



# Taxing Shared Micromobility: Assessing The Global Landscape Of Fees And Taxes And Their Implications For Cities, Riders, And Operators

John MacArthur, Portland State University  
Kevin Fang, Sonoma State University  
Calvin Thigpen, Lime



# **Taxing shared micromobility: assessing the global landscape of fees and taxes and their implications for cities, riders, and operators**

June 2024

**Portland State University**

John MacArthur

**Sonoma State University**

Kevin Fang

**Lime**

Calvin Thigpen

## ACKNOWLEDGEMENTS

The authors would like to thank the program staff of shared micromobility programs around the world for sharing their time and perspective in this report's survey. Thank you as well to Brit Moller from Spin / Bird and Zach Williams from Superpedestrian for their assistance.

Thank you to Lily Cella for her review of the report and many helpful suggestions.

Thank you to Samantha Herr (North American Bikeshare and Scootershare Association) and Colin Murphy (Shared Use Mobility Center) for reviewing an early draft and providing constructive feedback and suggestions.

The research team was careful to adopt practices that ensured a high level of ethical academic research. The Sonoma State University and Portland State University researchers gathered summary information from Lime's contracts with cities, and the research team validated the contract data to the extent possible by cross referencing with publicly available documents and other independent sources of data. The survey of cities' shared micromobility program managers was administered by Portland State University, and data analysis of the survey responses is carefully documented in a reproducible analysis script. No financial support was provided for this study, from Lime, Spin / Bird, or Superpedestrian.

## ABOUT TREC

Portland State University's Transportation Research and Education Center (TREC) is home to the U.S. Department of Transportation-funded National Institute for Transportation and Communities (NITC), the Initiative for Bicycle and Pedestrian Innovation (IBPI), PORTAL, BikePed Portal and other transportation grants and programs. We produce impactful research and tools for transportation decision makers, expand the diversity and capacity of the workforce, and engage students and professionals through education and participation in research.

# EXECUTIVE SUMMARY

**Cities' decisions about taxing and spending reflects their policy priorities.** Cities spend their revenue on goods and services that are aligned with their goals and use their power to levy taxes and fees to encourage or discourage conduct in line with those priorities. For example, in the context of urban transportation, most cities subsidize public transit to advance their goals around greater access and mobility to all residents, reduced congestion, and a cleaner environment. Conversely, to achieve many of those same goals, cities like London and Stockholm have imposed congestion fees to discourage people from driving into city centers.

Shared micromobility – largely in the form of shared electric scooters and bikes provided by private companies – is one of the newest transportation options that has come to cities at any scale in the last several decades. Hundreds of cities around the world have created shared micromobility programs in less than a decade, making widely differing policy and financial decisions about how to treat these new modes.

Cities' policy priorities for their transportation systems often revolve around meeting the travel needs of residents while reducing greenhouse gas emissions and improving equity outcomes, and these goals are reflected in the statements made by cities as motivation for operating a shared micromobility system. **But do cities' decisions around fees and taxes reflect these policy goals?**

By examining data from 120 cities in 16 countries around the world, this report documents the different amounts and ways cities charge shared micromobility companies to operate, and how these funds are used. Since taxing and spending decisions reflect municipal priorities, this report also compares the cities' micromobility fees and taxes with those levied on other transportation modes. Finally, we examine the implications that cities' financial decisions have on cities, riders, and the companies that provide shared micromobility services.

**Our study highlights four key research findings:**

- 1 **Fees vary dramatically between cities.**
- 2 **Shared micromobility is taxed twice, via sales tax/VAT and program fees, and these revenues can be substantial.**
- 3 **Shared micromobility taxes and fees are higher than most other modes of transportation, especially driving and ridehail.**
- 4 **When deciding on fees, cities are especially concerned with covering administrative costs as well as influencing operator behaviors.**



## FINDING #1: FEES VARY DRAMATICALLY BETWEEN CITIES

We found that fees varied dramatically across cities both in the type of fees assessed and the amounts. Some cities choose not to impose program fees at all, in line with municipal transportation goals. In cities that do assess program fees, there are four commonly used fee “types”: per-trip, per-vehicle, flat annual and flat one-time (such as an initial application fee). There are **large differences in the fee amounts that cities charge** - for example, the highest per-vehicle fee (\$430 USD per year) is over four hundred times higher than the lowest (\$1 USD per year).

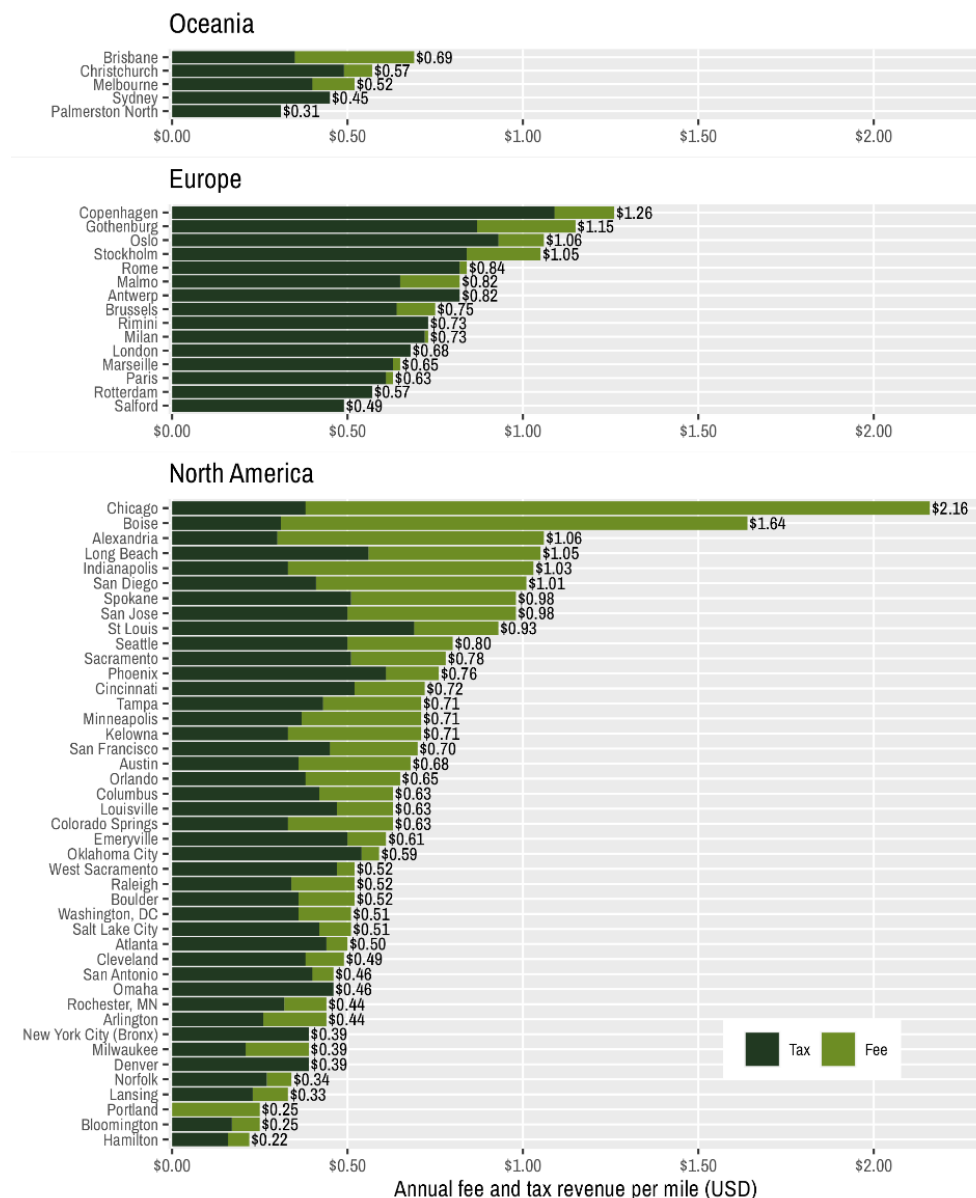
Some cities used “blind auctions” to assess additional fees during the RFP process, which can lead to significant added costs, such as to pay additional fees directly to the city, to build infrastructure, or to implement specific programs, such as low-income memberships.

**Table 1. Summary statistics of different program fee types**

Fee type	Cities	Minimum	Mean	Maximum	Range
Per-trip	39 (32.5%)	\$0.05	\$0.15	\$0.40	8x
Per-vehicle	34 (28.3%)	\$1	\$61	\$430	430x
Flat annual	36 (30.0%)	\$42	\$17,000	\$100,000	2377x
Flat one-time	37 (30.8%)	\$25	\$3,300	\$24,700	986x

## FINDING #2: SHARED MICROMOBILITY IS TAXED TWICE, VIA SALES TAX/VAT AND PROGRAM FEES, AND THESE REVENUES CAN BE SUBSTANTIAL

On average, cities charging an annual fee received over a third of a million USD each year (\$389,000 USD). After using system operations data to calculate fee amounts and ridership, we estimate that annual fees averaged to be \$0.22 USD per mile or \$0.28 USD per trip in 2022. If we include sales taxes/VATs with fees, the average shared micromobility trips generates fee + tax revenue of **\$0.70 USD per mile** or \$0.89 USD per trip, which works out to a **combined global average rate of 16.4% in taxes and fees** as a percentage of revenues from user fares.



**Figure 1. Combined per-mile revenue from fees and taxes by city**

## FINDING #3: SHARED MICROMOBILITY TAXES AND FEES ARE HIGHER THAN MOST OTHER MODES OF TRANSPORTATION, ESPECIALLY DRIVING AND RIDEHAIL

We compared how fees and taxes on shared micromobility compare to fees and taxes levied on other modes of travel, such as personally owned cars, ridehail, carshare, and shared mopeds. **Shared micromobility fee/tax rates are high relative to most other modes of travel**, notably personal vehicle travel (23 times more per mile) and ridehail trips (over 5 times more per mile).

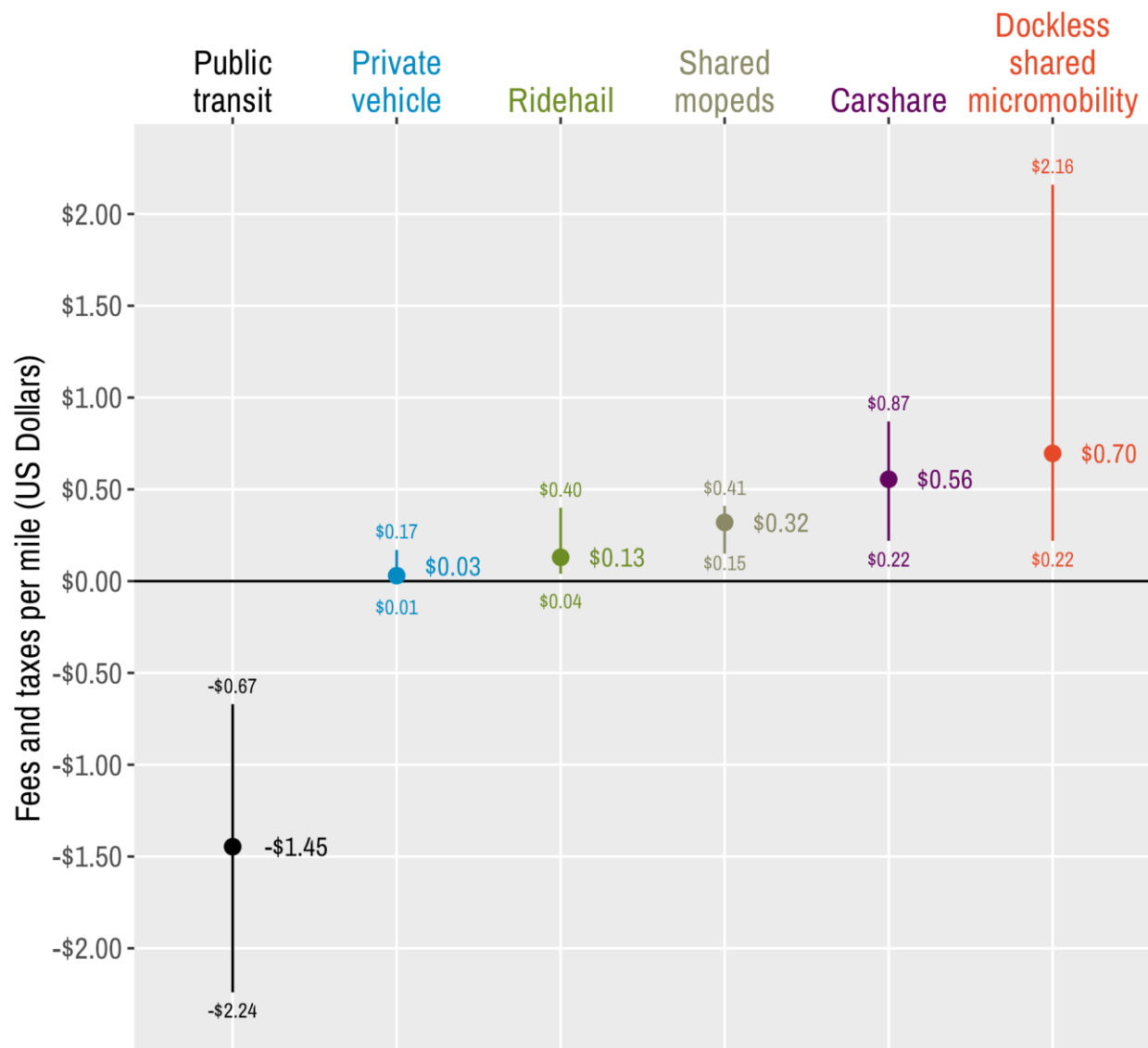
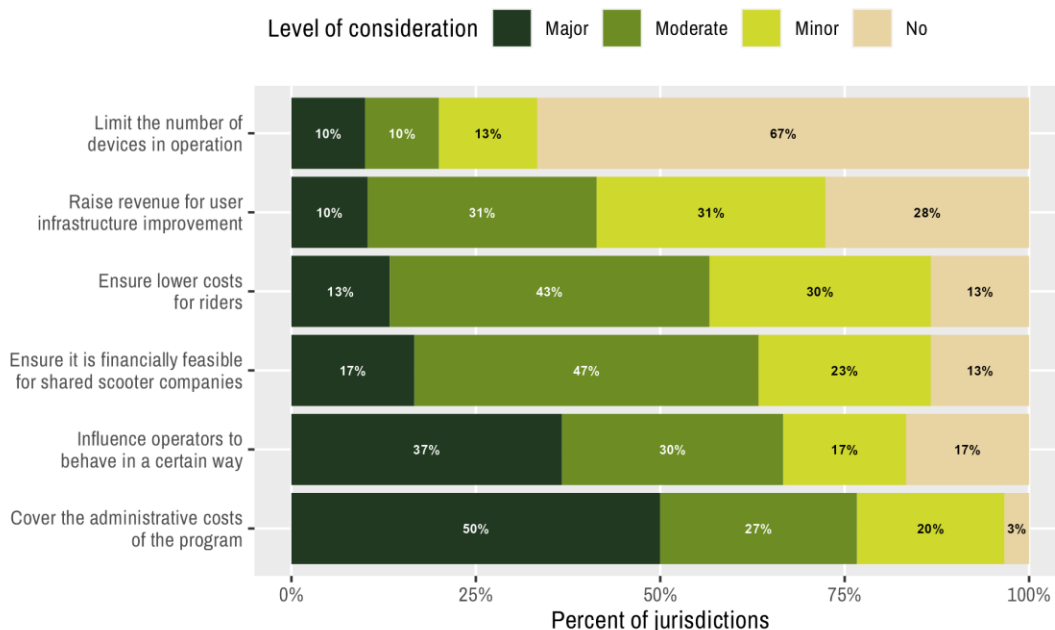


Figure 2. Comparison of fees and taxes per mile across modes

## FINDING #4: WHEN DECIDING ON FEES, CITIES ARE ESPECIALLY CONCERNED WITH COVERING ADMINISTRATIVE COSTS AS WELL AS INFLUENCING OPERATOR BEHAVIORS

One common use of fee revenue, and the most notable consideration in setting fee levels, was to cover the cost of program administration. Among six possible considerations we tested, covering the costs of program administration was rated as most influential, with 77% stating it was a major or moderate consideration. Less consideration was given to ensuring financial feasibility for scooter companies or lower costs for riders, despite the fact that both of these outcomes would positively contribute to the overall success of the shared micromobility system from a broad, societal perspective.



**Figure 3. Level of consideration by cities when setting program fees**

## CONSIDERATIONS FOR DESIGNING PROGRAM FEES

Collectively, the report's key findings suggest that there is little consensus or clear rationale for fees. The results also suggest that for many cities that charge program fees, the main consideration when designing fees is to cover costs. While cities' concerns over budget are understandable, this consideration can be at odds with cities' broader goals for supporting alternative transportation. As cities reconsider their program fees, we suggest that re-aligning program fee policies with city goals and principles is a promising first step, as is relying on established principles of taxation and procurement such as simplicity, regressivity, and consistency. We conclude by providing case study examples to show the different, and evolving, approaches that cities are taking to illustrate how they weigh different priorities and make tradeoffs.





Photo by Norbert Braun via Unsplash

# INTRODUCTION

Cities' decisions about taxing and spending reflects their policy priorities. Cities spend their revenue on goods and services that are aligned with their goals and use their power to levy taxes and fees to encourage or discourage conduct in line with those priorities. For example, in the context of urban transportation, most cities subsidize public transit to advance their goals around greater access and mobility to all residents, support the local economy, reduced congestion, and a cleaner environment. Conversely, to achieve many of those same goals, cities like London and Stockholm have imposed congestion fees to discourage people from driving into city centers.

Shared micromobility – largely in the form of shared electric scooters and bikes provided by private companies – is one of the newest transportation options that has come to cities at any scale in the last several decades. Hundreds of cities around the world have supported the creation of shared micromobility programs in less than a decade.

The goals of many shared micromobility programs typically include sustainability, congestion relief, and equitable mobility, as well as broader considerations around sustaining a long-standing program that has minimal political backlash (Castellanos et al., 2024). Despite sharing many of the same overarching policy goals for their micromobility programs, cities have made widely differing policy and financial decisions about how to treat these new modes.

There have been numerous studies on the operational aspects of cities' shared micromobility policies and regulations, focusing primarily on parking, ridership, safety, equitable distribution of vehicles, and sustainability. By contrast, there has been little research on the taxes and fees levied on shared micromobility systems, how they compare with other modes, and how these financial decisions work to advance or deter municipal goals for shared micromobility.



