedestrian access (for example – trash receptacles, benches, mailboxes, or parking pay stations).</p> <p>Scooters must not be parked in or against landscaped portions of the public rightof-way, including parkways, planting/buffer strips, planters, tree wells/basins/grates, medians, and bioswales.</p>

---

## **Enforcement : Parking**

### *Santa Monica*

#### 3.9 – System Design & Distribution

The vendor will provide rebalancing services throughout the day to achieve an equitable distribution by minimizing over concentrations in high demand locations like the Downtown and Beach areas.

### *Portland 1.0*

#### 8A & 8B – Deployment and Fleet Minimum

Vendors were required to daily rebalance the portion of its fleet deployed in the area bounded by SW Jefferson, Naito Blvd, NW Hoyt and 13th Avenue adjacent to existing bicycle facilities consistent with the Bureau's Central Business District Map. Additionally, vendors had to deploy a minimum of 100 e-scooters, or 20% of the vendor's fleet (whichever was less), each day in the historically underserved Eastern Neighborhoods.

### *Portland 2.0*

#### 8A – Deployment

Portland's second pilot does not mention anything about rebalancing their fleet. Instead, they require that a minimum percentage of scooters (15%) be deployed in approved locations in the historically underserved Eastern Neighborhoods as defined by the City of Portland's 2035 Comprehensive Plan.

### *San Francisco*

#### VII – Distribution of Scooters

Vendors are required to provide the SFMTA with a Distribution, Operation and Maintenance Plan that describes their commitment to maintain consistent distribution, operations and maintenance, and avoid potential disruptions. The Plan must include how the vendor will insure equitable geographic distribution. This should include how e-scooters will be frequently redistributed by operations staff to serve as a viable transportation option for all communities in the service area, especially for Communities of Concern which have historically had fewer mobility options.

The vendor is responsible for monitoring the distribution of e-scooters available to customers according to parameters agreed upon by both the vendor and the SFMTA. Each daily e-scooter deployment must match the agreed upon parameters for the number of e-scooters within sub-areas of the vendors approved service area.

## Enforcement : Maintenance/Safety

### Santa Monica

**Table 8. Minimum and Preferred Requirements for Device Specifications in Santa Monica**

<b>Santa Monica Device Specifications</b>	
<i>Minimum Requirements:</i>	
	Designed to withstand the demands of outdoor and shared use
	Highly durable; theft and vandal resistant
	Safe, comfortable and easy to use by a wide range of users
	Durable brakes
	Warning bell
	Security hardware
	Front light that emits white light and a rear red light
	Safety information clearly posted on each device and in the system software
	Display customer service contact information
	Display a clearly visible unique device identification number, for example a device number visible from a distance of at least 30 feet
	Maximum speed of 15mph or less
	Non-combustion engine
<i>Additional Preferred Requirements</i>	
	Use of proprietary parts to deter equipment theft and vandalism
	Some three wheel scooter devices for stability-impaired individuals

3.7 – Device Specifications, 3.9 – System Design & Distribution, 3.11 – Maintenance, 3.12 – Customer Service, 3.13 – Events and Emergencies

The vendor must be able to ensure that all devices in their fleet are in good working order, clean and safe to operate. Inoperable devices, or any device that is not safe to operate, is to be removed or made unavailable to the public within two hours of notification via device lock-down. It is preferred that each vendor keep a record of all maintenance performed for each device, which is made available to the City upon request.

Geofencing, or an equivalent technology, must be integrated into system design and distribution. Devices must display both a clearly visible unique device identification number and customer service contact information including, but not limited to, a telephone number, email address, and website location. Additionally, the vendor must provide a Public Safety Hotline to allow City personnel direct contact with vendors 24 hours a day for emergencies and device relocation, with a response time of two hours or less.

During events and emergencies, vendors must be prepared to work and cooperate with the City to prioritize the safety of users and provide real-time device data to public safety personnel.

---

## *Portland 1.0*

### 7A-7D – Safety Requirements, 8J – Operating Requirements

The vendor was required to provide certification to the City that each of the vendor's e-scooters met all safety requirements of the City, Oregon Vehicle Code, and United States Department of Transportation. E-scooters were allowed a maximum speed of 15 mph. Additionally, vendors were required to provide a mechanism for customers to notify the company of safety or maintenance issues with a scooter. All permitted scooters were required to have visible language that provided the following information:

- That users must wear helmets while riding
- Riding is prohibited on the sidewalk
- A unique identification number
- The name of the vendor
- Vendor's customer service information

At a minimum, each vendor was required to provide its users a summary of state and local laws governing the use of motorized scooters, including but not limited to informing the Users of applicable requirements for licensing, helmets, travel on highways, parking, and use of sidewalks as specified by the Director of Transportation. Vendors were required to incorporate interactive safety messaging, such as frequent messaging on the User application, about sidewalk-riding prohibitions.

## *Portland 2.0*

### 7A-7E- Safety Requirements, 8E- Geofencing, 8J – Operating Requirements

Portland's second pilot requires many of the same device specifications as the first. The second pilot further enumerates that vendors must: coordinate with PBOT to test the efficacy and safety of using geofencing to govern speeds to less than 15 mph in specified areas, that the customer service number should have the capability for translation services, that customer service information provided on the devices should be in a font size that meets or exceeds ADA standards, and that information about proper parking be displayed on scooters.

Additionally, the second pilot requires that vendors incorporate interactive safety messaging, such as quizzes, on the User application, at a minimum of once per five rentals. The vendors are also required to distribute notifications, warnings, fines and suspend Users' accounts for any documented occurrences of non-compliant behavior. A monthly report of notifications, warnings, fines and suspensions delivered to Users is to be provided from the Vendor to PBOT.

The second pilot also specifies that vendors must coordinate with the City during times of Inclement Weather.

## San Francisco

### II – Customer Service Requirements, V – Vehicle Specifications, VII – Distribution of Scooters

Vendors are required to provide the SFMTA with a Distribution, Operation and Maintenance Plan that describes their commitment to maintain consistent distribution, operations and maintenance, and avoid potential disruptions. The Plan must include how their fleet will be kept in a state of good repair to ensure that their services are a dependably safe, viable, and reliable component of the transportation system.

Vendors must have a customer service phone number that is staffed seven days a week for customers to report safety concerns, complaints, or ask questions. Each vendor must have a way to receive and respond to feedback in multiple languages, including, but not limited to, Chinese and Spanish. Additionally, vendors are responsible for educating their employees and users about state and local laws governing the safe operation and parking of scooters.

Each permitted scooter must:

- Prominently display the current phone number for the vendor’s customer service line and unique identification number
- Be equipped with an on-board GPS device capable of providing real-time location data brakes, reflectors, and lighting.
- Be certified as safe to operate under any applicable standard by Underwriters Laboratories or an equivalent safety rating agency.

## Eugene

### Exhibit B – Scope of Service, Item 2: Service Level Agreements, Item 6: Customer Service

**Table 9. Maintenance and Operations Schedule for Bike-Share in Eugene**

Exhibit B.2 - Service Level Agreements			
Maintenance + Operations	Schedule	Location	Additional Daily/Weekly Inspections
Repairs and Adjustments	Daily/Weekly	On-Site	Clean all visible dirt, ink, paint, litter, and graffiti
Station and Bicycle Inspection	Daily/Weekly	On-Site	Remove all trash from surrounding areas
Prevention Maintenance and Tune-Ups	Quarterly	Facility	Check all communications systems
Cleaning and Litter Removal	Daily (As Needed)	On-Site	Check lock, keypad, enclosure functionality
Clean-up Alert or Notification	Within 24 hrs	On-Site	Check frame for damage, cracks, and dents
Address Repair Upon Notification	Within 24 hrs	On-Site	Inspecting shifters for proper functioning
Replacement Parts and Bicycles	As Needed	Facility	Check bottom bracket, pedals, and cranks
Web and Mobile Updates	On-Going	Wireless	Check fenders and kickstand for damage
Inspecting drive chain or shaft drive for proper functioning and lubrication	Daily/Weekly	On-site/Facility	Check for wheel trueness and broken spokes
Inspecting handlebar for proper centering and tightness	Daily/Weekly	On-site/Facility	Check for hub and axle tightness
Inspecting tires for proper inflation	Daily/Weekly	On-site/Facility	Brief test ride to ensure overall correct function
Inspecting brakes for excessive wear and ensure proper working order	Daily/Weekly	On-site/Facility	
Check seat tightness and seat quick release		On-site/Facility	
Inspecting shifters for proper functioning	Daily/Weekly	On-site/Facility	



---

The vendor is required to staff a customer service call center 24/7 for any service issues. Users should be able to contact customer service via a local number, the website, the mobile app, or through social media. The vendor must establish maximum wait times and a procedure to process complaints. The customer service telephone number should be affixed to every bicycle with a durable label.