## CITIES' GOALS FOR SHARED MICROMOBILITY

In planning and evaluation documents for their shared micromobility programs, cities express a common set of broad societal goals they aim to achieve. Here is a sample of exemplary quotes from around the globe:

“Shared e-scooters are the newest transportation option for getting around Oakland. They are useful for short trips and have the potential to help achieve the goals of OakDOT’s Strategic Plan, which calls for expanding access to shared mobility services, **improving transportation choices**, and minimizing parking demand, **congestion** and **pollution**.”

- City of Oakland (2024)

“In drafting the Small Electric Vehicles Act, the German government specifically referenced the **sustainability** of e-scooters, noting their ability to increase both rural and urban mobility, as well as their potential to **bridge the distance to and from public transportation**. Small electric vehicles are thus expected to serve as an incentive to switch to public transportation, and to contribute to **improvements in local air quality**.”

- Gubman et al. (2019)

“A trial of shared electric scooters in Melbourne has been running since 1 February 2022, with partners Lime and Neuron, as an **accessible, environmentally friendly** and **cost-effective** way to travel.”

- City of Melbourne (2024)

“The East Bronx Shared E-Scooter Pilot, which began during the summer of 2021, expanded mobility options to residents, providing an **innovative, convenient, and sustainable** transportation mode.”

- New York City Dept of Transportation (2022a)

## MICROMOBILITY 101

“Micromobility” can be defined as any small, low-speed, human- or electric-powered transportation device, including bicycles, push scooters, electric-assist bicycles, electric scooters (scooters), and other small, lightweight, wheeled conveyances (Price et al., 2021). Shared micromobility systems typically include some combination of electric scooters (scooters), electric-assist bicycles (e-bicycles) and human-powered bicycles.

Shared micromobility systems have varying ownership models. Docked bicycle systems, which pre-date dockless scooters and bicycles, have a mix of public, private, and non-profit owners and operators. Dockless scooter and bicycle systems are almost exclusively owned and operated by private companies. Across shared micromobility as a whole (docked or dockless), a majority of systems are now operated by private companies (North American Bikeshare and Scootershare Association (NABSA), 2023).

## SHARED DOCKLESS MICROMOBILITY MARKET GROWTH AND INDUSTRY CONSOLIDATION

The arrival of dockless shared scooters and bicycles added to the suite of shared micromobility systems present in cities around the world. First introduced in the late 2010s, dockless shared scooters and bikes have exploded in popularity, quickly going from non-existent to providing mobility for at least several hundred million trips per year. In Europe in 2022, riders took 275 million trips on shared scooters and 38.5 million trips on dockless bikes (Fluctuo, 2023), while in North America, riders took 72.2 million scooter trips and 6.8 million dockless bicycle trips (North American Bikeshare and Scootershare Association (NABSA), 2023).

Since 2017, shared dockless bicycle and scooter systems expanded rapidly with the heavy influx of venture capital funds. Market pioneer Bird expanded its services to over 100 cities and reached a valuation of 2 billion dollars in 2018 from its initial launch in 2017 in Santa Monica. Lyft and Uber, the largest ride-sharing companies in the US, introduced their own shared scooter services in 2018. Soon a dozen e-scooter startups had attracted more than \$1.5 billion in funding (Schellong et al., 2019). By the end of 2019, Bird and Lime were each valued at \$2 billion.

Since 2017, more than 30 companies have offered scooter and/or dockless bike share systems in US cities. But due to a variety of factors, the industry ranks have thinned: as of 2023, just five scooter operators now account for over 90% of city systems (US Department of Transportation Bureau of Transportation Statistics, 2024). As the industry grew and expanded from the early start-up phase, many scooter providers were acquired by larger companies (e.g. Ford Motor Co. acquired Spin, Uber acquired Jump, Uber sold Jump to Lime) or folded. The industry has been particularly affected by the events of the last four years: a sharp decrease in venture capital funding, raising interest rates, and the widespread city shutdowns of shared systems due to the COVID-19 pandemic. Though many systems have reopened and trip rates have steadily increased to pre-pandemic levels in some cities, the industry has been forced to reassess its operational plans, with some of the largest industry shifts occurring in late 2023 and early 2024. Shortly after merging with Spin in late 2023, Bird announced in December 2023 that it was filing for bankruptcy and also was forced to be delisted from the New York Stock Exchange (Zipper, 2024). Superpedestrian closed its US-based operations entirely and sold its European branch. In Europe, Dott and Tier merged in early 2024 (Dillet, 2024).

## PROGRAM FEES RATIONALE AND HISTORY

Since private shared micromobility companies engage in commercial activity with transactions that occur in the public realm, some cities require that they obtain permits to operate, and also charge sales taxes or VAT on trips. Other cities choose not to impose fees, as a way to encourage a mode that they see as a positive addition to the mix of low-carbon transportation options.

In the early days of shared scooter systems, cities were inundated with scooters and reacted to gain control of the use and to promote policies and proper use of scooters in the right-of-way, especially sidewalks. Additionally, cities looked at shared mobility systems as a way to raise revenue from these new forms of

transportation that were flush with venture capital funds or owned by large companies testing the market. The city fees were, at least in part, a reaction to gain control of the deployment of scooters. Many scooter companies were willing to agree to steep fees and fines to gain market share in cities. But in more recent years, the consolidation of the market, raising interest rates, and changing investments attitudes have dramatically changed the economics of the shared scooter market.

Lowe et al. (2021) found that as of mid-2020, shared scooter systems were operating in 39 of the 50 largest cities in the US. Nearly all of the cities (37 of 39) had instituted a fee or tax on shared scooter operators. Among the 39 cities with shared scooter systems, 26 were operating under pilot programs. As such, policies on shared micromobility have continued to evolve as pilots concluded and longer-term programs emerged.

## **WHY STUDY FEES AND TAXES ON SHARED MICROMOBILITY?**

Fees and taxes are relevant to all three of the major “stakeholders” in the shared micromobility field: cities, private micromobility companies, and travelers.

### **CITIES: BALANCING SOCIETAL GOALS AGAINST FISCAL CONSTRAINTS AND POLITICAL REALITIES**

For cities, fees and taxes (in general) raise critical revenue. Most cities face tight budgetary situations, especially in the COVID era, making the latest generation of no-cost shared micromobility systems especially attractive. When docked bikeshare systems were introduced in the 2010s, they arrived at a time of declining municipal tax revenues. This fiscal environment made city leaders skeptical of taking on new transportation projects (G. Klein, 2015) and attracted to the idea of getting the benefits of a shared micromobility program without public subsidies. From the third generation of shared micromobility (capital-intensive docked bikeshare) to the fourth generation (dockless bicycle and scooter programs, often privately-operated), cities are getting closer to services which are revenue-neutral (Lowe et al., 2021), in large part by assessing fees and collecting tax revenues.

### **MICROMOBILITY COMPANIES: RUNNING A FINANCIALLY SUSTAINABLE BUSINESS**

Program fees and taxes are understandably important for companies operating shared micromobility systems – financial sustainability is the determining factor in whether services even exist. Transportation is a notoriously challenging sector to run a profitable business, and as noted previously, many shared micromobility companies have folded, entered bankruptcy, or merged. Since the Lowe, et al. report in 2021, more cities have transitioned from pilots to multi-year programs, but simultaneously, the industry has been marked by financial instability. The situation has led to increasing calls for the government to more directly subsidize shared micromobility systems (California Integrated Travel Project, 2023), though it remains unclear whether there is appetite or budget to do so.



## TRAVELERS: RISING TRIP COSTS REDUCE USAGE

A significant barrier to regular usage of shared micromobility is the cost of using the service. Higher fees levied on companies are passed on to consumers through higher prices for the goods and services they produce (Baker et al., 2023). Furthermore, sales taxes and VATs on shared micromobility trips are *directly* charged to riders. Therefore, both program fees as well as sales taxes / VAT ultimately increase the costs and reduce the attractiveness of these services. As the companies providing shared micromobility services seek to reach long-term profitability, the prices of a dockless shared scooter or bicycle trips have increased in recent years (National Association of City Transportation Officials, 2023). Increased prices in turn lead to reduced usage - research from public transit shows that a 10% increase in fares causes a long-term 10% decrease in trips (Litman, 2004). Recent research shows that cities with high levels of shared micromobility regulation have higher trip costs, as providers pass on higher fees to travelers, and fewer trips (Schellong et al., 2019).

## WHY STUDY FEES NOW?

Given the current operating environment facing the industry, it is worth considering how to address the financial challenges of operating shared bikes and scooters. The high regulatory costs of operation, and insufficient revenues to cover these costs, can be a deterrent to continued service in a city – recent examples include Bird’s departure from San Francisco (Knight, 2023) and news of Lyft considering the sale of its bikeshare arm (Hawkins, 2023) amid departures from cities like Minneapolis (Felegy, 2023). In the case of private providers of other public goods like utilities, cable and internet, the stability of the business is taken into consideration in the regulations - an approach that could be fruitful for shared micromobility as well.

## HOW CAN CITIES DECIDE WHAT FEES TO CHARGE, OR WHETHER TO CHARGE FEES AT ALL?

Broadly, the question of fees and taxes of shared micromobility relates back to the goals that cities have for their programs, around climate, equity, congestion, and more. Levying higher fees or taxes on goods and services that a city wants to prioritize can be counterproductive: higher fees and taxes lead to higher prices (Baker et al., 2023), which in turn results in less usage (Litman, 2004) than would be desired based on the city goals.

In addition to relying on civic goals to inform fee structures, there are well-established principles that can be used to guide the design of taxes and fees. For example, consumption taxes like a sales tax or value-added tax are regressive - they disproportionately affect lower-income consumers because they make up a greater proportion of their income. Other taxation principles such as clarity and simplicity can also provide guidance as cities design and re-evaluate program fees. We provide case studies of cities taking different, and evolving, approaches to program fees to illustrate how different cities weigh tradeoffs.

## RESEARCH QUESTIONS AND METHODS

In this report, we examine the fees and taxes levied on shared micromobility programs, including both dockless scooters and bikes, across the world. We also explored the rationales behind fee structures and their implications.

The report answers the following questions:

- 1 **What fees and taxes do cities charge to shared micromobility operators and riders?**
- 2 **How much revenue do program fees and taxes generate?**
- 3 **How do program fees and taxes compare to other modes?**
- 4 **How are program fee revenues spent?**
- 5 **How do cities decide what program fees to charge, and how much?**

We examined data from 120 cities in 16 countries around the world, documenting the different ways and amounts cities charge shared micromobility companies to operate. We also conducted a survey of shared micromobility program staff to understand how cities determine their fee structures and how fee revenues are used. Since taxing and spending decisions reflect municipal priorities, this report also compares the cities' micromobility fees and taxes with those levied on other transportation modes. Additionally, we examine the implications that cities' financial decisions have on cities, riders, and the companies that provide shared micromobility services.





ONLY



# METHODS

## DESCRIPTION OF PROGRAM FEES AROUND THE WORLD

We explore what cities charge private micromobility companies as a permit to operate dockless, shared electric-assist scooter and bicycle programs. In dockless shared micromobility systems operated by private companies, vehicles (both bicycles and scooters) are e-assist models, while docked bicycle share programs have historically been pedal-powered, though docked systems have been adding more electric vehicles over the past few years (North American Bikeshare and Scootershare Association (NABSA), 2023).

We exclude docked bikeshare systems from this analysis, as these systems have different contractual agreements that often involve public subsidy, rather than fees (see later discussion in Section 3.3).

To describe program fee patterns, we gathered data from online sources, city websites, and the contracts between local governments and a shared micromobility operator (Lime) in 120 jurisdictions. The 120 jurisdictions spanned 16 countries across North America, Europe, and Oceania (see Figure 4). This coverage provides a comprehensive, representative sample of cities of different sizes and densities, from different countries and continents, and with varying program durations. The sample size is also relatively large, allowing us to make comparisons of fees across different program characteristics. These permit requirements or contractual agreements tend to be the same across all shared micromobility companies operating in the city, with some variation that is described later in the report.



**Figure 4. Countries with cities included in the study**

## ESTIMATE OF FEES AND TAXES LEVIED IN 2022

For a subset of 63 cities, we took the information on *types of fees* from the contracts and attempted to estimate the *amount of fees* levied by cities and paid by operators in those cities in 2022. While some fees are flat, many fees are rate-based (e.g., per trip, per vehicle). Therefore, to calculate the fee amount paid, data on the number of trips and number of vehicles in each city was required. Because not all cities publish data on system performance, we were only able to conduct this analysis on the subset of 63 cities. We obtained this information from a variety of sources including RideReport, Populus, open data portals, agency reports, news articles, and Lime (for jurisdictions where they are the single operator). In some instances, we excluded cities like Los Angeles and Charlotte from the analysis because their programs include performance-based incentives, which made fee revenue estimations impossible with the public data we have available to us.

Once we calculated fee totals, we also estimated fee rates (e.g., fees per trip, fees per mile). Calculating fees per mile required an estimate of trip distances. This was sometimes directly reported in the various data sources mentioned above. In other cases, we estimated total distance from available information on the number of trips and average trip distances.

We also attempted to compare fees paid by shared micromobility companies relative to their fare revenues. Shared micromobility companies generally charge a flat fee to unlock a bicycle or scooter followed by per minute charges. Thus, to calculate fares, data on trips and total minutes traveled was necessary, as well as assumptions of unlock charges, and per minute charges. Fare rates were published publicly for some instances, while in others, we relied on approximate fares from Lime, localized to each city.<sup>1</sup> Trip time in minutes was sometimes directly reported in the previously mentioned data sources. In other cases, this was calculated from various available data on trips, distances, and speeds. For 12 cities, we used average trip speeds from the other 51 cities in the absence of local data. To obtain fare revenue estimates, we multiplied the unlock fare (e.g., \$1 USD) by the total number of trips and added that to the product of the per-minute fare (e.g., \$0.29 USD per minute) by the total number of minutes traveled, as has been done in previous studies (Noland, 2019).

In addition to permit fees, we also estimated sales taxes/VATs collected in the subset of 63 cities where we did the more detailed fee analysis. US sales taxes included state, county, city, and district-level taxes. For VATs, we used national standard rates. Estimates for Canadian cities also included provincial sales taxes, if applicable.

This study does not include the fines that cities implement to discourage noncompliant rider behavior, such as improper parking or sidewalk riding, or noncompliant company operations, such as deploying too many or too few vehicles, or deploying in restricted areas. Although not covered here, this is an area where further

---

<sup>1</sup> In general, trip fares are identical or very similar across different shared micromobility companies within the same city, given competitive pressures to match the best available price.



research would be valuable. To the extent that fines are disproportionate to other modes, like cars, or the overall impact of the infraction, the fines would have similar policy implications as the fees addressed in this study. In addition, more information is needed on how collected fines are used by the city.

All the data for cities used for the report is presented in tables in Appendix 1 and 2.

## CITY PROGRAM STAFF SURVEY

In late 2023 and early 2024, we conducted a survey of shared micromobility program staff to explore shared scooter policies, fees and related requirements. The survey asked questions about the jurisdiction's policies and fee structures, the development of those policies, and their implementation and use of revenue generated from fees. In addition, we asked questions related to regulations and approaches to managing shared micromobility parking. To allow us to compare findings with our fees analysis, we asked specific questions about their policies and operations during 2022. See Appendix 4 for the survey instrument.

The survey was distributed to program staff representing 95 U.S cities and 6 US colleges and 11 international cities in Australia, Canada, New Zealand, and the United Kingdom. We received responses representing 33 jurisdictions, all from North America and none from Australia, New Zealand, or the United Kingdom.

We assured survey respondents that their responses would be kept anonymous. In keeping with that commitment, we have not listed the jurisdictions that the respondents represent. However, when we present quotes from the respondents, we provide general information about the size of their jurisdiction's program (small: Less than 100,000 trips per year; medium: 100,000 to 999,999 trips per year; large: 1 million trips per year or more) and what region their jurisdiction is in (West, Midwest, Southwest, East, and South) in order to give the reader important contextual information.

## VALIDATING FEE REVENUE ESTIMATES WITH SURVEY RESPONSES

An important outcome of our study is the estimate of fee revenues. These rely on accurate fee structure information and correct system performance data (number of trips for per-trip fees, permitted vehicles for per-vehicle fees, etc.) – if either were incorrect, we could report inaccurate estimates for this key outcome.

To validate the fee revenue estimates, we cross-referenced the estimates with reported fee revenues from the survey of program staff. There were 16 cities where we were able to estimate fee revenues and received survey responses from the same city. Across these 16 cities, we found strong evidence that the estimates were accurate. In aggregate, the fee revenue estimates were just 0.8% lower than the fee revenues reported by survey respondents. This means that **the fee revenue estimates were quite accurate** but slightly *conservative*, which was desired for this study, as it leads to an *under*-estimate of the total fees paid to cities. This ensures we avoided over-stating fee revenue amounts, as well as any other metrics and calculations based on fee revenues. Further details can be found in Appendix 3.





Photo by Reinhart Julian via Unsplash



## RESULTS

### WHAT FEES AND TAXES DO CITIES CHARGE TO SHARED MICROMOBILITY OPERATORS AND RIDERS?

In this section, we explore what fees and taxes are levied on shared micromobility companies operating dockless, shared scooter and bicycle programs. We find that cities use a wide variety of fee types and amounts. In addition, shared micromobility trips are subject to sales taxes and value-added taxes (VAT). We also observed preferential fee structures for shared bicycles compared to shared scooters, likely reflecting a preference for bicycles as well as an acknowledgment that bicycles are typically more expensive to purchase and maintain than scooters.

Detailed description of the fees charged in each of the cities analyzed in the study can be found in Appendix 1.