## Open Data and Reporting

### *Santa Monica*

#### 3.16 – Data Sharing & Reporting

Vendors must provide accurate data through a publicly accessible Application Programming Interface (API) that meets the requirements of the General Bikeshare Feed Specification (<https://github.com/NABSA/gbfs>). It is desirable that vendors make the API endpoint available to the public for viewing data, querying data, and mapping.

Vendors are required to provide accurate monthly reports to the City describing system operation, system use, reported complaints, customer service responses, and system maintenance. A weekly dynamic cap report was to be made after the program launch to assess and potentially adjust fleet deployment quantities.

Personal information is required to be protected by the vendor, with such data being anonymized.

That said, while it is strongly preferred Vendors do not resell users' personally identifiable information, if they do, it is preferred (but not required) that (a) this is communicated clearly and transparently to users, and (b) users have a clear means of opting out if they do not want their data sold.

### *Portland 1.0*

#### 6 – Data Requirements

Vendors had to provide the City access to anonymized, real-time and archived data in a format and frequency defined in an approved data-sharing agreement. Further, vendors had to disclose to the Users that anonymized data will be shared with the City of Portland. The data collected by the City was, except as otherwise required by law or aggregated, kept confidential. Required data may have included the following for all individual trips that started, ended, or passed through Portland:

- Number, date, time, and duration of any trips
- Trip origin and destination latitude and longitude
- Trip route
- Trip maximum and average speeds
- Number of scooters deployed each day at each location with individual e-scooter /identification
- Reported collisions, including time, location, known details, injuries, or citations
- Complaint history, including the number and nature of complaints and the time it took to remedy them
- Payment method
- User demographic information

The vendor also had to notify the City and all required Users of a known data security breach.

---

The vendor is required to staff a customer service call center 24/7 for any service issues. Users should be able to contact customer service via a local number, the website, the mobile app, or through social media. The vendor must establish maximum wait times and a procedure to process complaints. The customer service telephone number should be affixed to every bicycle with a durable label.

## Open Data and Reporting

### *Santa Monica*

#### 3.16 – Data Sharing & Reporting

Vendors must provide accurate data through a publicly accessible Application Programming Interface (API) that meets the requirements of the General Bikeshare Feed Specification (<https://github.com/NABSA/gbfs>). It is desirable that vendors make the API endpoint available to the public for viewing data, querying data, and mapping.

Vendors are required to provide accurate monthly reports to the City describing system operation, system use, reported complaints, customer service responses, and system maintenance. A weekly dynamic cap report was to be made after the program launch to assess and potentially adjust fleet deployment quantities.

Personal information is required to be protected by the vendor, with such data being anonymized.

That said, while it is strongly preferred Vendors do not resell users' personally identifiable information, if they do, it is preferred (but not required) that (a) this is communicated clearly and transparently to users, and (b) users have a clear means of opting out if they do not want their data sold.

### *Portland 1.0*

#### 6 – Data Requirements

Vendors had to provide the City access to anonymized, real-time and archived data in a format and frequency defined in an approved data-sharing agreement. Further, vendors had to disclose to the Users that anonymized data will be shared with the City of Portland. The data collected by the City was, except as otherwise required by law or aggregated, kept confidential. Required data may have included the following for all individual trips that started, ended, or passed through Portland:

- Number, date, time, and duration of any trips
- Trip origin and destination latitude and longitude
- Trip route
- Trip maximum and average speeds
- Number of scooters deployed each day at each location with individual e-scooter /identification
- Reported collisions, including time, location, known details, injuries, or citations
- Complaint history, including the number and nature of complaints and the time it took to remedy them
- Payment method
- User demographic information

The vendor also had to notify the City and all required Users of a known data security breach.

---

## Portland 2.0

### 6 – Data Requirements

Portland’s second pilot is more concise regarding data. Vendors will have to maintain publicly available APIs and provide the City, or a City-identified third-party researcher or contractor, access to data in accordance with the requirements specified in the City’s mobility data specification found at <https://github.com/CityofPortland/mobility-data-specification>.

Vendors will have to provide the City with anonymized data regarding Chargers and Users at monthly intervals. Vendors will notify the City and all required Users of a known data security breach.

## San Francisco

### VIII – Data Sharing Requirements

Vendors agree that the SFMTA may use a third-party researcher to evaluate the Program and will share all data necessary for the purposes of evaluating or enforcing the requirements of their permit.

Vendors will administer two customer surveys within the permit year, using questions provided by the SFMTA. The survey will include questions regarding travel behavior and basic socioeconomic indicators that will help SFMTA evaluate how the provider’s services support the agency’s goals for transportation in San Francisco. Vendors may not collect personal data related to, nor sort personal data for, individual data subjects according to race, gender, religion, national origin, age, or sexual orientation except for these opt-in surveys.

Vendors will provide real-time and archival information for their entire San Francisco fleet. This data will ensure the SFMTA can successfully manage the Program and execute related planning efforts in support of the agency’s strategic goals. Data to be provided includes real-time location, event, and status information provided by on-board GPS devices put on all e-scooters, anonymized data for each trip record, archival data, and key system information. Real-time data will be shared via documented APIs.

At a minimum, data will include:

- Trip-level details including start/end location/time, duration, and distance traveled.

- Trip-level breadcrumb trails listing all GPS readings for each scooter.

Any collected user demographic data that does not identify individual users, payment methods or individual trip history, are to be submitted to the SFMTA monthly, using anonymized keys. Only where there is an injury alleged to be related to a scooter, or a claim or lawsuit against the City and the scooter user may have information about, or responsibility for, the claim, will the vendor share personally identifiable information about a scooter user with the City.

Vendors must provide customers the opportunity to explicitly assent to any privacy policy, terms of service, or user agreements. Separately, customers must have the ability to decline sharing any data not required to enable the vendor to process and complete the transaction. The customer’s options with regard to these requirements shall be clearly stated and easily accessed by the customer.

---

## *Eugene*

### Exhibit B – Scope of Service, Item 5: Communications and Website

The Operation Platform allows the vendor to review subscribed user accounts including checking payment status and billing history, reviewing and changing subscription plans, submitting payments for processing, reviewing rental history, flagging individual subscribed user accounts for misuse (e.g., excessive damage to bicycles, lost bicycles), and other similar functions for managing subscribed user accounts. It allows the vendor to oversee the general operation of the Bicycle Sharing Program including examining the real-time location of bicycles, viewing alerts such as battery level and repair status, designating stations and system areas, viewing and analyzing subscribed user data, and messaging subscribed users.

The User Platform is a user-facing tool provided by vendor to subscribed users specifically for the Bicycle Sharing Program. Features of the Platform, which may be updated by vendor at any time, include: the ability to track ride data and routes, share ride data on social media, track account balances, provide direct feedback, manage subscriptions, track the status and location of bicycles and stations, and call the vendor’s representatives through listed numbers.

All web and data servers are hosted in secure environments separated from internet traffic wherein security and performance scans are regularly executed. The vendor’s platforms secure all personal and financial data with encryption.

## **Community Engagement and Equity**

### *Santa Monica*

#### 3.9 – System Design & Distribution, 3.12 – Customer Service, 3.15 – User Engagement

During system design and distribution, equitable device deployment locations must be identified. E-scooters must be distributed in a way that minimizes over concentrations in high demand locations like the Downtown and Beach areas. To further ensure that this modal service be equitable, it is preferred that vendors provide:

- Service in multiple languages, especially Spanish
- A means of accessing devices that does not require the use of a smartphone and/or access to a credit or debit card
- Low-income qualified rates and provide a system for user sign up and payment that enables easy use of the reduced rates.

Engagement should consider the needs and concerns of customers as well as non-users of the system and reflect values consistent with the community. Such values include, but are not limited to, safety, civic/civil engagement, mobility options, sustainability and wellbeing. Behaviors consistent with these values should be encouraged.

---

## *Portland 1.0*

### 4 – General Permit Requirements, 8A – Deployment and Fleet Minimum

To become a vendor, applicants had to submit a User Equity Plan that included discounted pricing and increasing adoption among low-income and historically underserved Portlanders. They also had to submit an Economic Opportunity Plan for hiring individuals and/or creating economic opportunities for people from historically underserved communities.

When approved for operation, the vendor had to deploy a minimum of either 100 scooters or 20% of their fleet (whichever was less) each day in the historically underserved Eastern Neighborhoods as defined by the City of Portland’s 2035 Comprehensive Plan.

## *Portland 2.0*

### 4 – General Permit Requirements, 8A & 8O – Operating Requirements

Like the first pilot, potential vendors must submit a User Equity Plan that includes discounted pricing and increasing adoption among low-income and historically underserved Portlanders. The second pilot takes it further by requiring that non-smart phone access options, multiple languages for printed materials be included in the equity plan. It also elaborates that in addition to low-income persons, “historically underserved Portlanders” include people of color and people with disabilities. Also like the first pilot, potential vendors must submit an Economic Opportunity Plan for hiring and contracting with individuals from historically underserved communities, which again is elaborated on to include people with low-incomes, people of color, and people with disabilities. In addition, potential vendors should describe existing partnerships with workforce development agencies in Portland.

When approved for operation, the vendor must deploy a minimum of 15% of their fleet at approved locations in the historically underserved Eastern Neighborhoods as defined by the City of Portland’s 2035 Comprehensive Plan. Additionally, they must waive the Street Use Surcharge for Users who receive a low-income fare.

## *San Francisco*

### II – Customer Service Requirements, III – Equitable Service Requirements

Vendors must have a way to receive and respond to feedback in multiple languages, including, but not limited to, Chinese and Spanish. They are also required to maintain a multilingual website and app in languages including, but not limited to, Chinese and Spanish. The app and other customer interface technology must be fully accessible to persons with disabilities and accessible to screen readers, and must comply with Section 508 of the United States Workforce Rehabilitation Act of 1973.

Vendors must offer a low-income customer plan that waives any applicable deposit and offers an affordable cash payment option to any customer with an income level at or below 200% of the federal poverty guidelines, subject to annual renewal. CalFresh, PG&E Care and Muni Lifeline eligibility are acceptable income verification proxies for affordability memberships.

---

Vendors are required to prioritize community engagement in seven focus neighborhoods: Chinatown, Tenderloin/SOMA, Western Addition, Mission, Bayview, Outer Mission/Excelsior, and Visitation Valley.

Vendors must also submit a community engagement plan with equity-focused strategies that include, but are not limited to:

- A community advisory board or equivalent
- A local business partnership strategy
- A partnership plan to increase economic and cultural access
- A low-income plan
- A culturally sensitive marketing plan
- A local hire and recruitment plan

### *Eugene*

The document does not contain any language regarding equity. Language about community engagement is limited to an agreement to include the Bicycle Sharing Program in the City's promotional and marketing materials when appropriate.

# Appendix B:

## Interview Guide

- Q0. Did your agency have any role in the creation of the pilot?** (Active Transportation Advocacy Groups)
- Q1. What were your goals when initiating the pilot program?** (City Staff, Active Transportation Advocacy Groups, E-Scooter Operating Companies)
- Q2. How did the pilot tie into long-term plans for your city?** (City Staff)
- Q3. Who were the major players/stakeholder groups involved in the creation of the e-scooter pilot's regulations?** (City Staff)
- Q4. Were the regulations of your city's pilot program proactive or reactive?** (City Staff)
- Q5. Can you speak to some of the immediate successes of the pilot to date?** (City Staff, Active Transportation Advocacy Groups, E-Scooter Operating Companies)
- Q6. Have there been any drawbacks to the implementation of the pilot? If so, what?** (City Staff, Active Transportation Advocacy Groups, E-Scooter Operating Companies)
- Q7. Has your Vision Zero Plan played a role in the development of the pilot? If so, how?** (City Staff, Active Transportation Advocacy Groups)
- Q8. How did you determine a max fleet size cap? What might influence a decision to adjust the cap?** (City Staff)
- Q9. How did you determine system regulations? Such as speed limits and where e-scooters would be allowed to operate.** (City Staff)
- Q10. Aside from the Operating Company, were/are there other funding sources being used to implement/complement this program? If so, what?** (City Staff)
- Q11. Do you aim to facilitate integration between these modes and public transit? If so, how?** (City Staff, Active Transportation Advocacy Groups, E-Scooter Operating Companies)
- Q12. There has been anecdotal evidence of a surge in scooter-related injuries. Has this been your experience?** (City Staff, Active Transportation Advocacy Groups, E-Scooter Operating Companies)
- Q13. To what end do you plan to use data generated by the devices?** (City Staff, E-Scooter Operating Companies)
- Q14. What lessons have you learned from this pilot that you would like to share with others considering initiating a pilot?** (City Staff, Active Transportation Advocacy Groups, E-Scooter Operating Companies)
- Q15. How successful have your e-scooter pilot program's equity regulations been in achieving their equity goals?** (City Staff, Active Transportation Advocacy Groups)
- Q16. Is there anything else you would like to add?** (City Staff, Active Transportation Advocacy Groups, E-Scooter Operating Companies)
- Q17. What happened during the four-month gap between banning and again allowing e-scooters?** (City Staff in San Francisco only)

# Appendix C:

## Interview Analysis

Interview response summaries from Eugene representatives have been separated out for some questions. This is to help understand the goals, objectives, and needs of Eugene as they move forward in establishing their own e-scooter pilot program.

### **Q0. Did your agency have any role in the creation of the pilot?**

Both the Street Trust (Portland) the Santa Monica Spoke had no formal role in the development of their respective cities' e-scooter pilot regulations. They did both, however, play a supportive role after each city's pilot program was launched.

### **Q1. What were your goals when initiating the pilot program?**

*(see Table 10)*

### **Q2. How did the pilot tie into long-term plans for your city?**

All cities mentioned goals around mode-shift and safety with reference to their Comprehensive/General Plan and their Transportation System Plan (or equivalent). City staff from Santa Monica and Eugene also both mentioned climate related goals concerning greenhouse gas emissions. San Francisco additionally referred to their "SFCTA Emerging Mobility" study, which creates a set of guiding principles for how San Francisco should engage with and respond to new mobility.

### **Q3. Who were the major players/stakeholder groups involved in the creation of the e-scooter pilot's regulations?**

*(see Table 11)*

### **Q4. Were the regulations of your city's pilot program proactive or reactive?**

Santa Monica was the first city to have e-scooters arrive on the streets. As such, their initial permit program was very much reactive. They then regrouped and decided to be proactive through a pilot program. Portland and San Francisco, seeing what had happened in Santa Monica and other cities, made the decision to be proactive and get ahead of the issue.

In San Francisco, the Board of Supervisors had already taken steps to amend the transportation code to allow the MTA to regulate e-scooters. Unfortunately, as that amendment was making its way through the proper channels, e-scooters arrived presenting the need to create impromptu legislation. Essentially, San Francisco was trying to be proactive, but the timing was reactive. They knew what they wanted to do but had to do it faster than otherwise.



**Table 10. Pilot Program Goals by City and Interviewee Category**

Pilot Program Goals			
<b>CITY STAFF</b>			
<b>Santa Monica</b>	<b>Portland</b>	<b>San Francisco</b>	<b>Eugene</b>
<i>Increase mode shift/active transportation for short trips</i>	<i>Mode shift</i>	Additional mobility options	To have e-scooters
	Expand access to opportunities for underserved Portlanders	Equity	Decrease number of automobile trips
Mobility		Accessibility	Not have scooters ridden on sidewalks
	<i>Prevent fatalities and serious</i>	<i>Safety</i>	Utilization of them
Utilizing data to inform decision making		Security of data privacy	Affordable to persons with low-income
Testing a new mobility device		Evaluate new transportation option. Can it:	Used by whole community, not just university students
		Be used for first/last mile trips, Reduce greenhouse emissions (in a fun way),	Safe and respectful
First/last mile		Reduce congestion	Co-existence with other modes of transportation
<i>Greenhouse gas reduction</i>	<i>Reduce air pollution</i>	Permit as a way to minimize burden on city agencies	
Developing partnership with companies			
<b>ACTIVE TRANSPORTATION ADVOCATES</b>			
<b>Santa Monica Spoke</b>	<b>Street Trust</b>		<b>BEST</b>
Good data (who's using what, where)	Mode shift		Increased transportation options (more safe, practical, affordable, clean options)
Pedestrian safety	Increased non-auto options		
Equity	Scooters in bike lanes		
<b>COMPANIES</b>			
<b>Lime</b>	<b>Skip</b>	<b>Bird</b>	
Reimagine life through urban mobility	Mobility as means of achieving human progress	Make cities more livable	
Affect business, Reduce VMT, Reduce emissions, Get people joyously engaged with their environment		Reduce car use	
		Reduce traffic	
		Reduce emissions	
Get people to ride	Sustainable business		
Profitability	Community partner		