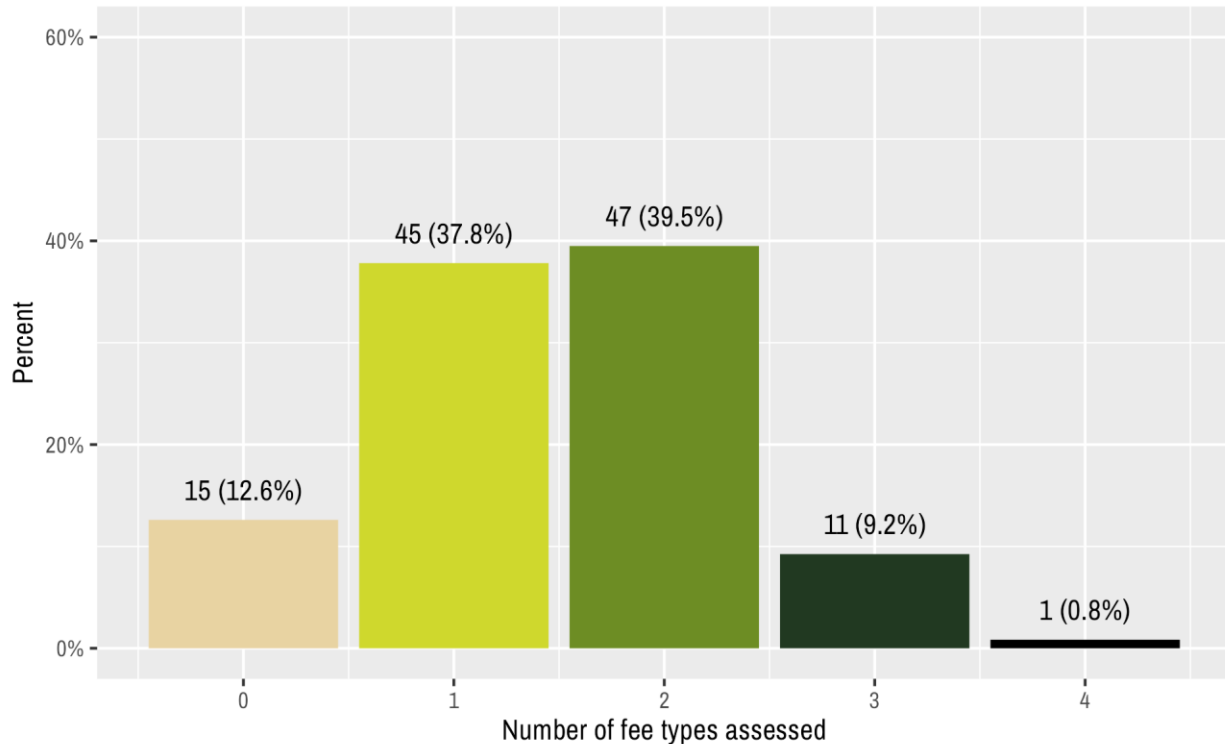
### CITIES OFTEN CHARGE MICROMOBILITY COMPANIES FEES TO OPERATE.

Shared micromobility companies were charged fees as a condition of their permits to operate in 105 of the 120 cities (88%) we explored. Cities use a wide variety of fee combinations and amounts, though there are four commonly used fee “types”:

- Per-trip
- Per-vehicle
- Flat annual
- Flat one-time (such as an initial application fee).

Half of cities (49.6%) have two or more different fee types in place (see Figure 5). Most multi-fee cities charged two different fee types (39.5%). About one tenth of programs charged three distinct fee types, and a single program charged all four distinct fee types (Oakland). Just over one-eighth of jurisdictions charged no permit fee.

The variation in fee types and amounts seems to suggest that cities generally lack a common, clear rationale behind their fee structures.



**Figure 5. Number of program fees charged by city**

## **SOME CITIES CHOOSE TO IMPOSE MINIMAL FEES OR NONE AT ALL**

Although a majority of cities charge program fees, and we discuss these cities at length in the sections below, there are some cities that choose to omit fees altogether or assess nominal one-time program fees. Roughly 13% of cities charge no program fees at all, and another 6% charge minimal one-time permit fees (not annual, per-vehicle, or per-trip fees). As covered in greater depth in this report's discussion section, the choice to charge minimal or no fees is often based on a desire to align the city's financial treatment of different modes with their goals of mode shift, equity, etc.

## **CITIES CHARGE A WIDE RANGE OF FEE TYPES AND AMOUNTS.**

While there were 105 cities with fees in our sample, none of the four common types of fees we encountered were present in more than 39 cities. Interestingly, the four common types were almost equally prevalent, being found in roughly one-third of cities each (see Table 2).

Not only was there variation in what fee types cities used, there was also variation across cities that used the same type of fee in terms of the amount charged. For example, cities with per trip fees levied charges ranging from \$0.05 USD to \$0.40 USD, the high value eight times greater than the low value. The greatest variation was found among flat annual fees, which ranged from \$42 USD to \$100,000 USD - the maximum value is more than 2,000 times greater than the minimum value.

**Table 2. Summary statistics of different program fee types**

Fee type	Cities	Minimum	Mean	Maximum	Range
Per-trip	39 (32.5%)	\$0.05	\$0.15	\$0.40	8x
Per-vehicle	34 (28.3%)	\$1	\$61	\$430	430x
Flat annual	36 (30.0%)	\$42	\$17,000	\$100,000	2377x
Flat one-time	37 (30.8%)	\$25	\$3,300	\$24,700	986x

## TRIPS SUBJECT TO SALES TAXES AND VALUE-ADDED TAXES (VAT) AT 12% ON AVERAGE

Shared micromobility trips in most of the US are also subject to sales taxes. In the US, sales taxes are levied by multiple levels of government, including states, counties, and cities. The average combined US sales tax rate was 7.9%. States received the largest share of sales taxes, with an average rate of 5.3%, leaving the remaining 2.6% to cities, counties, and other regional governments. Put another way, of the sales tax revenues collected, about a third go back to local and regional governments. In several US states and some cities and counties (e.g. Chicago), sales taxes go toward transportation (Hasnat & Bardaka, 2022; Regional Transportation Authority, 2024).

Outside of the US, value-added taxes (VAT) are common. In the 14 countries we explored, VAT rates ranged from 5% to 25%, with an average of 18.5%. VAT rates were higher in Europe (22.3% on average) than Oceania (11.0% on average). Canada has a 5% goods and services tax (a VAT). Provincial sales taxes raise the total rate to 12% in British Columbia and 15% in Quebec. In most cases, VAT revenues are collected by national governments, but similarly to the US, revenue is split between different levels of government. For example, in France in 2023, about a quarter of VAT revenues were allocated to city, department, and regional governments (43.1M € out of 176.3M €) (Les Travaux Publics, 2022; National Institute of Statistics and Economic Studies, 2023).

The presence of county, state, and provincial sales taxes, as well as VAT, typically collected nationally, result in shared micromobility trips creating revenue for not just cities, but also for state, provincial, and national governments.

Because sales taxes are regressive (they have a disproportionate impact on lower-income individuals and households), in many countries, essential goods such as food or medicine are exempted from sales taxes or value-added tax, or taxed at a lower rate. This sales tax exemption is also applied to some transportation modes, like public transit and, in many US states, ridehailing, but not to shared scooters and bikes.



## **CITIES SHOW A PREFERENCE FOR SHARED BICYCLES THROUGH LOWER FEE RATES**

The majority of the jurisdictions charging no program fee (15 of 22) were systems with only shared bicycles or with both shared bicycles and scooters. In contrast, none of the eleven cities charging three different types of permit fees included bicycles in their shared micromobility programs (6 were scooter-only, 5 had joint scooter and bicycle programs).

This preferential financial treatment for bicycles is also reflected in the fees charged within individual jurisdictions. For example, in Sacramento, CA, bicycles are charged an annual per-vehicle fee rate at half the rate of scooters (\$52 USD per vehicle per year versus \$104 USD per vehicle per year). Similarly, in St. Louis, shared scooters are assessed a per-vehicle fee 30 times greater than shared bicycles. The notable exception to this pattern is Denver (which has both e-bikes and scooters), where the city does not differentiate between vehicle types and charges no program fees (though it has extracted benefits from shared scooter companies in other ways, which we cover later in the report).

Favorable fee treatment for bicycles might reflect cities' understanding that shared bicycles are generally more expensive to purchase and maintain than shared scooters, but this treatment is inconsistent with the travel behavior outcomes of the two modes, which are broadly similar with respect to safety, parking, equity, sustainability, and other areas (Brown et al., 2020; Fang, 2022; Fukushige et al., 2023; Krauss et al., 2022; Meng & Brown, 2021).

## HOW MUCH REVENUE DO PROGRAM FEES AND TAXES GENERATE?

In this section, we estimate the revenues generated by fees and taxes on shared micromobility programs, using a subset of the overall sample of jurisdictions where we could access system performance data. In line with our findings in the previous section, we see that the wide variation in fee structures results in large variations in the fee revenues that cities receive. On average, cities charging an annual fee received over a third of a million USD each year (\$389,000 USD). We estimate that the average cost of annual permit fees and sales taxes/VATs on shared micromobility trips are \$0.70 USD per mile or \$0.89 USD per trip, which works out to a combined average of 16.4% in tax and fee revenues as a percentage of fare revenues.

Detailed description of the fee revenues collected by each of the cities analyzed in the study can be found in Appendix 2.

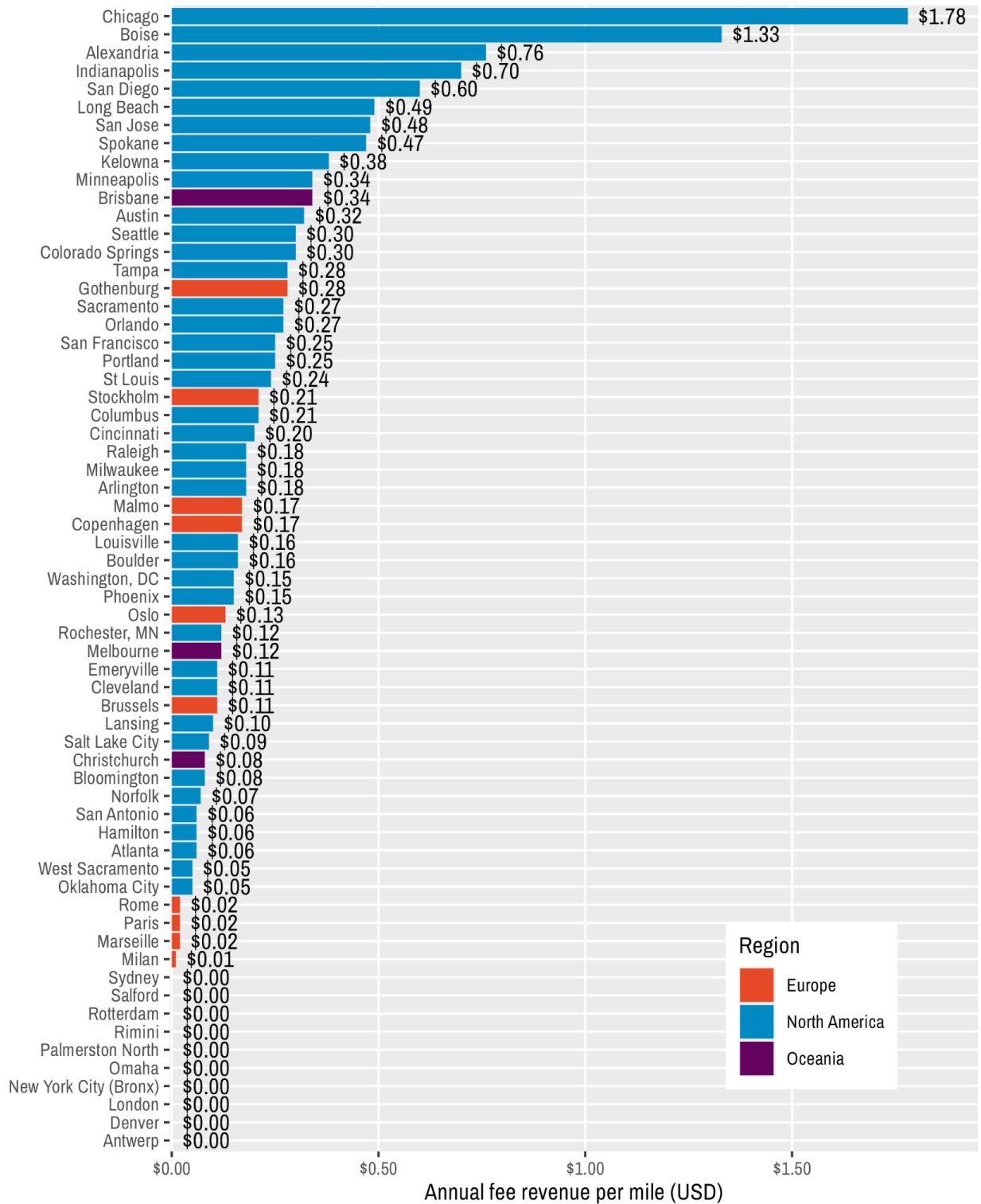
### ESTIMATED ANNUAL FEES WERE 22¢ PER MILE OR 29¢ PER TRIP ON AVERAGE

Among the 63 cities where we conducted more detailed analysis, 53 charged annual fees. After using system operations data to calculate fee amounts and ridership, we estimate that these annual fees averaged to be \$0.22 USD per mile or \$0.29 USD per trip in 2022. There is considerable variation across cities though, with fees being much higher in North America (\$0.29 USD per mile) than Australia/New Zealand (\$0.11 USD) and Europe (\$0.08 USD) (see Figure 6).

The 10 cities with the largest per mile annual fees, and 14 of the top 15, were in North America. We estimate that two cities received well over \$1.00 USD per mile, both in the United States (Chicago and Boise). Conversely, we estimate that four cities, all in Europe, received \$0.01 or \$0.02 USD per mile in annual fees.

### 53 CITIES WITH ANNUAL FEES GROSSED AN ESTIMATED \$20.6 MILLION IN 2022 (\$389,000 ON AVERAGE).

The 53 cities with annual fees grossed more than \$20 million USD in 2022. That breaks down to approximately \$389,000 USD on average among cities charging an annual fee. We estimate that six cities collected over \$1 million USD annually (Brussels, Stockholm, Austin, Brisbane, Chicago, and San Diego). In many of these cities, higher dollar payouts were a function of high fee rates; however, some collections were high in cities with below-average program fee rates but high ridership (such as the €50 / year per-vehicle fee in Brussels).



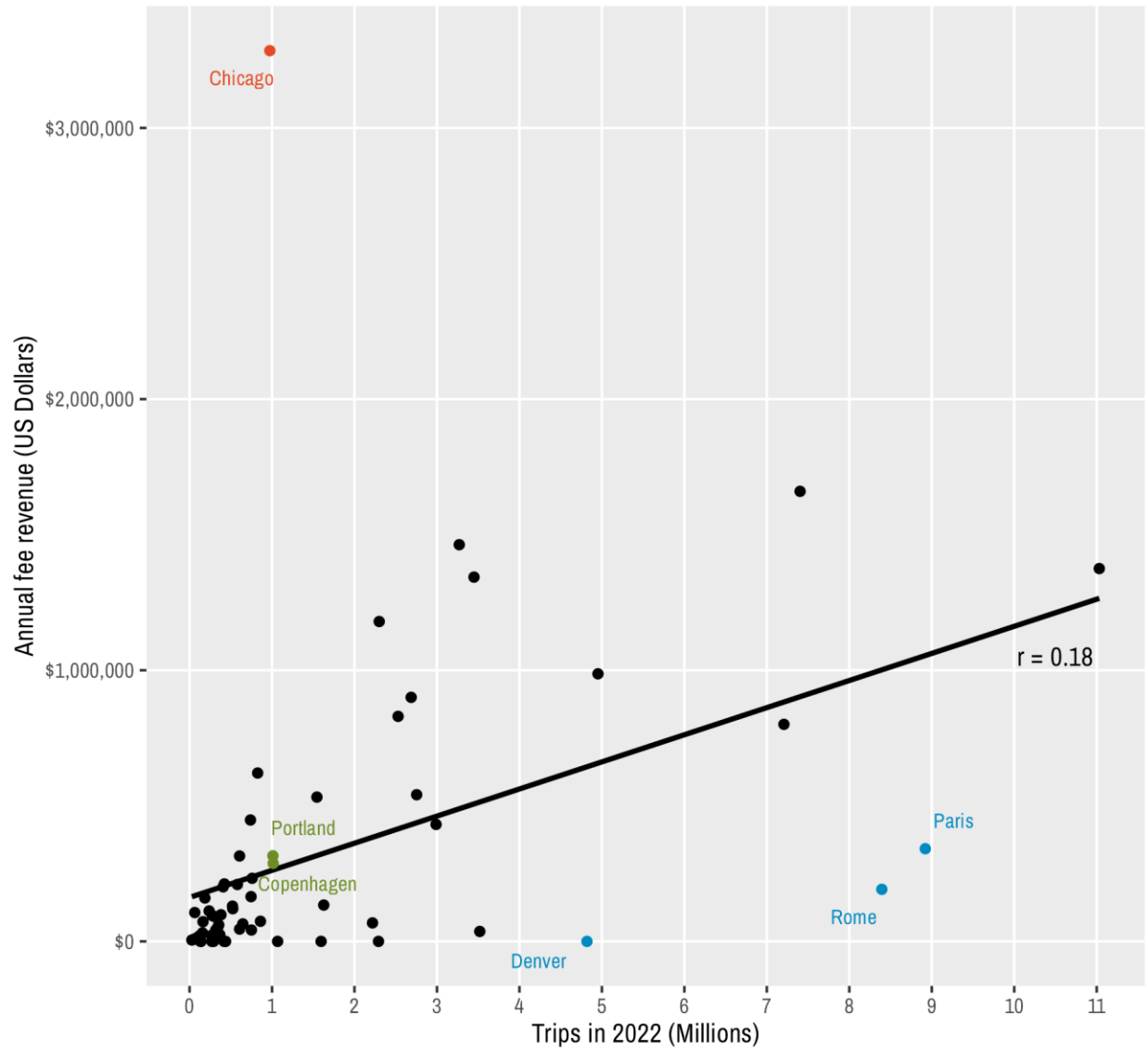
**Figure 6. Annual fee revenues per mile traveled**

## FEE REVENUES MODERATELY CORRELATE WITH TRIPS, BUT SOME CITIES WITH SIMILAR TRIP VOLUMES HAD DIVERGING FEE REVENUES

Figure 7 shows a scatter plot of 2022 fee revenue versus total trips in the 53 cities with annual fees. There was a slight positive correlation ( $r = 0.18$ ) between fee revenues and trips. This relationship is unsurprising given the presence of per-trip fees and per-vehicle fees: more trips will lead to more fee revenue in cities with per-trip fees, and in cities with per-vehicle fees, the number of trips typically scales with the number of vehicles available, which then leads to a strong relationship between trips and fee revenues. While this slight positive correlation exists, the scatter plot clearly shows outliers.

Towards the bottom right of the graph are cities with high trip volumes, but relatively low fees (below the trend line, highlighted in blue in Figure 7). Paris and Rome are notable examples of cities in the high ridership, low fee category. Additionally, Denver has the 7th highest ridership in our sample, but the city has no fees (though as previously noted, extracts benefits in other ways).