**Table 11. Stakeholders Involved in Each Case Study City’s Pilot Program Development**

Stakeholders Involved				
Santa Monica	Portland	San Francisco	Eugene	
	Internal	Internal	City Agencies	Bikeshare Feasibility Study
Council	Regulatory division	The Port		LTD
City Managers Office	Active Transit division	Public Works		UO
Police Dept	Regional Policy and Innovation Group			Public Open House
City Attorney	Business and technology services			Business Organizations
Planning				City Staff
Transportation		Supervisors offices (districts 3 & 6)		Bike/Food/Beer/Tech sectors
Risk Management and Civil Liabilities				
	External	External		Future Stakeholders Would Be
Residents	Portland parks	Residents		Persons with disabilities
Vendors	Disability groups	Advocates in the Mission		Seniors
	Trimet			
	Bicycles Advisory Committee			
	Pedestrian Advisory Committee			
	Downtown Business Alliance			

*(Question 4 Continued)*

Portland, on the other hand, was able to put a pilot in place before e-scooters arrived in their city. This involved conversations with the pedestrian advisory committee in which it was decided that, “We’re doing this as an extension of Portland values!” The pilot was set up as a means of both identifying the opportunities and challenges of e-scooters and conducting public engagement about the new service. The second pilot the push to be proactive is continued through the work done studying the effects of Seattle’s dockless bike-share program on parking behavior.

**Q5. Can you speak to some of the immediate successes of the pilot to date?**

*City Staff*

San Francisco could not speak to this question.

Santa Monica joked that “success” is a funny word, because the experience has been a messy one, however, they do claim the successes of meeting the goal for partnership by companies being present at the table, achieving the goal of increasing mobility, and achieving a sense of order via the pilot because, “Trying to define an ordinance in the absence of knowing what these things are would have been nearly impossible.”

---

*(Question 5 Continued)*

Portland directed me to their “2018 E-Scooter Findings Report” which claims meeting their established goals as successes. This includes a reduction in private vehicle use, the reduction of greenhouse gas emissions, and expanded access for underserved Portlanders. Facts provided in the report to support this include:

- When thinking of the last e-scooter ride they took, 34% of residents claimed they would have used a personal vehicle if an e-scooter had not been available; 15% would have used a taxi/Uber/Lyft.
- Answering the same question, 34% of visitors and tourists responded that they would have used a taxi/Uber/Lyft; 14% would have used a personal car.
- E-scooters attracted new people to active transportation - 74% of respondents claim to have never use Portland’s bike-share system, and 42% do not use a bicycle at all.
- E-scooter replaced approximately 302,000 vehicle miles traveled.
- Many black and east Portlanders expressed enthusiasm and support for e-scooters.

*Advocates*

Advocates saw as successes for their cities’ pilot programs the fact that usage has been much higher than expected and that parties are talking to one another. Additionally, the ability to collect data, including data about where and how companies operate in terms of educations and staging mobility devices.

*E-Scooter Vendors*

Representatives from e-scooter operating companies claimed as immediate successes the level of utilization of the product (three to five rides per scooter per day in Portland), that people are having fun while riding them, and that they have helped to reduce greenhouse gas emissions (86 tons of carbon were *not* released into the atmosphere during the four-month Portland pilot). Additionally, the ability to be a good community partner by helping to elevate the voice of advocates calling for safer streets.

**Q6. Have there been any drawbacks to the implementation of the pilot? If so, what?**

*City Staff*

San Francisco could not speak to this question.

Santa Monica mentioned as drawbacks the intensive demand on time and resources the pilot created, and that working with multiple companies at once has been challenging. They also noted the political capital that Council spent in taking a risk on the relatively new tactic of implementing a pilot program.

As with the question about successes of the pilot to date, Portland referred to the “2018 E-Scooter Findings Report” for any discussions of drawback to the pilot program. The major categories of drawbacks the report described were sidewalk riding and parking behaviors, and equitable access to services.

- In response to the questions about pilot program successes, staff mentioned that black and east Portlanders were excited by the introduction of e-scooters. At the same time, it was noted that there was a fear that they could be subject to racial profiling by riding e-scooters.
- Sidewalk riding reduced pedestrian comfort. However, users demonstrated a strong preference for using bikeways and other protected infrastructure. The act of sidewalk riding seems to have a correlation to the absence of protected infrastructure and/or the presence of high-speed streets.

---

*(Question 6 Continued)*

- While most e-scooters are being parked correctly, more work is needed to assure safety and access for pedestrians and persons with disabilities.
- Only one of the three companies operating during the pilot fully complied with the East Portland fleet distribution agreement.

*Advocates*

Advocates from Santa Monica expressed that there were too many companies operating at once, and that the pilot should be smaller in scope. Additionally, staff believe that fleet caps should be fixed at first, with the possibility of being revised after a program evaluation. This was related to the fact that the warm weather season has begun and that there is a current fear that the current flexible cap might lean to a chaotic littering of units throughout the community.

Advocates from both Santa Monica and Portland talked about the competition for non-automobile dominated space, and how that can cause conflicts within bicycle lanes or on the sidewalks. They believe, however, that the solution is NOT restricting non-automobile choices, but rather to increase the amount of public space allotted for non-automobile travel.

*E-Scooter Vendors*

E-scooter company vendors also mentioned the challenge of sidewalk riding and improper parking, but stated the need for educational tools on these topics in order to help create a new normal of behavior. Additionally, there was discussion that companies are being charged fees that are drastically higher in comparison to other modes using the public right of way. The analogy was made that levying high fees on services that help to facilitate mode-shift, a stated goal, is like taxing fruits and vegetables to fight obesity.

**Q7. Has your Vision Zero Plan played a role in the development of the pilot? If so, how?**

Vision Zero did not directly influence an e-scooter pilot in each city through regulations, but rather came into play in tandem. San Francisco talked about it's just a given that every aspect of what they city does should be contributing to Vision Zero. Santa Monica spoke about how concern for user safety was the impetus to paint bike lanes green to increase visibility; this was funded by operating companies paying to use the public right-of-way. Both city staff and advocates from Santa Monica also discussed the city's "Know Before You Go" education and outreach efforts focused on promoting knowledge of the rules of the road. Portland again directed me to their "2018 E-Scooter Findings Report" which discusses the city's goal to prevent fatalities and serious injuries on Portland streets, which is the basis of Vision Zero. Advocates, however, mentioned that e-scooters had not been formally brought to the Vision Zero Committee.

*Eugene*

Eugene staff raised concerns about user compliance in terms of safety and posed the rhetorical questions of if they can't get people on bicycles to comply with safety regulations, how are they going to get compliance from e-scooter users? The active transportation advocate said that they do not believe e-scooters pose a fatal or life-changing threat to either the people who use them or others around them. This was clarified further by saying that from a Vision Zero standpoint, it's not that there isn't any concern, it's just a lesser one.

---

**Q8. How did you determine a max fleet size cap? What might influence a decision to adjust the cap?**

All city staff discussed using their experience with bike share to inform their e-scooter fleet size.

In Portland, the city was already considering doubling their bike share fleet (which currently operates 1,000 units). Due to this, it was decided to use e-scooters to demo what that doubling would look like. For their first pilot, they allowed just over 2,000 units; for their second, they plan to increase that to 2,500. They have also built incentives into their second pilot to encourage better distribution of units.

In San Francisco, they had the additional experience of e-scooters operating before a proper regulatory program was in place. It is estimated that about 2,500 units were operating during that time, so for a proper pilot they decided to allow up to this number, but with regulations in place to better enforce distribution throughout the city.

Santa Monica took a different approach, incorporating operating company perspective into knowledge from bike share. They took the approach of asking companies to tell *them* what they thought the proper number of units would be to equitably distribute them across the city without creating an oversupply. The majority of companies responded 500 units. The decision for a dynamic cap came from City Council.

When asked about what might influence each city to adjust their fleet sizes, both Santa Monica and Portland mentioned a cocktail of factors consisting of utilization rates and company performance measures. Such performance measures include but are not limited to: maintenance of fleet vehicles, responsiveness to service requests and safety/security concerns, measures taken to eliminate sidewalk riding and parking, community engagement and safety workshops, and steps taken to reduce vehicle miles traveled for units. Similarly, San Francisco stated that a combination of user feedback and data about violations would inform such a decision.

*Eugene*

When designing their bike share system, Eugene put out a Request for Proposals to bike share companies asking for a minimum of 200 bikes; SoBi (Social Bicycles, now JUMP) was the company that offered to deploy the most units. Looking forward to e-scooters, city staff believe that most companies seek to deploy a minimum of 500 units. If this is the case, Eugene may find itself with more shared e-scooters than shared bikes, at least until the bike share program can expand. Staff are also considering using a phased approach to deployment at such time as a pilot is in place. Looking even further ahead to when an e-scooter fleet size might need to be adjusted, Eugene is considering using a scooter utilization plus performance measures approach. For Eugene, performance measures would include distribution and coverage rates as well as the behavior of people who recharge devices.

**Q9. How did you determine system regulations? Such as speed limits and where e-scooters would be allowed to operate.**

City staff stated that existing laws and regulations helped to inform their pilot program system regulations. Laws includes speed limits, helmet laws, and laws concerning where e-scooters can and cannot operate. In Portland, operating perimeters are the city limits minus parks, where existing laws prohibit their use. San Francisco left defining operating perimeters open to companies during the application process. Bonus points were given to companies willing to serve a more diverse swath of the city, not just the downtown core.

---

*(Question 9 Continued)*

Concerning parking regulations, scooter policies were informed by where bicycles can park. When writing regulatory language for parking, San Francisco saw their role to be to clarify the public works code language to be more accessible for the everyday citizen to be able to read and understand. Likewise, Santa Monica created approximately 100 pickup/dropoff zones to help meet their goal of equitable distribution.

*Eugene*

When creating system regulations for a future e-scooter pilot, the predominant factor for Eugene will be the ability to follow through with enforcement. Of concern to Eugene city staff is the fact that currently, bikes are not always properly parked. At the same time, they are informed by recent studies, including Fang et al., who demonstrated that e-scooter parking may not be the huge problem it tends to be depicted as by conducting an observational study of San Jose, CA where only 2% of observed e-scooters were improperly parked (Fang et. al, 2018). They would also want to limit the speed of e-scooters to no more than 15mph and are open to using geofencing to monitor and control device speeds as the technology progresses.

**Q10. Aside from the Operating Company, were/are there other funding sources being used to implement/complement this program? If so, what?**

Only Santa Monica mentioned using funds obtained outside of the pilot program fees. They obtained money from a settlement agreement stemming from the period when e-scooter companies were operating unpermitted. That money was used to fund a safe riding education campaign.

All cities discussed using the permit fees to cover the overhead administration of their pilot programs. Because this type of program is so new, cities are still learning the amount of staff hours and city resources it takes to sufficiently administer such a program. Expenses to be considered include project startup; application review; program administration, monitoring, and evaluation; educational materials and public outreach. As such, the degree to which each city's pilot program fees are adequately covering those expenses varies.

*Eugene*

Eugene knows it will need to sufficiently cover staffing and program administration. Staff have mixed feelings about enacting trip surcharges and leveraging large permit fees that might be kicked back on to e-scooters users. They are concerned that overcharging for the service will deter community members from using it, thus negatively impacting the city's goal of encouraging mode-shift behavior.

**Q11. Do you aim to facilitate integration between these modes and public transit? If so, how?**

Of the ten agencies/organizations/companies formally interviewed, only three responded to this question: Lime, BEST, and City of Eugene staff.

Lime and BEST both spoke to the need for fare integration. Further, Lime spoke about how they meet with transit agencies and identify transit deserts for each city they go to as a way of determining potential deployment areas. Additionally, they also discussed the need for micro-mobility hubs to be located near transit stations.

---

*(Question 11 Continued)*

When posed with the question about units being improperly parked at stations and blocking access, Lime stated that means need to be put in place to create an established normality of desired parking behavior. What those means are, they did not mention. Likewise, Eugene stated that the issue would be one for LTD, the local transit agency, to address. They also stated that decisions made by LTD on the topic should be communicated to city staff so they could write it into pilot regulations.

**Q12. There has been anecdotal evidence of a surge in scooter-related injuries. Has this been your experience?**

*City Staff*

San Francisco could not comment, but both Santa Monica and Portland acknowledged that injuries do happen, although they do not tend to be severe. Santa Monica does not yet have formal data available for injuries, making it difficult to compare to injury statistics for bicycling and walking. Portland utilizes data from Multnomah County Health Department's data-informed evaluation, "Scooter-related Injuries in Multnomah County July-November 2018." Statistics found in this evaluation include:

- E-scooters accounted for only 5% of the transportation-related emergency department or urgent care visits in the pilot program timeframe
  - The most common cause was falling off the devices (83%)
  - The second most common cause was collision with a car or truck (14%)
  - Nine percent (9%) of incidents involved evidence of intoxication
  - Sidewalk riding and e-scooter malfunctions were indicated in one percent (1%) of incidents (Multnomah County, 2019)

*Advocates*

All active transportation advocates interviewed expressed concern for user safety. There was some belief that, any initial spike in injury levels may be due to initial exuberance for a new technology and that early adopters may be more inclined to risk-taking. The need for education and outreach about safe riding was stated as was means of mitigating this. Additionally, advocates compared scooter injuries to the number of people who die each year due to automobiles (37,000 in 2017, the most recent year on record (NHTSA, n.d.)). This was to demonstrate how injuries and deaths caused by automobiles, in the larger landscape of public thought and discussion, don't lead to questions about if automobiles should be allowed to operate. Concern about the influence of e-scooter companies on the regulatory process was also mentioned. This was specifically in relation the state-level lobbying companies are engaged in regarding helmet use and the removal of some local controls concerning where e-scooters can and cannot operate, thus potentially pushing e-scooter use into areas that they cannot be safely operated in.

---

*(Question 12 Continued)*

*E-Scooter Vendors*

Representatives from Lime and Spin both expressed the need for safe infrastructure for e-scooter users of all backgrounds. “If you build infrastructure that only acceptable for 20-year-old men, then you’ll only get 20-year-old men using them. There’s a different risk matrix for a mom or grandpa versus a young man” (Lime Representative). Additionally, both Lime and Bird cited user safety studies – the Multnomah County Health Department study (Multnomah County, 2019) and Bird’s own study (Bird, 2019) – that concluded that using an e-scooter was no more dangerous than using a bicycle.

**Q13. To what end do you plan to use data generated by the devices?**

*City Staff*

San Francisco was not able to comment on this question.

Both Santa Monica and Portland stated that they use the data to inform infrastructure and enforcement decisions. Due to limited space, sometimes adding certain types of infrastructure necessitates removing other forms of infrastructure. This is especially seen when bike lanes infringe on car parking. Having the data to support infrastructure decisions helps to support city staff. Portland used Twitter to communicate numbers and facts through weekly Tweets.

“Numbers helped to make it real for people and helped to communicate facts... helped the city to learn what challenges and opportunities exist and how to reach goals, like access for more people.” - Representative from PBOT

The data helped to clarify the perception of who is using e-scooters, and established that in Portland scooters are being used as a means of transportation and not just recreation. This finding helped the City of Portland to decide to conduct a second pilot.

Regarding infrastructure, types mentioned by both cities include bike lanes, curb extensions, and designated parking locations. This includes “right-sizing” pick-up/drop-off zones and fleet sizes.

*E-Scooter Vendors*

Lime stated that they collect as little data as possible, and what they do collect they share with cities to help inform infrastructure decisions. They also mentioned a dashboard they provide so that cities can view data in real time. On the topic of data, Spin, through the conference panel they participate in, expressed concern about potential privacy laws being violated through data collection.

*Eugene*

Eugene stated that they would not seek to collect any data extra from the industry standard and that they would like to inform their data collection approach by what other cities have done. They are considering using third-party data aggregators like Remix, Ride Report, and Ride Amigos. They are also considering using data for enforcement purposes.



---

**Q14. What lessons have you learned from this pilot that you would like to share with others considering initiating a pilot?**

San Francisco was not able to comment on this question. Portland pointed to their “2018 E-Scooter Findings Report” as being a summary of their lessons learned, including the successes and drawbacks discussed previously. Santa Monica, however, had more to say:

- More is not better, in terms of the number of companies you allow to operate at once.
- Be cognizant of the large amount of time and energy it takes to build a functional partnership between the city and the operating companies.
- Data, especially consistent data, are really important.
- Enforcement is really hard. Because devices are frequently in motion, when a complaint is received, it is usually gone by the time an official gets to the scene.
- It costs more money than you think it will to run a pilot program.
- The people you think are the ones riding e-scooters (25-45 year old men who make money) *are* the ones primarily riding them.
- It is difficult to get private companies to engage with the education and equity components of the program.