Towards the upper left of the graph are cities with fee revenue well above the trend line. Chicago is a notable outlier (highlighted in red in Figure 7), with fees well above other cities with similar trip volumes. For comparison, Portland and Copenhagen (highlighted in green in Figure 7) both saw approximately 1 million scooter rides and received an estimated \$315,000 and \$287,000 (USD), respectively, in 2022. Meanwhile, Chicago saw a nearly identical number of rides (1 million trips) yet received over ten times the annual fee revenues (over \$3M USD) as Portland.



**Figure 7. Comparing trip volumes and annual fee revenues**



As this analysis shows, some cities' fee structures are unrelated to the shared micromobility system's performance and far exceed the (likely) administrative costs. Since fees and taxes are reflections of cities' policy priorities, assessing high fees and taxes on shared micromobility can lead to outcomes that counteract, rather than further, the cities' goals for the program. As discussed in greater detail later, Chicago has since updated its program fees to bring them closer in line with peer cities, acknowledging the role shared micromobility plays in addressing city goals (*Committee on License and Consumer Protection - April 10, 2024 Meeting*, 2024).

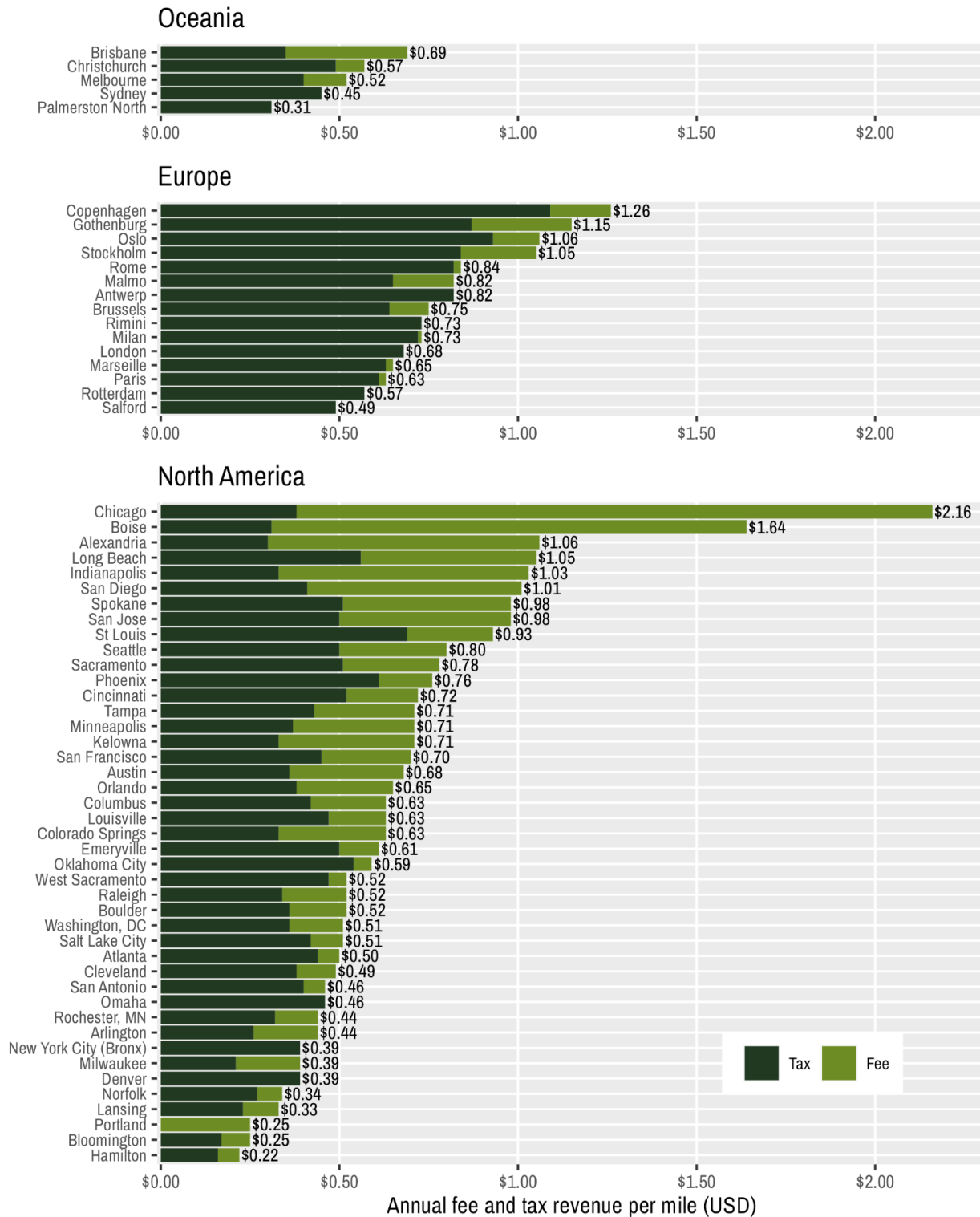
## **ESTIMATED SALES TAXES AND VAT AMOUNTED TO 47¢ PER MILE OR 59¢ PER TRIP ON AVERAGE.**

Among the 63 cities where we conducted more detailed analysis, we estimate that sales taxes/VAT averaged out to \$0.47 USD per mile or \$0.60 USD per trip in 2022. Taxes were higher in Europe (\$0.74 USD per mile) than North America (\$0.39 USD per mile) and Australia/New Zealand (\$0.40 USD per mile).

## **COMBINED REVENUE FROM FEES AND TAXES WAS 69¢ PER MILE OR 87¢ PER TRIP, ON AVERAGE.**

Combining both program fees and sales taxes/VAT, we estimate that governments collect revenues of \$0.70 USD per mile or \$0.89 USD per trip. In Australia, New Zealand, and Europe, the bulk of government revenues from shared micromobility systems come from taxes, while in North America program fees often make up half or more of government revenues from shared micromobility, as illustrated in Figure 8.

In general, Australian and New Zealand governments receive less per mile (average of \$0.51 USD), North American governments collect more (average of \$0.68 USD), and European governments collect the most per mile (average of \$0.82 USD).



**Figure 8. Combined per-mile revenue from fees and taxes by city**

## COMPANIES PAID 4.9% OF FARE REVENUE ON AVERAGE TO THE 53 CITIES WITH ANNUAL FEES

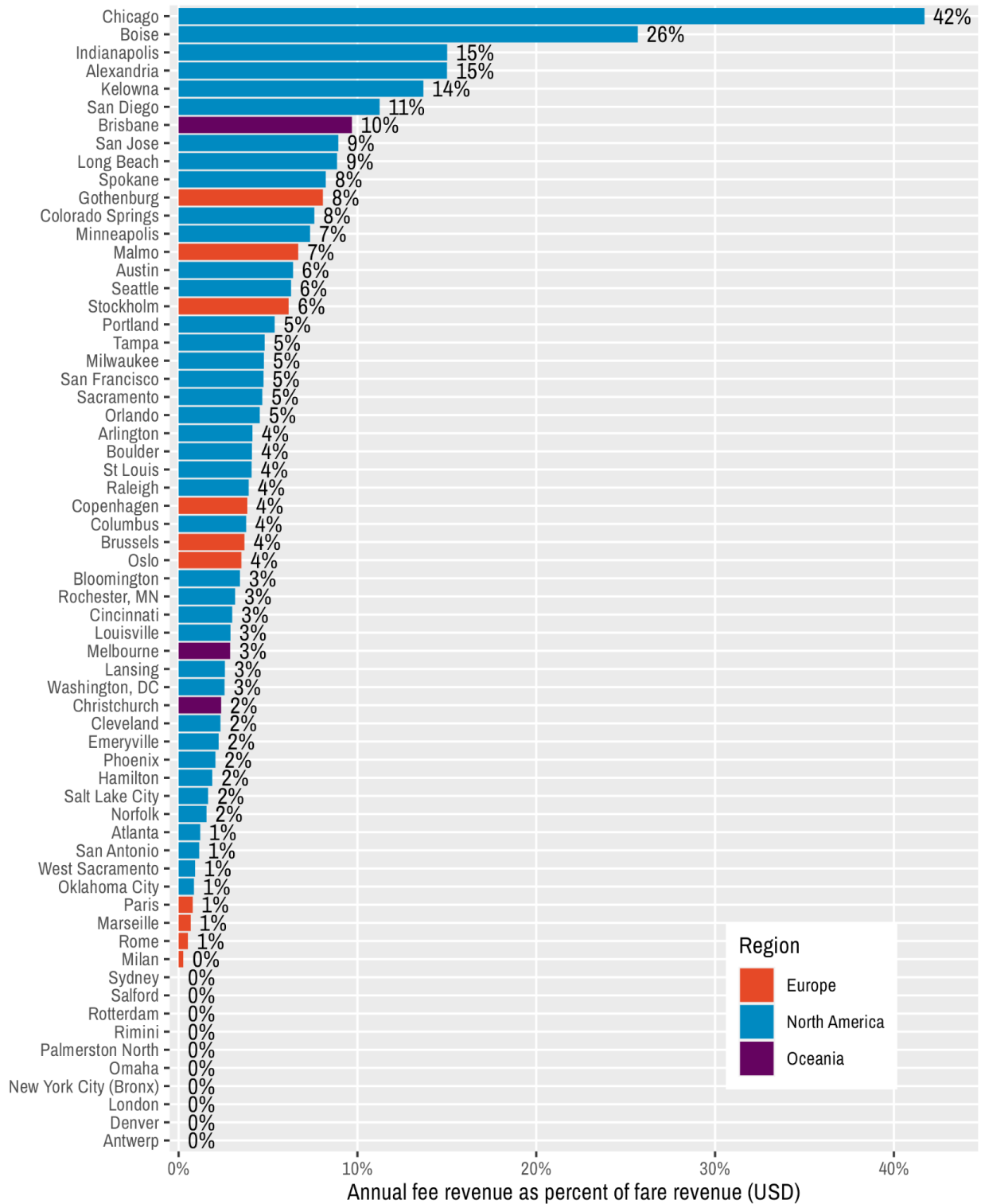
Comparing fee calculations and projected fare revenues, we estimate that companies paid 4.9% of their fare revenues on average to annual fees in 2022. Again, there was considerable variation in the revenue implications of fees (see Figure 9). Annual fees accounted for 10% or more of fare revenue in seven cities, mostly in the United States, and all outside of Europe:

- Brisbane, Australia (10%)
- San Diego, California (11%)
- Kelowna, Canada (14%)
- Indianapolis, Indiana (15%)
- Alexandria, Virginia (15%)
- Boise, Idaho (26%)
- Chicago, Illinois (42%)

As NACTO recently identified in a 2022 evaluation of shared micromobility in North America, prices of dockless shared micromobility trips have risen over the last several years (National Association of City Transportation Officials, 2023). As is common with most businesses, it is likely that shared micromobility companies pass on program fees, and other regulatory costs, on to riders as they seek to run a financially sustainable business (Baker et al., 2023). So, while companies may be responsible for paying the fees, riders are likely to be paying for some or all of these fee costs.

## IN TOTAL, GOVERNMENTS RECEIVED AN AVERAGE OF 16.4% IN TAX AND FEE REVENUES AS A PERCENTAGE OF FARE REVENUES

Governments receive, on average, 11.5% of fare revenues in sales tax / VAT from riders. The addition of program fees lifts this amount by 4.9 percentage points (a 42% increase) to a total combined revenue from taxes and fees of 16.4% of fare revenues. Behind the average is substantial regional variation, with an average combined fee and tax rate of 24.5% in Europe, 14.0% in Oceania, and 13.9% in North America. European shared micromobility trips have the highest combined rate due to high VAT rates, while North America's combined rates are significantly increased by the addition of program fees. From a city's perspective, the addition of program fees ensures that the *city* receives revenues to cover program administration cost, compared to the revenues from sales taxes and value-added taxes, which are subdivided among many different levels of government.



**Figure 9. Annual fee revenue as a percentage of fare revenue**



## HOW DO PROGRAM FEES AND TAXES COMPARE TO OTHER MODES?

In this section, we explore how fees and taxes on shared micromobility compare to fees and taxes levied on other modes of travel. We do this to the best of our ability, with publicly available data, with the goal of providing illustrative, realistic ranges. **We present the results of the analysis here and share the methods and assumptions in Appendix 5.** An exhaustive analysis of fees and taxes across different modes is a promising avenue for future research.

For comparison, we previously estimated that the cost of annual permit fees and sales taxes/VATs on shared micromobility trips average out to \$0.70 USD per mile or \$0.89 USD per trip.

### PRIVATE VEHICLES: LOWER FUEL TAXES AND ANNUAL REGISTRATION FEES THAN SHARED MICROMOBILITY FEES AND TAXES.

Most private vehicle trips in the US are not subject to road tolls, leaving fuel taxes and vehicle registration fees as the routine government fees and taxes that most motorists pay. The US federal gas tax on gasoline has been 18.4 cents per gallon since 1993. In 2022, state gas taxes ranged from 9 cents to 58 cents per gallon, with a median of 27.3 cents per gallon (Tax Policy Center, 2023). All states also levy various annual registration, license, and/or title fees on vehicles. States have a mix of flat, weight-based, value-based, and age-based fee structures (Federal Highway Administration, 2008; National Conference of State Legislatures, 2020).

In total, we estimate that **the average motorist pays approximately \$0.03 USD per mile in gas tax and registration fees**, while the average shared micromobility trip pays about 23 times that rate (\$0.70 USD) per mile. The range of total fees and taxes on a per-mile basis ranges widely from \$0.01 USD and \$0.17 USD per mile.

We acknowledge that most cities have little direct control over most fuel taxes and registration fees<sup>2</sup>, which are often established at a federal or state level, but one area where cities have decision-making ability is in providing on-street and off-street car parking facilities. In the US, many cities delineate metered on-street parking zones as well as own and operate off-street car parking garages. This local control ostensibly allows them to exert greater influence over the costs assessed to car drivers, compared to fees and taxes set at a state or federal level. However, in many cities, the car parking fees for off-street garages are set at less than the cost of operations and debt payment (*Transportation Subsidies*, 2022), and in some instances cities are constrained by city ordinance or state law with respect to how they can use the funds and how much they can charge (i.e. no more than the cost of operations and debt payment) (Designation of a Residential Permit

---

<sup>2</sup> There are some cities like Chicago, Illinois and Portland, Oregon, which do have county or city gas taxes or annual vehicle registration fees in addition to state level taxes.

Parking District or Amendment of an Existing Residential Permit Parking District, n.d.; Streets, Traffic and Parking, n.d.). This topic is ultimately beyond the scope of this study, but car parking policy is well-described by Donald Shoup and others (Shoup, 2011).

## **RIDEHAIL: RIDERS GENERALLY PAY NO FEES OR SALES TAXES, AND WHEN THEY EXIST THE FEES AND TAXES ARE GENERALLY LOWER THAN SHARED MICROMOBILITY.**

In contrast to shared micromobility, **“in most states, both taxi fares and rides with transportation network companies (TNCs) such as Uber are exempt from sales tax”** (Schiller & Davis, 2017). According to Schiller & Davis (2017), this exemption for taxis and ridehailing is due to how sales taxes were historically applied to “sales of tangible property”, for the sake of identifying and monitoring sales. Fay & Liu (2021) argue that there is sufficient legal precedent to establish the constitutionality of imposing taxes on ridehail drivers or riders. Despite this historical precedent, shared micromobility companies *do* collect sales taxes on trips.

In addition to being exempt from sales taxes in most states, Lowe et al. (2021) found **trips via ridehail services were most often *not* subject to government fees and taxes**, with fees or taxes present in 20 of 50 cities they explored. Of these 20 cities, 14 cities had fees/taxes levied at the state level and 8 had fees/taxes levied at the city level (two cities had fees levied at both levels). State laws frequently preempt city policy on ridehail services, so the lack of city-level charges is not necessarily due to a lack of desire from cities.

Considering trip-based fees and taxes and fuel taxes, we estimate that **a ridehail trip is charged fees and taxes** ranging from around \$0.04 to \$0.40 USD per mile and **\$0.13 USD per mile on average**.

## **CARSHARE: OFTEN CHARGED FEES TO RECOVER THE COST OF LOST PARKING METER REVENUE AND PROGRAM ADMINISTRATION.**

Carshare systems are a “mobility option that allows individuals to pay for and use automobile programs where individuals can rent vehicles on an as-needed basis” (Millard-Ball et al., 2005). Cities typically create permit programs for carsharing, and carshare companies typically pay permit fees, especially when they are assigned dedicated parking, as an approach to cost recovery that allows them to offset some of the lost revenue from metered parking and to pay for the costs of program administration. In addition to flat or annual permit fees, carshare trips are also generally subject to sales taxes and other surcharges (Schwieterman & Spray, 2016).

In combination, we estimate that **carshare fees and taxes per mile ranged from \$0.22 USD to \$0.87 USD, with an average of \$0.56 USD**.

## **SHARED MOPEDS: THOUGH LIMITED TO MAJOR CITIES, TRIPS FACE SIMILAR OR LOWER FEES COMPARED TO SHARED MICROMOBILITY.**

Similar in concept to carshare and dockless scooters and bikes, shared moped services appeared in a handful of cities over the last several years. For example, *Scoot* operated shared mopeds in San Francisco, Barcelona, and Santiago, Chile prior to their acquisition by Bird in 2019. Mobility company *Revel* operated

shared mopeds in San Francisco, New York City, Washington, DC, and Miami prior to shutting down moped services in 2023. Moped-type vehicles are sometimes referred to as “scooters,” however mopeds are not included in the definition of micromobility as delineated by the Society of Automotive Engineers due to their size, weight, and maximum speeds (SAE International, 2019).

We estimate that the **average shared moped trip was assessed \$0.32 USD per mile in taxes and fees.**

## **DOCKED BIKESHARE: OFTEN PUBLICLY SUPPORTED, WHILE DOCKLESS SHARED MICROMOBILITY IS LEVIED FEES.**

While the human-powered bicycles, electric bicycles, and electric scooters used in docked and dockless shared micromobility systems have some minor differences, they provide similar types of mobility (Arellano & Fang, 2020). Despite these similarities, the typical operating models and level of public support differ strongly between docked and dockless micromobility programs.

As previously mentioned, shared micromobility has varying ownership models. The fees and taxes discussed in this report apply to trips on systems operated by private shared micromobility companies. However, some shared micromobility systems are publicly-owned or operated by non-profit organizations (Fishman, 2020). Generally, longer-tenured docked bicycle systems are publicly owned and privately operated, while newer dockless systems are privately owned and operated.