The Lime representative likewise listed the lessons they had learned through their partnerships with various cities:

- Launch it thoughtfully and collaboratively. See what happens, but also educate people. Don't just stop a program because that will interrupt reliability.
- Partnerships between cities and the private sector are key for symbiotic improvement of both.
- Bike infrastructure matters.
- E-scooters expand the pool of options. Car drivers become more willing to leave their car and learn how to navigate without one.
- People love it.

Learning to use one is like learning to ride a bike.

**Q15. How successful have your e-scooter pilot program's equity regulations been in achieving their equity goals?**

San Francisco could not comment on this question.

Portland pointed to their “2018 E-Scooter Findings Report” which states that, “E-scooters have the potential to expand opportunity and access for underserved Portlanders, though barriers exist” (PBOT, 2018). As discussed in the Question 6 in this appendix, those barriers include the fear of racial profiling and lack of knowledge about e-scooter laws and low-income plans.

Santa Monica city staff stated that they believed an equity-based distribution requirement was the right way to go, but difficult to enforce. Enforcement is complicated by the ability to compel the behavior of private companies that are driven by financial profit when it may not behoove their bottom line.

---

(Question 15 Continued)

Advocacy representatives also believed that there was room for improvement to address equity issues. The Street Trust discussed the incomplete greenway network and unpaved streets in East Portland to illuminate the point that until better infrastructure is implemented, there will be access issues that prevent equity goals from being realized. They also called for a critical review of the entire transportation network, from bikes to buses to cars to the recent reliance on smartphones and bank accounts, because “just focusing on e-scooters isn’t going to get households what they need.”

Eugene

Eugene values equity, but is concerned about the lack of success in other cities for both e-scooters and bike share. This concern was echoed by BEST. The City has expressed an interest in pursuing an equity policy that allows high schoolers to use scooters.

**Q16. Is there anything else you would like to add?**

Santa Monica issued a warning about depending on a private sector entity to provide a public service good. They also noted that during their “winter season,” when tourism is lowest, a higher percentage of people were observed to be riding correctly - not on sidewalks and with helmets on. This demonstrates that people can and do learn how to be safer, and that education is worth it.

Portland spoke to the bigger question of “*Why?*” as in, “Why initiate a pilot program to begin with?” Portland’s ‘why’ was reaching congestion and pollution reduction goals - that if they kept with the status quo, they would never get there. It is their belief that while e-scooters weren’t planned, they are an opportunity that can be harnessed. Further, the representative interviewed stated their belief that in relation to the bigger challenges of an increasing population, and of people dying due to cars, e-scooters are an opportunity that is worth experimenting with. The Street Trust also stated that they were happy that Portland took that chance and are excited for e-scooters to return.

The Santa Monica Spoke talked about the decades of bicycle and pedestrian advocacy that had already taken place and laid the foundation for e-scooters to be able to launch in Santa Monica. Spoke staff believe that e-scooter companies need to be more deferential to these advocacy groups, recognizing the work they did that has created an environment in which e-scooters can flourish. “There tends to be a car versus bike argument which is sometimes blown out of proportion. We tend to elevate the differences instead of looking at the similarities. Joining forces with advocacy organizations, to not usurp them but work with the, would be a great model moving forward.”

**Q17. What happened in San Francisco during the four-month gap between banning and again allowing e-scooters?**

E-scooters were off the streets by June 4th based on when the Board of Supervisors passed changes to transportation code went into effect; they were no longer allowed to operate without a permit. Between then and October 15th, when permits went into effect, San Francisco was working hard on evaluating permit applications that came in, which was then followed by another process for finalizing permit details after the selected companies were announced in August. There was a level of concern about if e-scooters would be allowed to continue to operate during that period, but it was made it clear that it would be reflected poorly in permit applications if vendors violated the law during that period.

# Appendix D: E-Scooter Cities and Companies, May 2019

## **Table 12. Cities with E-Scooters and the Vendors Operating in Those Cities**

(See the Following Pages for Known E-Scooter Vendors  
and the Cities each Vendor Operates in, as of May 2019)

	Bird	Lime	Spin	Lyft	JUMP	Razor	Bolt	Skip	Ojo	Scoot	Frog	Glide	Sun Scooter	Wheels
Troy, AL			X											
Russelville, AR	X													
Mesa, AZ	X	X	X	X	X									
Phoenix, AZ					X									
Scottsdale, AZ	X	X	X	X	X	X								
Tempe, AZ	X					X								
Little Rock, AR		X												
Campbell, CA	X													
Culver City, CA	X	X												
El Cajon, CA	X													
El Cerrito, CA		X												
Emeryville, CA	X													
Isla Vista, CA	X		X											
La Mesa, CA	X													
Long Beach, CA	X	X	X			X								
Los Angeles, CA	X	X	X	X	X	X								X
Oakland, CA	X	X	X											
Piedmont, CA	X													
Riverside, CA	X	X												
Sacramento, CA		X			X									
San Diego, CA	X	X	X	X	X	X								
San Francisco, CA							X			X				
San Jose, CA	X													
Santa Ana, CA	X												X	
Santa Monica, CA	X	X		X	X									
South Lake Tahoe, CA		X												

	Bird	Lime	Spin	Lyft	JUMP	Razor	Bolt	Skip	Ojo	Scoot	Frog	Glide	Sun Scooter	Wheels
Aurora, CO	X													
Denver, CO	X	X	X	X		X								
Washington, DC	X	X	X	X	X			X						
Coral Gables, FL	X		X											
Fort Lauderdale, FL	X	X					X							
Miami, FL	X	X	X	X	X		X							
Atlanta, GA	X	X	X	X	X									
Decatur, GA	X													
Statesboro, GA		X												
Boise, ID	X	X	X											
Bloomington, IN	X	X	X											
Indianapolis, IN	X													
South Bend, IN		X												
West Lafayette, IN	X													
Covington, KY	X													
Lexington, KY			X											
Louisville, KY	X	X												
Lafayette, LA	X													
Thibodaux, LA			X											
Baltimore, MD	X	X	X		X									
Brookline, MA	X	X												
Ann Arbor, MI			X											
Detroit, MI	X	X	X											
East Lansing, MI	X													
Windor, MI	X													
Columbia, MO	X	X												
Jefferson City, MO			X											
Kansas City, MO	X	X												
St. Louis, MO	X	X												

	Bird	Lime	Spin	Lyft	JUMP	Razor	Bolt	Skip	Ojo	Scoot	Frog	Glide	Sun Scooter	Wheels
Saint Paul, MN		X												
Hoboken, NJ		X												
Cary, NC	X													
Charlotte, NC	X	X	X											
Durham, NC			X											
Greensboro, NC	X	X												
Morrisville, NC	X													
Winston-Salem, NC	X													
Las Cruces, NM			X											
Cincinnati, OH	X	X												
Columbus, OH	X	X												
Oxford, OH	X	X												
Oklahoma City, OK		X												
Norman, OK	X													
Tulsa, OK	X	X												
Stillwater, OK	X	X	X											
Portland, OR		X	X				X							
Providence, RI	X	X												
Knoxville, TN			X											
Memphis, TN	X	X												
Nashville, TN	X		X	X	X									

	Bird	Lime	Spin	Lyft	JUMP	Razor	Bolt	Skip	Ojo	Scoot	Frog	Glide	Sun Scooter	Wheels
Abilene, TX	X													
Austin, TX	X	X	X	X	X				X		X			
Dallas, TX	X	X		X	X				X					
El Paso, TX												X		
Highland Park, TX	X													
Lubbock, TX		X												
Plano, TX		X												
San Antonio, TX	X	X		X	X	X								
Shavano Park, TX	X													
University Park, TX	X													
St. George, UT			X											
Salt Lake City, UT	X	X												
Ogden, UT		X												
Alexandria, VA		X		X										
Arlington, VA	X	X	X	X			X	X						
Charlottesville, VA	X	X												
Harrisonburg, VA	X													
Richmond, VA	X													
Virginia Beach, VA	X													
Spokane, WA		X												
Tacoma, WA	X	X												

Source: SmartCitiesDive, May 2019

# References

- Bird. (2019, April). *A Look at e-Scooter Safety: Examining risks, reviewing responsibilities, and prioritizing prevention*. Retrieved from <https://www.bird.co/wp-content/uploads/2019/04/Bird-Safety-Report-April-2019-3.pdf>
- City of Santa Monica. (2018, July 10). *City of Santa Monica Shared Mobility Device Pilot Program Administrative Regulations*. Retrieved from [https://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/SM-AdminGuidelines\\_final.pdf](https://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/SM-AdminGuidelines_final.pdf)
- Clewlou, R. (2018, December 21). The Year Of The Scooter: The Good, The Bad, And The Road Ahead. Retrieved April 30, 2019, from Forbes website: <https://www.forbes.com/sites/reginaclewlow/2018/12/21/the-year-of-the-scooter-the-good-the-bad-and-the-road-ahead/>
- Department of Numbers. (n.d.). Portland Oregon Household Income. Retrieved June 6, 2019, from <https://www.deptofnumbers.com/income/oregon/portland/>
- Fang, K., Agrawal, Ph.D., A. W., Steele, J., Hunter, J. J., & Hooper, A. M. (2018, November). *Where Do Riders Park Dockless, Shared Electric Scooters? Findings from San Jose, California*. Retrieved from <https://transweb.sjsu.edu/sites/default/files/1713-WP2-Scooter-Parking.pdf>
- Fang, K., Steele, J., Hunter, J. J., & Hooper, A. M. (n.d.). *Where Do Riders Park Dockless, Shared Electric Scooters? Findings from San Jose, California*. 5.
- Fonseca, R. (2018, July 27). A Guide To LA's Scooter Chaos: What You Can (And Can't) Do On Birds And Limes. Retrieved April 30, 2019, from LAist website: <https://laist.com/2018/07/27/las-scooter-takeover-what-you-can-and-cant-do-on-birds-and-limes.php>
- Garsd, J. (2018, July 28). Scooters: Sidewalk Nuisances, Or The Future Of Local Transportation? Retrieved November 25, 2018, from NPR.org website: <https://www.npr.org/2018/07/28/631812255/scooters-sidewalk-nuisances-or-the-future-of-public-transportation>
- Geoffrey A. Fowler, & Hayley Tsukayama. (2018, April 19). Review | Electric scooters might revolutionize urban transport — if it wasn't for stupid humans. Retrieved November 25, 2018, from Washington Post website: <https://www.washingtonpost.com/news/the-switch/wp/2018/04/19/electric-scooters-might-revolutionize-urban-transport-if-it-wasnt-for-stupid-humans/>



- Goodman, J. (2018, September 20). Bike Sharing Expands in Washington. Retrieved June 7, 2019 from The New York Times website: <https://green.blogs.nytimes.com/2010/09/20/bike-sharing-expands-in-washington/>
- Grifoni, P., D'Andrea, A., Ferri, F., Guzzo, T., Angeli Felicioni, M., Praticò, C., & Vignoli, A. (2018). Sharing Economy: Business Models and Regulatory Landscape in the Mediterranean Areas. *International Business Research*, 11(5), 62. <https://doi.org/10.5539/ibr.v11n5p62>
- Gutman, D. (2018, September 30). Seattle embraced dockless bike shares, but bans scooter ones. How come? Retrieved November 25, 2018, from The Seattle Times website: <https://www.seattletimes.com/seattle-news/transportation/seattle-embraced-dockless-bike-shares-but-bans-scooter-ones-how-come/>
- Handy, S., & Shah, N. (2017, February). *Policy Brief: Active Transportation in an Era of Sharing, Electification and Automation*. Retrieved from [https://3rev.ucdavis.edu/wp-content/uploads/2017/03/3R.Active.InDesign.Final\\_.pdf](https://3rev.ucdavis.edu/wp-content/uploads/2017/03/3R.Active.InDesign.Final_.pdf)
- Holder, S. (2019, January 10). Anatomy of an Electric Scooter Crash. Retrieved April 30, 2019, from CityLab website: <https://www.citylab.com/transportation/2019/01/scooter-crash-accidents-safety-liability-bird-lime/577687/>
- Holley, P. (2019, January 11). Pedestrians and e-scooters are clashing in the struggle for sidewalk space. Retrieved April 30, 2019, from Washington Post website: [https://www.washingtonpost.com/business/economy/pedestrians-and-e-scooters-are-clashing-in-the-struggle-for-sidewalk-space/2019/01/11/4ccc60b0-0ebe-11e9-831f-3aa2c2be4cbd\\_story.html](https://www.washingtonpost.com/business/economy/pedestrians-and-e-scooters-are-clashing-in-the-struggle-for-sidewalk-space/2019/01/11/4ccc60b0-0ebe-11e9-831f-3aa2c2be4cbd_story.html)
- Holley, P. (2018, September 24). Hospital ER reports 161 percent spike in visits involving electric scooters. Retrieved November 25, 2018, from Washington Post website: <https://www.washingtonpost.com/technology/2018/09/24/hospital-er-reports-percent-spike-visits-involving-e-scooters/>
- Jaffe, E. (2015, June 8). How Much Money U.S. Transit Systems Lose Per Trip, in 1 Chart. Retrieved June 6, 2019, from Citylab website: <https://www.citylab.com/transportation/2015/06/how-much-money-us-transit-systems-lose-per-trip-in-1-chart/395189/>
- Jose, B. (2018, May 22). Powered Scooter Share Permit and Pilot Program [Text]. Retrieved November 29, 2018, from SFMTA website: <https://www.sfmta.com/projects/powered-scooter-share-permit-and-pilot-program>
- Kraus, R. (2018, June 18). Nextdoor descends into chaos over e-scooter drama. Retrieved April 30, 2019, from Mashable website: <https://mashable.com/article/e-scooters-nextdoor-neighborhood-fights/>
- Light, S. E., & Davidson, N. (2017, October 5). *The Role of the Federal Government in Regulating the Sharing Economy*. Retrieved from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3047322](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3047322)
- Lime. (2018a). *Lime One Year Report*. Retrieved from [https://www.limebike.com/hubfs/Lime\\_Official\\_One\\_Year\\_Report.pdf](https://www.limebike.com/hubfs/Lime_Official_One_Year_Report.pdf)
- Lime. (2018b, June 19). *San Francisco Scooter Use Survey Results*. Retrieved from <https://www.li.me/hubfs/Lime%20San%20Francisco%20Scooter%20Survey%20Findings.pdf>
- Marshall, A. (2018, December 30). 2018 Was the Year of the Scooter. What Happens Now? *Wired*. Retrieved from <https://www.wired.com/story/2018-year-of-the-scooter-what-happens-2019/>

- Melamed, S. (2018, August 20). Electric scooters have brought chaos and outrage in cities across the country. Is Philly next? Retrieved April 30, 2019, from <https://www.philly.com> website: <https://www.philly.com/philly/news/pennsylvania/philadelphia/electric-scooters-philadelphia-bird-lime-skip-share-dockless-20180820.html>
- Multnomah County, H. D. (2019, January 14). *Scooter-related Injuries in Multnomah County July-November 2018*. Retrieved from <https://www.portlandoregon.gov/transportation/article/709715>
- NABSA. (2018, January). *Dockless Bikeshare Regulation Preliminary Guidance: Version 1*. Retrieved from <https://nabsa.net/wp-content/uploads/2017/09/Dockless-Regulation-Preliminary-Guidance-1.pdf>
- NACTO. (2018, July). *Guidelines for the Regulation and Management of Shared Active Transportation*. Retrieved from <https://nacto.org/wp-content/uploads/2018/07/NACTO-Shared-Active-Transportation-Guidelines.pdf>
- NACTO. (2019, April). *Shared Micromobility in the U.S.: 2018*. Retrieved from [https://nacto.org/wp-content/uploads/2019/04/NACTO\\_Shared-Micromobility-in-2018\\_Web.pdf](https://nacto.org/wp-content/uploads/2019/04/NACTO_Shared-Micromobility-in-2018_Web.pdf)
- NACTO. (2017). *Bike Share in the US: 2010-2016*. Retrieved November 25, 2018, from National Association of City Transportation Officials website: <https://nacto.org/bike-share-statistics-2016/>
- National Highway Traffic Safety Administration (NHTSA). (n.d.) *Fatality Analysis Reporting System (FARS) Encyclopedia*. Retrieved April 30, 2019 from <https://www-fars.nhtsa.dot.gov/Main/>
- Oregon Department of Human Services Office of Forecasting, Research, & Analysis. (2015a, May). *High Poverty Hotspots - South Eugene, Lane County*. Retrieved from <https://www.oregon.gov/dhs/business-services/ofra/Documents/High%20Poverty%20Hotspots%20Lane%20Eugene%20South.pdf>
- Oregon Department of Human Services Office of Forecasting, Research, & Analysis. (2015b, May). *High Poverty Hotspots - West/Central Eugene, Lane County*. Retrieved from <https://www.oregon.gov/dhs/business-services/ofra/Documents/High%20Poverty%20Hotspots%20Lane%20Eugene%20West%20Central.pdf>
- Oversharing. (2019, February 26). *Shared scooters don't last long*. Retrieved June 6, 2019, from <https://oversharing.substack.com/p/shared-scooters-dont-last-long>
- Populus. (2018a, July). *The Micro-Mobility Revolution: The Introduction and Adoption of Electric Scooters in the United States*. Retrieved from <https://www.populus.ai/micro-mobility-2018-july/>
- Populus. (2018b, November). *Measuring Equitable Access to New Mobility: A Case Study of Share Bikes and Electric Scooters*.
- Portland Bureau of Transportation. (2018a, October). *2018 E-Scooter Pilot User Survey Results*. Retrieved from [https://www.portlandoregon.gov/transportation/article/700916?utm\\_medium=email&utm\\_source=govdelivery](https://www.portlandoregon.gov/transportation/article/700916?utm_medium=email&utm_source=govdelivery)
- Portland Bureau of Transportation. (2018b, November). *2018 E-Scooter Findings Report*. Retrieved from <https://www.portlandoregon.gov/transportation/article/709719>
- Portland Bureau of Transportation. (n.d.). *Frequently Asked Questions (FAQ) | Shared Electric Scooter Pilot | The City of Portland, Oregon*. Retrieved November 29, 2018, from <https://www.portlandoregon.gov/transportation/article/692208>