Public systems sometimes receive financial support in the form of grants for capital expenses, or at a minimum are not charged fees. NABSA (2021) estimates an average farebox recovery of 31% for docked shared micromobility, which means operators must find funding to cover the remaining 69% of costs, which typically comes from government budgets, advertising revenue, or grants (typically only for capital expenditures in the United States).

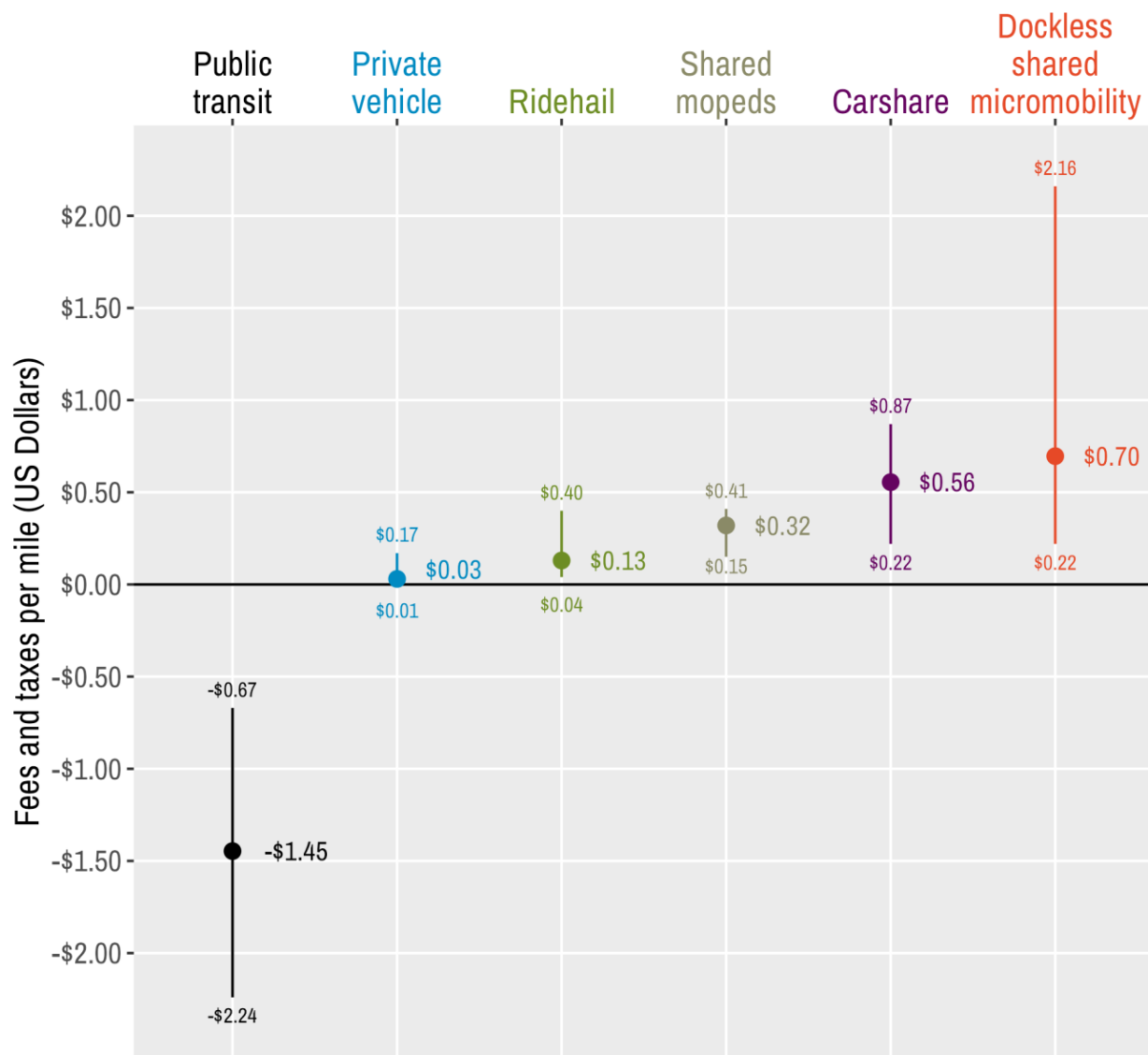
**Sales taxes are often applied to docked bikeshare trips.** Casual riders who are not subscribing members of the bikeshare system typically pay a fare to unlock (typically \$1 USD, but as high as nearly \$5 in the CitiBike system in New York City) and a per-minute fare thereafter, similarly to dockless systems, and therefore pay sales tax on the trip fare. In some cities, such as Portland, non-members are charged \$1 for parking in non-designated parking areas. However, the annual membership model that many docked bikeshare systems have in place presents a complicating factor. Under this model, a certain duration of trip (e.g., 30 or 45 minutes) may be free to a subscriber, in which case no sales tax is assessed on the trip.

## **TAXES AND FEES VARY SUBSTANTIALY ACROSS DIFFERENT MODES**

Figure 10 compares our fee and tax per mile estimates for the modes discussed above. Overall, dockless shared micromobility fee/tax rates are relatively high compared to most other modes of travel, notably personal vehicle travel. Three other newer mobility options are also generally charged more than private vehicles; however, we estimate dockless shared micromobility trips face the highest fees and taxes, on average.

In the graph, we omit docked bikeshare given the variety of operating models and funding sources, as well as the opaque nature of docked bikeshare contracts: it is unclear the extent to which governments subsidize these systems and how much governments may receive under revenue sharing agreements.

We include public transit in the comparison for illustrative purposes, using operational data submitted by public transit agencies to the National Transit Database from 2022 (Federal Transit Administration, 2024). The data points reflect operational expenses relative to fare revenues, normalized per passenger mile. For this analysis, we included six different public modes that are most commonly used in cities: urban bus, commuter bus, bus rapid transit, light rail, subway, and commuter rail.



**Figure 10. Comparison of fees and taxes per mile across modes**

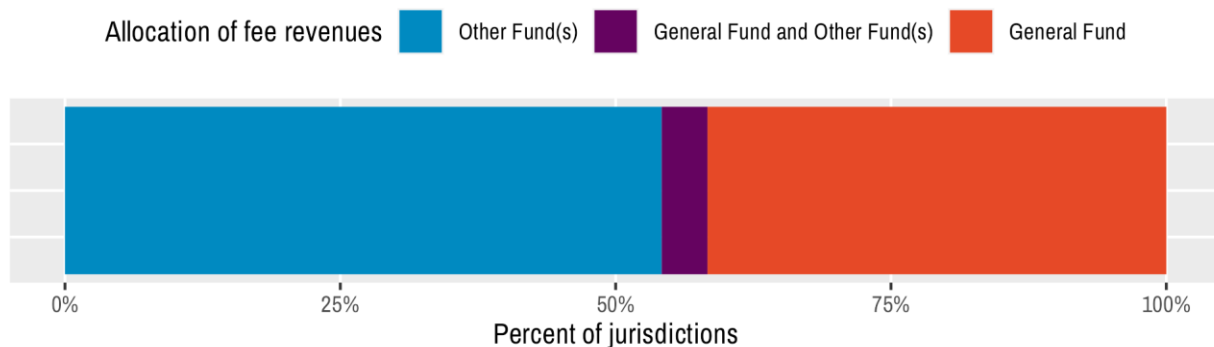


## HOW ARE PROGRAM FEE REVENUES SPENT?

Drawing on data from the survey of shared micromobility program staff, we reveal a mixed picture of fee revenue destinations. Roughly half of cities send the program fee revenues to the General Fund, while the other half allocate the revenues to specific funds, often tied to the micromobility program in particular or transportation infrastructure more generally, to ensure that the revenues were spent either directly on program expenses or indirectly on projects that would benefit riders, such as more bike racks or bicycle lanes.

### IN SOME CASES, FEE REVENUES ARE SENT TO THE GENERAL FUND, WHILE IN OTHERS THEY ARE ROUTED TO SPECIFIC FUNDS

Survey respondents indicated a fairly even split in where their cities allocate program fee revenues (see Figure 11). Many cities (nearly half - 42%) send their fee revenues to the general fund, while over half of cities send the revenue to other funds (54%) or split them between the general fund and other funding destinations (4%). How fee revenues are distributed and used within the general fund varies and may be constricted by city policy and not in control of the transportation department.



**Figure 11. Allocation of fee revenues**

In some cases, the funds go to general transportation infrastructure projects:

“The funds are placed in a revenue fund that may be used by the Department of Transportation.”

- Small program, West

Some cities allocate revenues toward micromobility infrastructure:

“All fees taken in from the shared mobility operator are placed into the **capital fund designated for Paths and Trails**. This funding can be used for capital expenses including **bike lanes, bike parking, shared-use pathways**, bike detours and other similar uses. All funding procured through the program must be spent on improving or **benefitting the shared mobility program**.”

- Medium program, West

Commonly, cities use the fee revenues to cover the costs of running the program, such as administrative overhead, staff time, data sharing and monitoring software subscriptions, and other program activities:

“We have a cost center for bike & scooter share combined and have to set a budget each year, but otherwise operate pretty independently.”

- Large program, West

“Micromobility has a separate account where funds are allocated.”

- Medium program, West

“Funds stay with the Parking Department to be **used for expenses that the program incurs**.”

- Medium program, South

“The money used to **pay for the program comes directly from the fees from vendors**. The intention of the program is to be capital generating.”

- Medium program, Southwest

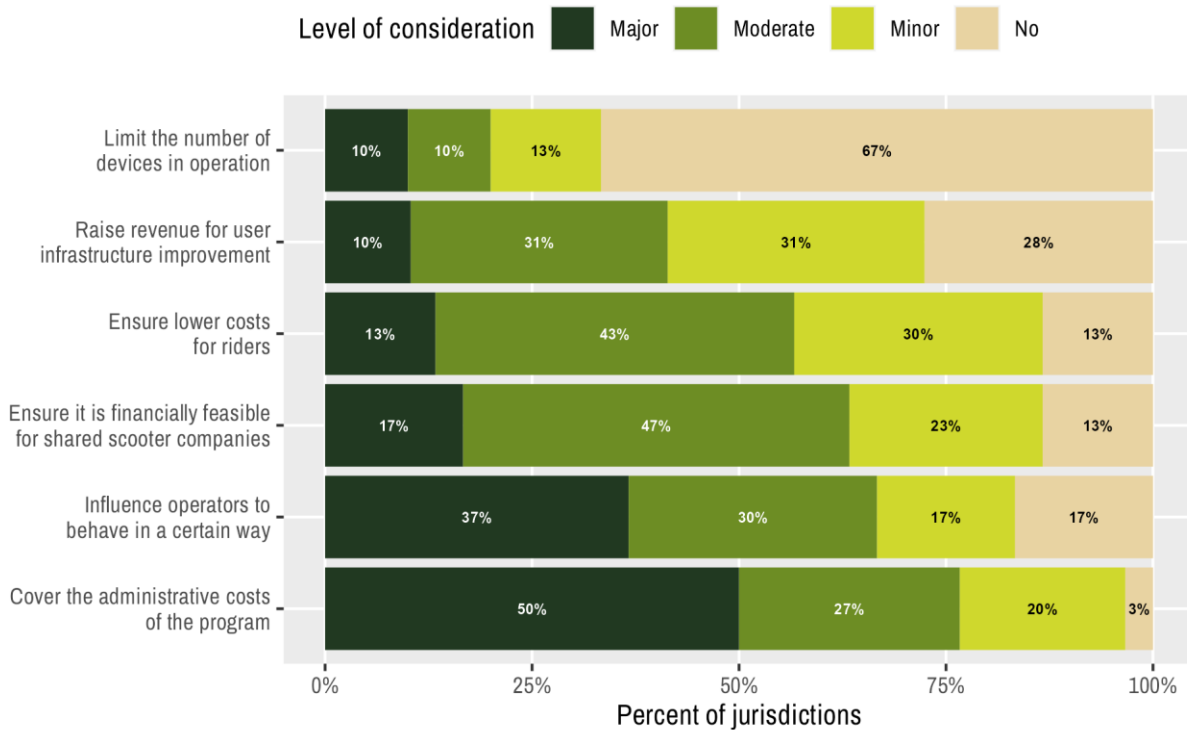
We also heard from one city with a more unique arrangement that allocated some funds toward the city's parks department, since scooters were allowed to use bike lanes and trails that went through city parks.

“City fees go to the general fund. **Parks fees go to the Parks Department.** There are no stipulations about how fees are spent.”

- Medium program, Midwest

## HOW DO CITIES DECIDE WHAT PROGRAM FEES TO CHARGE, AND HOW MUCH?

We asked program staff to rate the level of consideration they gave to different areas related to program fees (see Figure 12). Program staff show strong consideration for program fees covering the administrative costs of the program (50% rated it as a major concern), and in influencing operator behavior to a lesser extent (37% rated it as a major concern). Less important were considerations around the shared micromobility companies' financial sustainability, low costs for riders, and raising revenue for micromobility infrastructure. Very few cities considered using fees to limit the size of shared micromobility fleets. Throughout, we provide examples of how fee revenues could be spent on individual priorities (e.g. program activities, infrastructure, staff), but these are meant only for illustrative purposes. Finally, we share a new trend in RFPs - "blind auctions" - that raise program fees based on what shared micromobility companies are willing to bid or commit in the procurement process.



**Figure 12. Level of consideration by cities when setting program fees**



## CITIES STRONGLY CONSIDER THE COST OF ADMINISTERING THE PROGRAM AND HOW TO INFLUENCE COMPANIES'

The most important consideration in setting program fees, among city program staff who responded to the survey, was their ability to cover the costs of administering the program (77% stated it was a major or moderate consideration).

“Fees are directly related to staff hours and operational expenses.”

- Medium program, West

“ [ *T h e f e e a m o u n t* ] estimated [ *amount* ] to recover [ *the cost of* ] **staff time** for the management of the program.”

- Small program, West

“I’m not involved in the decision [to set fee amounts] but as far as I know it was calculated based on **staff hours in managing the program.**”

- Medium program, West

“The money used to **pay for the program comes directly from the fees from vendors.** The intention of the program is to be capital generating.”

- Medium program, Southwest

One city also took the industry into account when it considered what vendors would be willing to pay in addition to what the city would need to cover their own costs.

“A combination of what vendors were willing to pay and the cost to cover the administration of the program. Our program is entirely self-sustaining.”

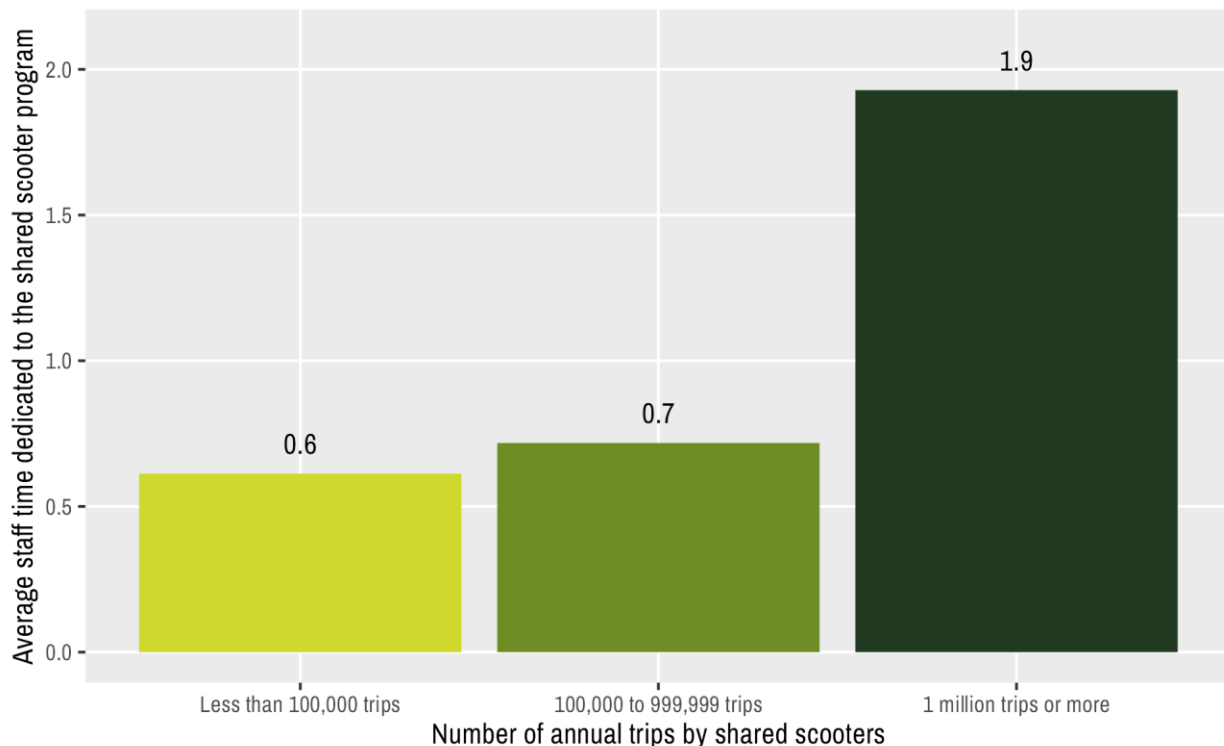
- Large program, West

### The average shared scooter program requires roughly 1 full-time staff member.

Out of twenty complete survey responses, the average program staff reported that their program required 1 FTE of time. However, the staff time cities put to their shared micromobility programs varied widely, from 0.1 FTE to 5 FTE. Cities with larger programs dedicated more staff time - cities with a million or more annual trips had 1.9 FTE, on average, compared to 0.6 to 0.7 FTE for smaller programs (see Figure 13).

In the United States, the average urban planner earned a salary of \$83,000 USD annually as of 2022 (United States Census Bureau, 2024), with additional expenditures for benefits (United States Bureau of Labor Statistics, 2024), for a total compensation of approximately \$134,000. For systems with less than 1 million annual trips, average staff time dedicated to shared scooters is roughly 0.6 to 0.7 FTE, so between \$80,000 and \$94,000 USD in fee revenues would cover costs of staff time.

Put another way, the average shared micromobility program's annual fee revenues (\$389,000 USD) could cover the salary and benefits of roughly three planning staff, one more than what is needed for the average largest shared scooter systems with over 1 million trips.