- 
- Prichep, D. (2018, October 15). As E-Scooters Roll Into American Cities, So Do Safety Concerns. Retrieved November 29, 2018, from NPR.org website: <https://www.npr.org/sections/health-shots/2018/10/15/656270365/as-e-scooters-roll-into-american-cities-so-do-safety-concerns>
- Remix. (2018, November). *Remix Mobility Brief: Micromobility Policy Survey*.
- Resilient Organisations. (n.d.). What is organisational resilience? Retrieved June 6, 2019, from <https://www.resorgs.org.nz/about-resorgs/what-is-organisational-resilience/>
- Schmitt, A. (2018, December 19). DEEP DIVE: Are E-Scooters Unsafe At Any Speed? Retrieved April 30, 2019, from Streetsblog USA website: <https://usa.streetsblog.org/2018/12/19/deep-dive-are-e-scooters-unsafe-at-any-speed/>
- Small, A. (2018, December 20). 2018 Was the Year of the Electric Scooter. Retrieved April 30, 2019, from CityLab website: <https://www.citylab.com/transportation/2018/12/scooter-industry-bike-lanes-safety-regulations-cities/578686/>
- SmartCitiesDive. (n.d.). Mapping the impact of dockless vehicles. Retrieved from Smart Cities Dive website: <https://www.smartcitiesdive.com/news/mapping-the-impact-of-dockless-vehicles/539263/>
- Standing, C., Standing, S., & Biermann, S. (2018). The implications of the sharing economy for transport. *Transport Reviews*, 1–17. <https://doi.org/10.1080/01441647.2018.1450307>
- Shared Use Mobility Center. (2015). *Shared-Use Mobility Reference Guide*. Retrieved from [https://sharedusemobilitycenter.org/wp-content/uploads/2015/09/SharedUseMobility\\_ReferenceGuide\\_09.25.2015.pdf](https://sharedusemobilitycenter.org/wp-content/uploads/2015/09/SharedUseMobility_ReferenceGuide_09.25.2015.pdf)
- Shared Use Mobility Center. (2016, March). *Shared Mobility and the Transformation of Public Transit*. Retrieved from <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf>
- Shared Use Mobility Center. (n.d.). What Is Shared Mobility? Retrieved November 29, 2018, from Shared-Use Mobility Center website: <https://sharedusemobilitycenter.org/what-is-shared-mobility/>
- The History of Uber - Uber's Timeline | Uber Newsroom US. (n.d.). Retrieved April 30, 2019, from Uber Newsroom website: <https://www.uber.com/newsroom/history/>
- Transform. (2018, September 20). Ford GoBike is a model for equitable bike share access in the US, thanks to community engagement. Retrieved June 6, 2019, from <http://www.transformca.org/landing-page/ford-gobike-model-equitable-bike-share-access-us-thanks-community-engagement>
- UITP – International Association of Public Transport. (2017). *Unlicensed Dockless Bike Sharing: Common Position Paper*. Retrieved from [https://www.uitp.org/sites/default/files/cck-focus-papers-files/Dockless\\_bikesharing\\_position\\_ECF\\_UITP\\_.pdf](https://www.uitp.org/sites/default/files/cck-focus-papers-files/Dockless_bikesharing_position_ECF_UITP_.pdf)
- Wallsten, S. (2015, June 1). *The Competitive Effects of the Sharing Economy: How is Uber Changing Taxis?* Retrieved from [https://www.ftc.gov/system/files/documents/public\\_comments/2015/06/01912-96334.pdf](https://www.ftc.gov/system/files/documents/public_comments/2015/06/01912-96334.pdf)
-

---

# Image References

- Brinklow, A. (2018, April 13). "Scooters behaving badly' all over San Francisco. Retrieved from: <https://sf.curbed.com/2018/4/13/17236094/scooters-motorized-electric-bay-photos-fallen-sf-sidewalks>
- Cortright, J. (2018, August 2). E-Scooters and Paying for Roads. Retrieved from: <https://www.strongtowns.org/journal/e-scooters-and-paying-for-roads>
- Grab. (2018, November 23). Grab partners NUS to pilot new electric scooter sharing service on campus. Retrieved from: <https://www.grab.com/sg/press/business/grab-partners-nus-to-pilot-new-electric-scooter-sharing-service-on-campus/>
- Hinsdale, J. (2018, October 26). Coming Soon to a City Near You: E-Scooters. Retrieved from: <https://blogs.ei.columbia.edu/2018/10/26/e-scooters-new-york-city/>
- Holley, P. (2018, August 31). The old-fashioned way Portland is trying to regulate new electric scooters. Retrieved from: <https://www.scootersg.com/blogs/usa-news/the-old-fashioned-way-portland-is-trying-to-regulate-new-electric-scooters>
- Jickling, K. (2019, February 20). Residents Wary as Burlington Rolls Out E-Bikes and E-Scooters. Retrieved from: <https://www.sevendaysvt.com/vermont/residents-wary-as-burlington-rolls-out-e-bikes-and-e-scooters/Content?oid=25959712>
- Jones, A. (2019, February 20). As E-Scooters Spread, California Disability Advocates Sue over Right to the Sidewalk. Retrieved from: <https://specialneedsanswers.com/as-e-scooters-spread-california-disability-advocates-sue-over-right-to-the-sidewalk-17064>
- Kohlstedt, K. (2018, August 31). Bird Cages: Tactical Urbanists Spray Paint Parking Spaces for Electric Scooters. Retrieved from: <https://99percentinvisible.org/article/bird-cages-tactical-urbanists-spray-paint-parking-spaces-for-electric-scooters/>
- Korosec, K. (2018, August 30). Reckoning day for scooters. Retrieved from: <https://techcrunch.com/story/reckoning-day-for-scooters/>
- Maus, J. (2018, June 1). PBOT has sent five companies letter of intent to koin dockless e-scooter pilot. Retrieved from: <https://bikeportland.org/2018/06/01/the-oregonian-pbot-sends-five-companies-letter-of-intent-to-join-dockless-e-scooter-pilot-282628>
- Stone L. (2019, February 19). Lime scooters' Brisbane permit extended to middle of the year. Retrieved from: <https://www.brisbanetimes.com.au/national/queensland/lime-scooters-brisbane-permit-extended-to-middle-of-the-year-20190219-p50ytz.html>
- Transportation for America. (2019, January). Shared Micromobility Playbook. Retrieved from: <https://www.micd.org/resource/shared-micromobility-playbook/>
- Weiss, E. (2018, August 30). Are Scooters Destroying Cities—or Saving Them? Retrieved from: <https://www.outsideonline.com/2340806/dockless-scooters-cities-pros-cons-bikesnob>