**Figure 13. Cities with larger shared micromobility programs dedicated more staff time to overseeing the program**

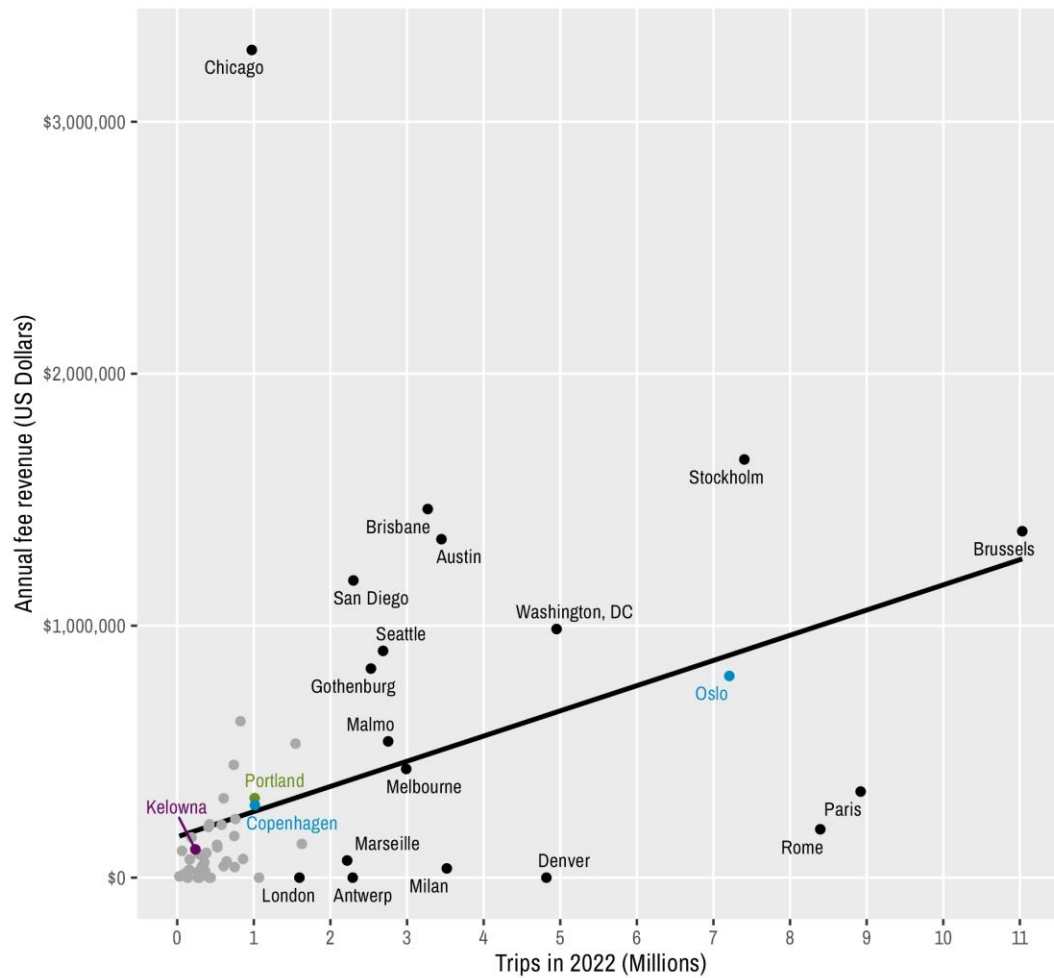
### Some European cities cap program fees at the cost of administration

In both Copenhagen, Denmark and Oslo, Norway (highlighted in blue in Figure 14 below), local and national laws require that fee revenues not exceed the cost of administration. Due to these legal guidelines, the City of Copenhagen set the amount of their per-vehicle fees based on the expected costs of running the program. At the end of 2022, the City of Copenhagen calculated the actual costs of running the program and found that the cost of administration hadn't been as high as they had projected, so they reimbursed the scooter companies with the difference (Kobenhavns Kommune, 2022).

And while Portland, Oregon (highlighted in green in Figure 14 below) does not have laws restricting whether fee revenues can exceed the cost of administration, the city's administrative rules direct fee revenues to be placed in a "New Mobility Account" for use in administering the program (New Mobility - Shared Electric Scooters, 2023). Ultimately, Portland's Bureau of Transportation (PBOT) received \$212,000 in program fees, which covered three-quarters of the operating expenses of \$287,282 for the city's 2018 shared dockless e-scooter pilot program (Portland Bureau of Transportation, 2019), and we estimate the city received closer to \$300,000 in 2020 - in other words, the fee revenues closely matched PBOT's operational expenditures.

Similarly in Kelowna, Canada (highlighted in purple in Figure 14 below), the city is not legally constrained to charge no more than administrative costs, but chose to adopt that approach in practice. The Kelowna program manager touted the ability for the jurisdiction to cover costs as one of the main benefits of the shared micromobility program: "The Micromobility Permit Program is self-funding. ... operators pay an annual permit fee to offset costs related to managing the City tasks associated with the program (e.g. staff time, materials, and community education). The value proposition for the City is that micromobility helps reduce congestion and emissions with no impact on taxation" (Noonan, 2023).

As noted earlier, Figure 14 includes a trendline of a simple linear regression of fee revenues on trip volumes. It is noteworthy that Copenhagen and Oslo, which both adhere to the standard that fee revenues may not exceed the cost of administration, are close to our trend line, as are Portland and Kelowna. Although this trend line is not prescriptive, it does suggest that cities that are well above the line are charging more than is necessary to cover administrative costs, or may be covering additional costs above and beyond their peer cities.



**Figure 14. Comparing trip volumes and annual fee revenues**



## SOME CITIES TRY TO INFLUENCE SHARED SCOOTER COMPANY OPERATIONS THROUGH THEIR FEE STRUCTURE

The second-highest priority for program staff was their ability to influence the behavior of companies (67% rated this as a major or moderate consideration).

Some program staff felt that their “performance-based” fees worked well in influencing operations.

“Yes [it is effective]. We implemented vehicle fleet requirements to **incentivize operators to deploy more e-bikes** rather than stand-up scooters.”

- Medium program, Midwest

“Operators are charged per scooter, this ensures the ability to **recover costs to fund the program**. Operators are not charged per ride. Allows them to aim toward profitability.”

- Large program, South

Other cities were less certain or felt that performance-based fees were not effective.

“Shared micromobility program managers are **cautiously optimistic about performance-based fees (PBFs)** influencing operator behavior. PBFs incentivize operators to meet city goals like safety, equity, and environmental impact through credits and penalties. Challenges include data accuracy, target setting, and ensuring smaller operators don't get disadvantaged.”

- Medium program, West

“The **results have been mixed**. The fee structure has not been effective in limiting the number of scooters blocking sidewalks and ADA ramps, and has not effectively led to equitable distribution of vehicles across the City. However, the fee [structure] ... encouraged the operator to limit the number of unused scooters left on the street. The number of vehicles in operation stayed above the minimum amount and below the maximum amount.”

- Medium program, West

**“They do not [work].** There's a tiered system of per-trip fees intended to encourage the operator to place devices in so-called 'equity zones.' The service area was reduced after only four weeks of operation to essentially exclude the majority of equity areas.”

- Medium program, West

Some cities were considering switching to a performance-based fee system in hopes of addressing concerns.

“[One challenge is] striking a balance between generating sufficient revenue to support program operations and setting fees that incentivize operators to provide adequate service and invest in safety and sustainability measures. [One solution is to] implement a tiered fee structure based on factors like vehicle type, fleet size, ridership, or compliance with safety and equity metrics. This can encourage responsible operation while ensuring program sustainability.”

- Medium program, West

“Currently charge the same amount for scooters and e-bikes within the fee ordinance, which is cost prohibitive for vendors to bring in e-bikes (due to increased moving/maintenance costs). Going through the process of updating the ordinance to allow for more flexibility in fees.”

- Medium program, South

“[Performance-based fees could help with] increasing **access (low cost) program participation.**”

- Medium program, Midwest

Washington, DC incentivizes equity performance through fee rebates

Washington, DC’s program codified an incentive structure to encourage shared scooter companies in the city to develop strong equity programs. DC assesses per-vehicle fees, but a shared scooter company could have some or all of those fees waived based on how much of the company’s overall ridership is enrolled in a low-income discount program (see Table 3).

In a blog post, the shared scooter company, Spin (now merged with Bird), noted how:

“The District is one of the only local jurisdictions in the world that financially rewards or incentivizes micromobility companies for delivering equitable outcomes that directly benefit residents. And the results speak for themselves: We significantly increased our enrollment of low-income residents.”  
(Moller, 2023)

Table 3. Washington, DC Fee Waiver based on Low Income Program Ridership

Percent of Total Miles by Low-Income Program Riders	Per-Vehicle Fee Waiver
0-0.99%	0%
1-1.99%	10%
2-2.99%	20%
3-3.99%	30%
4-4.99%	40%
5-5.99%	50%
6-6.99%	60%
7-7.99%	70%
8-8.99%	80%
9-9.99%	90%
10% or more	100%

## CITIES ARE MODERATELY CONCERNED ABOUT THE FINANCIAL IMPACTS ON SCOOTER COMPANIES AND RIDERS

Ensuring the fee structure was financially feasible for the shared scooter companies was predominantly a moderate to minor concern (70% of program staff), as was ensuring lower costs for riders (73% of program staff rated it as moderate or minor). There is good evidence that program fees and sales taxes / VAT negatively affect usage by increasing prices, either directly (sales taxes / VAT) or indirectly (program fees passed on to riders) (Baker et al., 2023; Litman, 2004; Schellong et al., 2019). Although it wasn't a top consideration for most respondents, comments left by respondents indicated that it was a tradeoff they considered.

"We want to set fees that change behavior, but also a high priority was put on not over-burdening riders, especially those who are low-income."

- Large program, West

"**Fee structure is cost-prohibitive. A smaller provider left the city** because of the cost of operating here and their failure to catch-on (low ridership)."

- Large program, Midwest

"We have little impact on pricing for the end user. **We have struggled with being able to provide incentives to reduce fees to help operators stay in the market**, while improving the [city's] goals. (Goals with increasing infrastructure, equity goals, and mode shift goals)"

- Medium program, Midwest

"Does not incentivize scooter companies to encourage more trips. Costs are passed on to riders."

- Medium program, South

Several respondents noted that ultimately, they felt the city should consider funding the program administration, rather than relying on program fees.

**“The biggest challenge is that there is a lack of funding to have a truly successful program.** There is a need to have more funding from our city to better regulate compliance and have operations regulations that are beside the vendors. If the city had a better way of regulating scooters, there could be more compliance. The additional issue is that our utilization rates for our program is slowly growing, but is not where it should be for it to be more profitable.”

- Medium program, Southwest

“We have considered opportunities to make changes to the fee structure, but we do not receive many complaints regarding the program except occasional (1-2x a month) complaint that a device is on private property/needs to be picked relocated ... we are hesitant to make our program more restrictive. We could consider reducing our fees, but we do not collect much from this program and any changes to our policies/program will require more staff commitment and resources. The City has also been coordinating with our MPO and partner local agencies to consider a regional program, but have not proceeded with anything..”

- Small program, West

“Vendors have wanted to pay in installments rather than up front. I think **we worry that long-term the City should actually fund this,** but we are chugging along for now.”

- Large program, West



## PAYING FOR INFRASTRUCTURE IMPROVEMENTS WAS NOT HEAVILY CONSIDERED BY MANY CITIES

Shared micromobility infrastructure has been a major topic of research and policies, especially with respect to parking (Fang et al., 2018; Hemphill et al., 2022; N. Klein et al., 2023) as well as sidewalk riding (Anke et al., 2023; Cicchino et al., 2023). Research shows that bike lanes (Anke et al., 2023; Cicchino et al., 2023) and more parking infrastructure (Hemphill et al., 2022; N. Klein et al., 2023; Meng et al., 2024) can help address these problematic rider behaviors.

Despite the promise of infrastructure enhancements in alleviating some of the pain points of a shared micromobility program, raising revenue to invest in infrastructure improvements was primarily a moderate or mild concern for cities (62%), and for roughly a quarter it was not a concern at all. This may reflect the fact that shared micromobility program fees can not realistically cover the costs of meaningful infrastructure investments, despite early promises by one shared micromobility operator to dedicate fare revenues toward bike lanes (Schmitt, 2019).

### Some cities dedicated program fee revenues to work toward a network of parking corrals or bike racks

While raising revenue to pay for infrastructure was not a common major concern, infrastructure-related expenditures were mentioned by some respondents.

One city set up a fee structure to encourage operators to install infrastructure in exchange for a fee rebate:

“Performance-based incentives can work well to influence behavior. In [city] with the [docked bikeshare] system there was an incentive placed on infrastructure being brought in (docking stations/bike racks) and the fees were reduced if the rack was company specific, and reduced even further if the infrastructure was non-branded.”

- Medium program, Midwest

And in some instances, cities invest the revenues both on physical infrastructure and on administrative costs for the shared micromobility program:

“Revenue are allocated on staff time and installation of new parking structures for e-scooters.”

- Medium program, West

“The funds are used to run and maintain the program while also allowing for infrastructure installation.”

- Large program, West

If cities wish to use fee revenue for infrastructure enhancements, what investments could they afford with these funds? Bushell et al. (2013) estimate the cost for a variety of pedestrian and cyclist infrastructure improvements. While dockless micromobility corrals were not yet invented at the time of that report, gauging off the price of other infrastructure involving pavement markings can provide some insight on costs. For example, they estimate striped crosswalks cost approximately \$7 USD per square foot (0.9 meters) on average and bike boxes cost approximately \$12 USD per square foot. Conservatively multiplying the \$12 USD per square foot figure by the typical dimensions of car parking space of 9 feet by 18 feet (162 square feet) yields an estimated total of about \$2,000 USD per painted corral (Bushell et al., 2013). Average annual fee revenues (\$389,000) used entirely for corrals would therefore cover the cost of painting 195 parking corrals per year.

Alternatively, a city could use its fee revenues to purchase bike racks. Bushell et al. (2013) estimate the average cost of bicycle racks at \$660 each (range of \$64 to \$3,610). Using the average cost, average annual fee revenues used entirely for bicycle racks would cover the cost of installing 589 bicycle racks per year.

Parking corrals and bike racks also have the potential to be used by people using personally owned bicycles and scooters, allowing the fee revenues to provide further benefits beyond the shared micromobility program.

### San Francisco, California uses program fee revenues to pay for bike racks

In San Francisco, California, the city’s permit specified that program fee revenues would go toward bike racks:

“Permittee shall pay the fee as set forth in Section 902(d) of the Transportation Code, Div. II, to SFMTA for each permitted device to **cover the cost of procurement and installation of bicycle racks to insure an adequate supply of bicycle parking** (Bike Rack Fee)” (San Francisco Municipal Transportation Agency, 2021)

This use of fee revenues was especially strategic, as the local parking regulation in San Francisco requires scooter riders to park at a bike rack or other fixed piece of street furniture (Pender, 2017). By using fee

revenues to install more bike racks, the city could provide more parking infrastructure for both personally owned and shared micromobility vehicles, which could address the concerns of riders of personally-owned bicycles and scooters that lock-to requirements would flood the limited supply of existing bike racks (Zipper, 2021).

### **Denver, Colorado assessed no fees in exchange for direct financial investments by operators toward a comprehensive equity program and micromobility infrastructure**

The City of Denver, Colorado chose to eliminate program fees in their program and instead require shared micromobility companies to deliver robust equity programs and pay for parking infrastructure. In combination, the two micromobility companies operating in Denver are on track to install more than 400 parking corrals, and each company is responsible for distributing 5,280 discounted fare passes to riders in the city (City and County of Denver, 2024).

So, while this study lists Denver's program fees as \$0, in reality this masks the city's different approach to implementing a license with shared micromobility companies. With this type of agreement, Denver does not charge a fee but instead passes on costs to the operators that might more typically be borne by the city and paid for with program fees. Based on the above cost for parking corrals (\$2,000 per corral), this is an investment by the operators of \$800,000 USD over the course of the 5-year license, or \$200,000 per year. In addition, the 5,280 discounted fare passes lead to reduced fare revenues. Though these are major investments by the operators in Denver, improving parking options have beneficial impacts for the operators and improves parking concerns and issues for the residents of Denver. This may have the side benefit of encouraging a more collaborative partnership between companies and the city.

A Denver Region Council of Governments report noted that the Denver model “focuses on potential partnership opportunities between the public and private sector to pursue and support civic goals and is not regulated through a permit program” (Denver Regional Council of Governments, 2020). The report explicitly notes how the city made deliberate tradeoffs between program fees and a partnership model that led to greater benefits to riders and allocated the program costs directly to companies: “The City and County of Denver, as part of its competitive selection process to award a license to a shared micromobility operator, is reconsidering fees and instead focusing on partnerships with operators that rely more on trip subsidies to riders, rather than a payment to the public agency. ... Denver staff acknowledges that robust equity components of a program may come at a cost to operators, and addressed this in the overall development of their anticipated ongoing program, with specific consideration of fees.” (Denver Regional Council of Governments, 2020).

## CITIES ALSO REFER TO PEER CITIES IN DEVELOPING THEIR FEE STRUCTURES AND AMOUNTS

When cities want to determine fee structures and amounts, they often look to what other peer cities have done.

“The dollar value of our fees were determined by scanning fees in comparable markets at the time of program launch and through the assistance of a consultant study.”

- Medium program, West

“[We set our fees] based on other cities and for a data management vendor and bicycle and scooter parking infrastructure.”

- Small program, Southwest

“We looked at other cities' fees.”

- Small program, Southwest

“[We set our fees] based on what **comparable municipalities** charged.”

- Small program, Midwest

“A sampling of other jurisdictions and input from operators.”

- Medium program, South

“Comparison to other contracts and estimating our costs.”

- Small program, West

While early adopters would have had to use different factors in making their decisions about fees, looking at what cities of a similar size and with similar conditions is now an option for cities considering their own programs. Looking at what appears to be working for peer cities is a relatively straightforward way to decide fees.

Some chose to get perspectives from a variety of groups before deciding.

“[Our fee] was determined through comparison with device fees that other markets charge and discussions with elected officials, industry leaders, and agency experts.”

- Large program, East

Cities often don't want to “reinvent the wheel” when developing new programs, especially smaller cities with less resources. While cities can benefit from lessons learned from other cities but there can be some unintended outcomes if they do not consider how regulations may not apply seamlessly to their context. The phenomenon of duplicating codes and regulations is commonplace beyond shared scooter systems - for example, minimum car parking standards and other city ordinances are often copied from one jurisdiction to another with no modification (During, 2013).



## BLIND AUCTIONS ARE BEING USED BY SOME CITIES IN THE RFP PROCESS

In addition to program fees that are standardized across operators and set by the city, some jurisdictions also include “blind auctions” as part of their RFP process. A blind auction entails asking operators to provide a financial offering as part of the RFP application. The competing applicants’ offers are then scored as part of the overall RFP evaluation and selection process. The percentage of the scoring that comes from the blind auction offer varies, but since every point counts in a highly competitive process for a limited number of program slots, it is likely that companies view a competitive blind auction bid as crucial to success, regardless of the exact percentage.

There are different ways to implement blind auctions. One important differentiating factor is whether the blind auction requires applicants to bid on direct fees or on “indirect” costs, such as equity program commitments or investment in research. Many cities’ blind auctions refer to direct fees, but some, such as Denver (described above), ask for operators to bid on indirect program costs, such as equity program offerings. Blind auctions can also vary on whether they are added in addition to other program fees or whether they represent the program fees in totality. Again, while many cities assess standard program fees as well as blind auctions, some cities, like Denver, use the blind auction to determine the entirety of the shared micromobility companies’ financial commitment to the city.

The goal of an RFP is to identify and select the operator(s) best suited to provide a service to a city or jurisdiction; blind auctions are an ineffective tool to achieve this goal, as they do not provide useful information about how effective operator(s) are likely to be.

Blind auctions also come with potential negative ramifications. Since RFPs are competitive processes, and operators have no knowledge of who is applying to the RFP nor how much they are proposing, the natural dynamic is to provide a high financial offering to win a slot. Blind auctions can therefore result in the “winner’s curse,” an outcome in which the winner prevails by submitting a bid that is not only higher than competing bids, but also higher than the true value of the item. For a city, that means the winning operator is forced to operate at a loss, threatening the viability of the program. Consequently, blind auctions will typically not align with the goal of program sustainability, as they can result in fee amounts that are out of proportion to the actual costs of program administration. In turn, they can lead to operators being unable to fulfill their obligations and exiting the market.

Blind auctions do not align with the overarching principles governing public contracts: the award of public contracts and the spending of public money should be done in a way that promotes and encourages free and open competition and good value for money (Lynch, 2024). To achieve these overarching objectives, the process for awarding public contracts should be fair, impartial, transparent, and reasonable.

In many countries, blind auctions are not legal. For example, in Spain, public fees must be backed by local regulation and limited to the market value of benefit obtained from their use. As a result, municipalities are required to put together a technical economic report to justify how the benefit is calculated.

In 2023, there were at least 16 cities worldwide that used blind auctions in their RFPs. In the survey of program staff, nine percent of jurisdictions indicated that their RFP included a blind auction.

### Miami, Florida

In Miami, Florida's 2021 RFP solicitation, a 100-point scorecard was outlined, conveying the city's priorities to applicants (see Table 4). Ten percent of the available points came from a blind auction offer, with the ten points evenly split between an operator's offer for an annual fee (5 points) and a per-vehicle fee (5 points). The RFP placed a "floor" for the blind auction, starting bidding at \$100,000 for the annual fee and \$1 per day for the per-vehicle fee.

After the RFP applications were submitted, the City of Miami set the fee for all operators based on the highest bid they received: a \$250,000 annual fee and a \$2.25 daily per-vehicle fee. Notably, the \$2.25 daily per-vehicle fee is over double the highest fee observed in this study. At least one scooter company that was selected through the RFP process chose not to serve Miami due to the fees, suggesting that blind auctions reduce the number of qualified applicants. As of 2022, the City of Miami's scooter program has gone defunct (Bowen, 2022).

**Table 4. Miami, FL 2021 RFP scorecard**

Criteria	Points
Proposer's Relevant Experience, Qualifications, Past Performance and Qualifications of Key Personnel	20
Proposer's Proposed Approach to Providing Services Including Application ("App"), Equipment, and Data Sharing	20
Proposer's Safety, Marketing, and Awareness Plan	40
Data Sharing	10
<i>Proposer's Proposed Comp</i>	<i>10</i>

### West England and Essex, United Kingdom

In the United Kingdom, a growing number of cities have begun including blind auctions into their RFPs.

In the West England Combined Authority's 2022 RFP solicitation, the scoring included a blind auction section (see Table 5). As in Miami, ten percent of the available points came from this section, making it a pivotal part of the application in order to win the RFP award. Only a small number of scooter companies applied, with at least one company choosing not to apply due to the blind auction component (Harris, 2023).

**Table 5. West England Combined Authority’s 2022 RFP scorecard**

Criteria	Points
Quality	70
Commercial	
<b><i>Revenue share</i></b>	<b>10</b>
Expansion areas	4
E-cargo bikes	5
Commercial viability	10
Branding	1

Since the RFP was awarded, the system has experienced a number of problems, including a “lack of [scooter] availability, broken kick stands, no parking spaces or battery levels shown on the app before you ride, scooters slowing down or even stopping completely on busy roads due to faulty GPS and no in-app navigation are just some of the problems that users have been experiencing” (Booth, 2023), leading to threats of fines to the company (Simson & Ketibuah-Foley, 2023).

Similarly, in Essex, the city's RFP included a blind auction component that was worth thirty percent of the scoring, exacerbating the negative dynamics encouraged by this approach. Since this component made up nearly a third of overall points, it would be even more important than in other blind auction RFPs to have the highest bid. As a consequence, Lime chose not to submit an application to serve Essex, knowing that a winning blind auction bid would result in a market that would not be financially feasible (Harris, 2023).

## Insights from program staff

In the survey of program staff, two cities provided some background information on their blind auctions. Notably, both cities' blind auctions did not impose new, additional *fees*, but rather asked for companies' contributions in other forms, including rider pricing, equity programs, and other aspects of the service.

"We created a table for proposers to fill out for pricing and financial contributions (i.e., ride credits or equity programs) by fiscal year."

- Medium program, West

"We asked operators to **maximize the value provided to [city] and its residents** and assigned a high point scoring amount to that field."

- Large program, West

## Blind auction takeaways

In an industry where companies have yet to prove they can reliably run a financially sustainable business, and where many companies still remain in operations and competing for valuable city contracts, blind auctions may lead to unsustainable behavior: an operator bids as high as possible to win the RFP, but ultimately cannot financially sustain operations and has to leave the market or renege on commitments made in the RFP, leading to the program's failure and the city's unrealized revenue.





Photo by Andrew Gook via Unsplash



# DISCUSSION

This research project set out to examine how fees and taxes are levied on shared micromobility programs across the world. We also explored the rationales behind fee structures and their implications. Fees and taxes have important implications for cities, riders, and shared micromobility companies in terms of successful implementation and the long-term sustainability of these programs.

## KEY RESEARCH FINDINGS

Our study highlights four key research findings.

### FINDING #1: FEES VARY DRAMATICALLY BETWEEN CITIES

We found that fees varied dramatically across cities both in the type of fees assessed and the amounts. Some cities choose not to impose program fees at all, in line with municipal transportation goals. In cities that do assess program fees, there are four commonly used fee “types”: per-trip, per-vehicle, flat annual and flat one-time (such as an initial application fee). There are **large differences in the fee amounts that cities charge** - for example, the highest per-vehicle fee (\$430 USD per year) is over four hundred times higher than the lowest (\$1 USD per year).

Some cities used “blind auctions” to assess additional fees during the RFP process, which can lead to significant added costs, such as to pay additional fees directly to the city, to build infrastructure, or to implement specific programs, such as low-income memberships.

### FINDING #2: SHARED MICROMOBILITY IS TAXED TWICE, VIA SALES TAX/VAT AND PROGRAM FEES, AND THESE REVENUES CAN BE SUBSTANTIAL

On average, cities charging an annual fee received over a third of a million USD each year (\$389,000 USD). After using system operations data to calculate fee amounts and ridership, we estimate that annual fees averaged to be \$0.22 USD per mile or \$0.28 USD per trip in 2022. If we include sales taxes/VATs with fees, the average shared micromobility trips generates fee + tax revenue of **\$0.70 USD per mile** or \$0.89 USD per trip, which works out to a **combined global average rate of 16.4% in taxes and fees** as a percentage of revenues from user fares.

### FINDING #3: SHARED MICROMOBILITY TAXES AND FEES ARE HIGHER THAN MOST OTHER MODES OF TRANSPORTATION, ESPECIALLY DRIVING AND RIDEHAIL

We compared how fees and taxes on shared micromobility compare to fees and taxes levied on other modes of travel, such as personally owned cars, ridehail, carshare, and shared mopeds. **Shared micromobility fee/tax rates are high relative to most other modes of travel**, notably personal vehicle travel (23 times more per mile) and ridehail trips (over 5 times more per mile).

## **FINDING #4: WHEN DECIDING ON FEES, CITIES ARE ESPECIALLY CONCERNED WITH COVERING ADMINISTRATIVE COSTS AS WELL AS INFLUENCING OPERATOR BEHAVIORS**

One common use of fee revenue, and the most notable consideration in setting fee levels, was to cover the cost of program administration. Among six possible considerations we tested, covering the costs of program administration was rated as most influential, with 77% stating it was a major or moderate consideration. Less consideration was given to ensuring financial feasibility for scooter companies or lower costs for riders, despite the fact that both of these outcomes would positively contribute to the overall success of the shared micromobility system from a broad, societal perspective.

## FACTORS BEHIND THE CURRENT FEE LANDSCAPE

Collectively, this report’s four key findings suggest that there is little consensus or clear rationale for shared micromobility fees and taxes. Outside of fees and taxes, however, there is arguably much common ground around micromobility. Fundamentally, shared micromobility companies, system users, and cities (generally) would like shared micromobility systems to continue to exist. Companies presumably would like to remain in business, and riders who currently find shared micromobility beneficial would want services to remain available and affordable. Cities too, even in the process of setting permit requirements and charging fees, often state that they are supportive of the idea of micromobility travel. Furthermore, cities generally share the same overarching goals for their shared micromobility programs: sustainability, congestion relief, vehicle travel reduction, equity, providing multimodal options, and more. This begs the question: **Why do we see such disparate fee policies when there are such common goals?**

## RATIONALES FOR AND HISTORY BEHIND HIGHER FEES

There are a number of reasons that could lead cities to charge higher fees. Some of these factors have to do with characteristics of dockless shared micromobility operations and the early actions of operators. Other, more external factors relate to cities, as well as the specific time in history in which dockless shared micromobility emerged.

Operationally, higher fees could be motivated in response to complaints about shared micromobility programs. While surveys have found that micromobility has been generally positively received from the public (Populus, 2018), shared micromobility has also come with several well-publicized negative externalities, including misparking, complaints about “street clutter”, and safety concerns for riders and pedestrians alike. Fees can help address those externalities, as the fee revenues can be used to implement solutions or pay for program management. Cities generating fee revenue to mitigate externalities could provide political cover for the existence of programs.

Some dockless shared micromobility companies initially entered cities without seeking approval or permission. In some cities, large fleets of off-the-shelf vehicles overwhelmed city streets, seemingly overnight, further highlighting negative externalities to cities. Backlash to this “ask for forgiveness, not permission” approach could have triggered stricter policy responses, including higher fee levels.

Higher fees may be indicative of general risk aversion by cities to the unknown. Charging fees could ensure that a city would be able to address any unforeseen impacts. In other words, high fees ensured cost recovery. Such risk aversion may also be driven by city DOTs facing budget shortfalls. Shared micromobility fee revenues represent a revenue stream that can pay for staff time, oversight, and management. This budget crunch may be felt most acutely by smaller cities, which have smaller DOT staff sizes, in turn making the management of a new mode particularly challenging.

Looking historically, when dockless shared scooters and bikes were first introduced to cities around 2017

and 2018, cities faced a very different transportation and financial landscape than exists today. Venture capital investments, which helped create a large number of shared micromobility companies, were soaring. Higher fee levels may have seemed reasonable in an environment of such free-flowing money.

Another potentially complicating factor was the presence of docked bikeshare systems in cities when dockless micromobility emerged. While usage of both docked and dockless micromobility would meet the same mode shift goals, from a business standpoint, they could be seen as competitors. Cities may not be neutral parties in such competition in cases where there was public investment in docked bikeshare.

Overall, given the context of cities in 2017 and 2018, a chaotic introduction of dockless fleets, it is arguably unsurprising that many cities ended up with high fees. In other words, when cities initially set high fees, they are likely pursuing other objectives apart from lofty policy goals of sustainability and equity, such as ensuring cost recovery and addressing political aims, as documented by Castellanos et al. (2024).

## **RATIONALES FOR LOWER OR NO FEES**

On the other hand, there are also several reasons why a city might want to charge lower fees or no fees at all. As some cities' program staff noted in the survey, fees directly impact the financial performance of companies and thus the viability of their shared micromobility programs: all else being equal, lower fees increase the probability that shared micromobility companies can sustain operations over time.

Fees also indirectly affect the fares charged to riders. Higher fees lead to higher trip fares for riders (Baker et al., 2023) thereby discouraging usage of the system (Flynn et al., 2023; Litman, 2004). To the extent that low program fees help to lower trip fares and secure a long-lived shared micromobility program, this fee approach will help achieve another, broader goal held by many cities, which is to encourage alternatives to the car.

Furthermore, the shared micromobility industry and cities have changed. The world of 2024 is not the same as 2017 and 2018. The shared micromobility industry no longer deploys at-will in city streets, but rather works through formal procurement processes to serve cities. The world has also of course gone through the COVID-19 pandemic, with dramatic consequences for the way people work and move around, particularly with respect to the use of public transit. Many cities' budgets, particularly for public transit, are even tighter post-pandemic than in 2017 and 2018, leading to reevaluation of how to move people around cities. At a broader level, inflation has increased substantially and interest rates have followed, and in this financial environment, venture capital investments have dried up. Partially as a consequence, the industry has seen upheaval, with notable mergers, closures, and bankruptcies.

In other words, shared micromobility is no longer an unfamiliar, "emerging" mobility technology. While shared scooters and bicycles are still relatively new, most cities have advanced past the pilot stage and entered into multi-year permits with a small number of well-established operators. Both cities and companies understand the risks of poorly-run systems, know how to implement equity programs, and have developed (and continue to develop) technologies and programs to address better-understood challenges.

## CASE STUDY | Cities that choose not to impose fees, and why

### Munich

Munich, Germany does not assess fees of shared micromobility companies. The city's goal for 2025 is for "at least 80 percent of traffic in Munich's urban area is to be covered by zero emission vehicles, buses and trains as well as walking and cycling" (München Unterwegs, 2021). Furthermore, the city aims to have climate-neutral traffic by 2035, and accordingly has stated a commitment to maintaining its shared micromobility program as part of a supply-oriented mobility transition, even in the face of the well-publicized Paris scooter ban (*Mobilitätsstrategie 2035: Teilstrategie Shared Mobility*, 2023). Achieving the cities' goals will require that environmentally friendly modes be cost-competitive with car travel, and the city has therefore chosen to forgo program fees to align their regulations with their objectives. Further evidence of this comes from the city's choice to implement fees on carshare systems and assess fees on sharing mopeds but to not assess fees on shared micromobility. Finally, despite charging no program fees on shared micromobility, the city is building high-quality infrastructure and dedicates staff to the program.

### Berlin

Berlin, Germany assesses fees on vehicles in the city center but charges no fees in the city's suburbs. The rationale behind this fee structure is to encourage shared mobility options in peripheral areas that may otherwise see lower vehicle availability. Furthermore, the City of Berlin pays for parking infrastructure and only charges operators for vehicles in the city center. The city has observed benefits from this approach, with operators shifting more of their scooters to suburban sites, such that the distribution of vehicles between the inner-city and outer-city areas is now nearly evenly split (Senatsverwaltung für Umwelt, Mobilität, Verbraucher- und Klimaschutz, 2023), whereas previously vehicles were predominantly located in the city center.

### Grand Rapids, Michigan

The vision of the City of Grand Rapids, Michigan for its shared micromobility program was for it to be a legitimate, affordable option for residents. This vision is reflected in the City's Request for Proposals in 2019, where they specified that "our interest is to develop a long term relationship so we can provide high quality and continuous shared micromobility transportation that meet our community goals and values" (City of Grand Rapids, 2019), and the City followed through on their goals by omitting program fees from their program contracts and regulations.

The City has also invested in Designated Parking Zone infrastructure. The City articulated this priority in the 2019 RFP, with the goal of: "develop[ing] one or more approaches for managing the parking of shared micromobility vehicles between trips that provide maximum convenience to system users without impeding accessible pedestrian travel" (City of Grand Rapids, 2019). The city has found this "hybrid" parking approach to be a cost-effective balance between the high costs of a docked system while avoiding concerns about misparking that commonly accompany dockless systems (Bennett, 2022).



## PROGRAM FEES HAVE SEEN MINIMAL CONSISTENT CHANGES SINCE 2020

Comparing our results to the look at US e-scooter programs in 2020 by Lowe et al. (2021), there have been some changes in fee structures, albeit inconsistently. In 36 cities covered in both studies, 24 programs changed their fee structure in some manner. Just 6 cities kept the same fee structure, with 3 cities starting programs, and 3 cities no longer having scooters since 2020.

In 20 cities common between Lowe et al. (2021) and our full quantitative analysis, some cities raised fees while others lowered them. In one direction, Denver eliminated their fees, and San Antonio, which had one of the highest fees to operate in the country, lowered their registration fees from \$25,000 to \$1,000 and dropped their per-trip fees. In the other direction, New York did not have an e-scooter program but has since implemented a system that charges a registration fee and per-vehicle fees. Phoenix increased their one-time permit fees from \$5,000 to \$15,000 and the per-trip fees from \$0.10 to \$0.15. These differences highlight the varying environments which operators need to operate in and the need for information sharing between cities to develop consistent and transparent fee structures to ensure programs are sustainable for the city and operators alike, and help further city goals of equitable, affordable, and sustainable mobility.

## AN OPPORTUNE MOMENT TO REFLECT: CONSIDERATIONS IN DESIGNING PROGRAM FEES AND TAXES

Given changes in the micromobility industry, transportation as a whole, and cities since the emergence of dockless micromobility, now might be a logical time to re-evaluate fee structures, particularly those cities that have made minimal changes to the program terms since the beginning of the shared micromobility industry. We lack the data to provide concrete recommendations for optimal fee amounts, but we do recommend that cities align fees with overarching municipal transportation goals and use well-established principles of taxation and administration to determine the structure of fees.

There are many different principles of taxation which aim to achieve various goals, including fairness, compliance, and revenue collection. Below we highlight well-established tax principles that are applicable to shared micromobility programs.

## CASE STUDY | Revisiting fees in Chicago: acknowledging industry evolution and aligning more closely with peer cities

In 2024, the City of Chicago revisited its program fees as part of its new shared micromobility permit. While in 2022 Chicago stood out as a stark outlier compared to peer cities with similar trip volumes, the City has since reduced its fees with the intention of aligning with best practices established by its peers.

Kenneth Meyer, the City of Chicago's Commissioner for the Department of Business Affairs and Consumer Protection, spoke at an April 2024 city council committee hearing to share the rationale behind updating the city's program fees (*Committee on License and Consumer Protection - April 10, 2024 Meeting, 2024*). Commissioner Meyer highlighted the benefits of shared scooters - "Chicagoans quickly adopted scooters [during the 2019 pilot] as a form of transportation for getting to and from the CTA, commuting to work or school, and running errands" - as well as how the shared scooter program achieves policy goals:

"Importantly, **scooters help us achieve city goals** to shift trips to more physically active transportation, such as biking and walking, and to **reduce vehicle emissions**. Chicago Department of Transportation (CDOT) analysis shows that nearly one quarter of trips that scooter riders take would have otherwise been in a vehicle if scooters were not available. **Scooters also provide an equitable transportation option** in historically disinvested communities."

In providing background justification for "modernizing the scooter sharing license fee", Commissioner Meyer alluded to the history and changing practices of scooter regulations:

"Five years ago, when we were all getting started with this, in 2019, the license fee was \$1 per day per scooter. **At that time, this license fee model was prevalent nationwide. In the years since, however, major cities have transitioned towards a modernized fee structure** comprised of an upfront fee to the scooter company, in addition to either a per-trip fee or a per-device fee."

The evolution and maturation of the shared scooter industry played a part in the city's updates, as well:

"Five years ago in 2019, ten scooter companies were operating in Chicago. Fast forward to 2022, and only six companies vied for the three licenses. Now in 2024, only two companies licensed by BACP [*Department of Business Affairs and Consumer Protection*] are operating in Chicago. **These changes reflect the consolidation in the scooter market nationally**, allowing the City to bring scooter licensing into alignment with other issued BACP [*Department of Business Affairs and Consumer Protection*] licenses."

While Chicago retains relatively high fee program fees, it's clear that the City of Chicago felt that now was an opportune moment to reassess fees. With the latest data on trip volumes in Chicago since the new program began, we estimate that the fees are likely to be reduced by about half - still high, but no longer an outlier.

## SIMPLICITY

Simple tax structures make it easier for individuals and businesses to accurately anticipate and forecast their tax bill. Simultaneously, simple taxes are also easier for governments to administer and collect.

Some micromobility permit fees we observed are very simple, such as flat fees and fees based on permitted vehicles. Other fee types, such as per-trip fees, require more collection and reporting of data which may or may not be simple to collect. Performance-based fees (e.g., depending on location or time of day) attempt to incentivize or disincentivize rides in certain areas and behaviors by riders or operators. While such goals may make sense, performance-based fees are inherently more complicated to levy. Acquiring needed data may require subscriptions to third party data aggregators to help collect fee revenues.

## REGRESSIVITY

Consumption taxes, like the sales tax and value-added tax, are regressive: they disproportionately affect low-income individuals and households because the taxes make up a larger proportion of their income. As a consequence, essential goods such as groceries and medicine, and even public transit, are typically exempted from sales or value-added taxes (California Department of Tax and Fee Administration, 2022; Gant, 2023). Program fees, which are another example of a regressive “tax”, can also disproportionately impact low-income travelers.

## CONSISTENCY IN TREATMENT OF MODES

As illustrated in this report, different modes of transportation are taxed at different levels. In many US states, ridehail trips are exempt from the sales tax, and when fees or taxes *are* levied on ridehailing, it is typically at a lower per-mile rate than shared scooters and bicycles. Public transit is subsidized in cities around the world. This contradicts tax principles of equity and fairness across modes (American Institute of Certified Public Accountants, 2001).

Cities’ decisions about taxing and spending reflects their policy priorities - we suggest that considering the varying benefits and drawbacks of different modes would be a helpful guide to reassessing program fee structures for shared scooter and bike programs.

## DOUBLE TAXATION

By imposing program fees on top of sales tax or value-added tax, cities are taxing shared micromobility trips twice. Clarity is a commonly-accepted principle of taxation (American Institute of Certified Public Accountants, 2001; Neumark & McLure, 2023), but by adding multiple layers of taxation, and in many cases different variants of program fees, cities are choosing complex, unclear tax and fee structures.

In addition, sales tax rates have already been established for consumer goods and services. As cities elect to establish additional taxation mechanisms through program fees, this can lead to higher tax rates, which in turn leads to higher fares for travelers (as companies seek to recoup the additional costs) (Baker et al., 2023) and can lead to the departure or bankruptcy of shared micromobility companies.

## FUTURE RESEARCH

This study focuses on taxes and fees assessed on shared micromobility riders and companies but excludes other regulatory costs. For example, many cities require shared micromobility companies to offer discounted trips in certain neighborhoods or deployment minimums to address equity goals (e.g., Chicago and Baltimore), or impose curfews that limit when shared micromobility vehicles are allowed to be rented (e.g., St. Louis and Atlanta). Other cities require swift response times or very high service levels that can also drive up operational costs. While these requirements and others like them are not explicitly program fees, they lead to additional costs or loss of revenue for shared micromobility companies in the same manner as program fees.

Excluding these additional regulatory costs means this study provides a conservative estimate of the costs imposed by cities on shared micromobility companies, and they also offer promising areas for further research. For example, who benefits from reduced fare “zones” - does it reach the intended audience? Are these programs effectively achieving city goals to increase access and mobility in underserved communities and populations? How could a model of subsidizing shared micromobility as public transportation work within the current marketplace?

Another area for future research would be to examine the various fines that cities implement to discourage noncompliant rider behavior, such as improper parking or sidewalk riding, and noncompliant company operations, such as deploying too many or too few vehicles, or deploying in restricted areas. In addition to quantifying the amount of fine revenues generated and how the fine revenues are spent, further research could also explore the real and perceived effectiveness of fines in changing rider and operator behaviors to achieve the goals of the shared micromobility program.

## REFERENCES

- American Institute of Certified Public Accountants. (2001). *Guiding Principles of Good Tax Policy: A Framework for Evaluating Tax Proposals*.  
[https://egrove.olemiss.edu/cgi/viewcontent.cgi?article=1778&context=aicpa\\_guides](https://egrove.olemiss.edu/cgi/viewcontent.cgi?article=1778&context=aicpa_guides)
- Anke, J., Ringhand, M., Petzoldt, T., & Gehlert, T. (2023). Micro-mobility and road safety: Why do e-scooter riders use the sidewalk? Evidence from a German field study. *European Transport Research Review*, 15(1), 29. <https://doi.org/10.1186/s12544-023-00607-z>
- Arellano, J. F. (Frank), & Fang, K. (2020). Sunday Drivers, or Too Fast and Too Furious? *Transport Findings*, December. <https://doi.org/10.32866/001c.11210>
- Baker, S. R., Sun, S. T., & Yannelis, C. (2023). *Corporate Taxes and Retail Prices* (27058). National Bureau of Economic Research. <http://www.nber.org/papers/w27058>
- Bellan, R. (2022, March 14). Lyft, Uber add surcharge due to high gas prices. *Tech Crunch*.  
<https://techcrunch.com/2022/03/14/lyft-uber-add-surcharge-due-to-high-gas-prices/>
- Bennett, K. (2022, June). *Shared Micromobility Designated Parking Zones*. National Association of City Transportation Officials Conference, Boston. [https://nacto.org/wp-content/uploads/2022/06/20220608-GrandRapidsMI\\_NACTO-Roundtable.pdf](https://nacto.org/wp-content/uploads/2022/06/20220608-GrandRapidsMI_NACTO-Roundtable.pdf)
- Booth, M. (2023, November 17). Tier acknowledges problems with Bristol e-scooter fleet. *Bristol 24/7*. <https://www.bristol247.com/news-and-features/news/tier-acknowledges-problems-bristol-e-scooter-fleet/>
- Bowen, G. (2022, November 8). Scooters wheeled off streets of Miami. *Miami Today News*.  
<https://www.miamitodaynews.com/2022/11/08/scooters-wheeled-off-streets-of-miami/>

Brown, A., Klein, N. J., Thigpen, C., & Williams, N. (2020). Impeding access: The frequency and characteristics of improper scooter, bike, and car parking. *Transportation Research Interdisciplinary Perspectives*, 4, 100099. <https://doi.org/10.1016/j.trip.2020.100099>

Bushell, M. A., Poole, B. W., Zegeer, C. V., & Rodriguez, D. A. (2013). *Costs for Pedestrian and Bicyclist Infrastructure Improvements: A Resource for Researchers, Engineers, Planners, and the General Public*. UNC Highway Safety Research Center.  
[https://www.pedbikeinfo.org/cms/downloads/Countermeasure%20Costs\\_Report\\_Nov2013.pdf](https://www.pedbikeinfo.org/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf)

California Department of Tax and Fee Administration. (2022). *Sales and Use Taxes: Tax Expenditures*. <https://www.cdtfa.ca.gov/formspubs/pub61.pdf>

California Integrated Travel Project. (2023). *Bikeshare Market Sounding Report*.  
<https://www.calitp.org/assets/Cal-ITP.Bikeshare.Market.Sounding.Report.20230731.pdf>

Castellanos, S., Wright, K., & Grant-Muller, S. (2024). Governing shared mobility: A comparison of the public policy goals being pursued in three cities. *Transportation*.  
<https://doi.org/10.1007/s11116-023-10461-6>

Cicchino, J. B., Chaudhary, N. K., & Solomon, M. G. (2023). How Are E-Scooter Speed-Limiter Settings Associated with User Behavior? Observed Speeds and Road, Sidewalk, and Bike Lane Use in Austin, TX, and Washington, D.C. *Transportation Research Record: Journal of the Transportation Research Board*, 03611981231214518.  
<https://doi.org/10.1177/03611981231214518>

City and County of Denver. (2024, March). *D e n v e r ' s   S c o o t e r   . a n d   B i k e   S h a r e*  
<https://denvergov.org/Government/Agencies-Departments-Offices/Agencies->



Departments-Offices-Directory/Department-of-Transportation-and-Infrastructure/Programs-Services/Transit/Micromobility-Program

City of Grand Rapids. (2019). *Request for Proposal #961-82-04: City of Grand Rapids Shared Micromobility Services Pilot*.

City of Melbourne. (2024). *E-scooter trials in Victoria*. <https://www.melbourne.vic.gov.au/parking-and-transport/Pages/e-scooters.aspx>

City of Minneapolis. (2016). *Car Share Policy Draft For On-Street Operations*.

<https://lims.minneapolismn.gov/Download/PriorFileDocument/-62785/WCMSP-172670.PDF>

City of Minneapolis. (2024). *Vehicle Services License Fees*.

<https://app.smartsheet.com/b/publish?EQBCT=bc6724d7f3e74c8590eb2223cf7a931d>

City of Oakland. (2024). *E-Scooters*. <https://www.oaklandca.gov/topics/e-scooters>

*Committee on License and Consumer Protection - April 10, 2024 Meeting: Hearing before the*

*Committee on License and Consumer Protection* (2024). <https://vimeo.com/932621231>

Denver Regional Council of Governments. (2020). *Shared Micromobility in the Denver Region:*

*Considerations for local agency implementation and regional consistency*.

[https://drcog.org/sites/default/files/resources/MICROMOBILITY\\_DEC\\_2020.pdf](https://drcog.org/sites/default/files/resources/MICROMOBILITY_DEC_2020.pdf)

Designation of a Residential Permit Parking District or Amendment of an Existing Residential

Permit Parking District, 6.02.080. <https://beaverton.municipal.codes/BC/6.02.080>

Dill, J., McNeil, N., & Howland, S. (2019). Effects of peer-to-peer carsharing on vehicle owners' travel behavior. *Transportation Research Part C: Emerging Technologies*, 101, 70–78.

<https://doi.org/10.1016/j.trc.2019.02.007>

- Dillet, R. (2024, January 10). Micromobility startups Tier and Dott plan to merge to find a path to profitability. *Tech Crunch*. <https://techcrunch.com/2024/01/10/micromobility-startups-tier-and-dott-plan-to-merge-to-find-a-path-to-profitability/>
- District Department of Transportation. (2020). *Capital Bikeshare Development Plan Update*.  
[https://ddot.dc.gov/sites/default/files/dc/sites/ddot/page\\_content/attachments/23397\\_Capital\\_Bikeshare\\_Plan\\_Update\\_v4\\_051220\\_WEB.pdf](https://ddot.dc.gov/sites/default/files/dc/sites/ddot/page_content/attachments/23397_Capital_Bikeshare_Plan_Update_v4_051220_WEB.pdf)
- District Department of Transportation. (2021). *Shared Moped Permit Terms and Conditions*.  
[https://ddot.dc.gov/sites/default/files/dc/sites/ddot/page\\_content/attachments/Mopedsharing%20Permit%20Terms%20and%20Conditions%202021%20%28Template%29.pdf](https://ddot.dc.gov/sites/default/files/dc/sites/ddot/page_content/attachments/Mopedsharing%20Permit%20Terms%20and%20Conditions%202021%20%28Template%29.pdf)
- During, A. (2013). *Park Raving Mad*. Sightline Institute. <https://www.sightline.org/2013/08/13/park-raving-mad/>
- Environmental Protection Agency. (2024). *Fuel Economy by Model Year* [dataset].  
<https://www.fueleconomy.gov/feg/download.shtml>
- Environmental Systems Research Institute, Inc. (2024). *Automotive Aftermarket Expenditures* [dataset].  
<https://www.arcgis.com/home/item.html?id=324d001aad094830aa8c011fdfe9696a>
- Fang, K. (2022). Micromobility injury events: Motor vehicle crashes and other transportation systems factors. *Transportation Research Interdisciplinary Perspectives*, 14, 100574.  
<https://doi.org/10.1016/j.trip.2022.100574>
- Fang, K., Agrawal, A. W., Steele, J., Hunter, J. J., & Hooper, A. M. (2018). *Do They Block the Way in San Jose? Where Do Riders Park Dockless, Shared Electric Scooters*.

- Fay, B., & Liu, C. (2021, May 7). *TNC-User Tax: Getting Rideshare Companies to Pay Share*. City Attorneys' Annual Spring Conference. <https://www.cacities.org/Resources-Documents/Member-Engagement/Professional-Departments/City-Attorneys/Library/2021/21-Spring/5-2021-Spring;-Fay-TNC-User-Tax-Getting-Rideshare.aspx>
- Federal Highway Administration. (2008). *Summary of State Motor-Vehicle Registration Fee Schedules*. <https://www.fhwa.dot.gov/policyinformation/motorfuel/hwytaxes/2008/mv103pt1.pdf>
- Federal Highway Administration. (2022). *Average Annual Miles per Driver by Age Group*. <https://www.fhwa.dot.gov/ohim/onh00/bar8.htm>
- Federal Transit Administration. (2024). *National Transit Database* [dataset]. <https://www.transit.dot.gov/ntd>
- Felegy, A. (2023). *Nice Ride shuts down pioneering Minneapolis bike share program*. Minnesota Public Radio News. <https://www.mprnews.org/story/2023/03/02/nice-ride-shuts-down-pioneering-minneapolis-bike-share-program>
- Fishman, E. (2020). *Bike Share*. Routledge.
- Fluctuo. (2023). *European Shared Mobility Index 2022*. <https://european-index.fluctuo.com/>
- Flynn, M., Vandeweyer, S., & Boschmans, S. (2023). *Unlocking Shared Scooter Potential: A comparative analysis of regulatory models*. Deloitte. <https://www.deloitte.com/be/en/Industries/government-public/analysis/unlocking-shared-scooter-potential.html>

- Fukushige, T., Fitch, D. T., & Handy, S. (2023). Estimating Vehicle-miles traveled reduced from Dock-less E-bike-share: Evidence from Sacramento, california. *Transportation Research Part D: Transport and Environment*, 117, 103671.  
<https://doi.org/10.1016/j.trd.2023.103671>
- Gant, A. (2023, May 15). *Is there VAT on food?* Pleo. <https://blog.pleo.io/en/vat-on-food>
- GIG Car Share. (2024, March 26). *Bay Area and Seattle Rates*. <https://gigcarshare.com/rates/>
- Goodwin, J., & Krull, L. (2023). *MTC, Lyft Announce Plans to Grow and Improve Bay Wheels Regional Bikeshare System*. Metropolitan Transportation Commission.  
<https://mtc.ca.gov/news/mtc-lyft-announce-plans-grow-and-improve-bay-wheels-regional-bikeshare-system>
- Gubman, J., Jung, A., Kiel, T., & Strehmann, J. (2019). *Shared E-Scooters: Paving the Road Ahead—Policy Recommendations for Local Government* (p. 46). Agora Verkehrswende.  
[https://www.agora-verkehrswende.de/fileadmin/Projekte/2019/E-Tretroller\\_im\\_Stadtverkehr/Agora-Verkehrswende\\_Shared-E-Scooters-Paving-the-Road-Ahead\\_WEB.pdf](https://www.agora-verkehrswende.de/fileadmin/Projekte/2019/E-Tretroller_im_Stadtverkehr/Agora-Verkehrswende_Shared-E-Scooters-Paving-the-Road-Ahead_WEB.pdf)
- Harris, A. (2023, September 6). EXCLUSIVE: Revenue Share Requirements Creating a ‘Negative Cycle’ for UK Operators. *Zag Daily*. <https://zagdaily.com/people/exclusive-revenue-share-requirements-creating-a-negative-cycle-for-uk-operators/>
- Hasnat, Md. M., & Bardaka, E. (2022). Exploring the efficacy of traditional and alternative funding mechanisms to provide transportation revenue during the COVID-19 pandemic. *Case Studies on Transport Policy*, 10(2), 1249–1261. <https://doi.org/10.1016/j.cstp.2022.04.010>

Hawkins, A. J. (2023). *Citi Bike is for sale*. The Verge.

<https://www.theverge.com/2023/7/26/23808205/lyft-citi-bike-sale-bike-share-scooter>

Hemphill, R., MacArthur, J., Longenecker, P., Desai, G., Nie, L., Ibarra, A., & Dill, J. (2022).

Congested sidewalks: The effects of the built environment on e-scooter parking compliance. *Journal of Transport and Land Use*, 15(1), 481–495.

<https://doi.org/10.5198/jtlu.2022.2110>

Henao, A., & Marshall, W. E. (2018). The impact of ride-hailing on vehicle miles traveled.

*Transportation*, 0123456789, 1–22. <https://doi.org/10.1007/s11116-018-9923-2>

Henao, A., & Marshall, W. E. (2019). An analysis of the individual economics of ride-hailing drivers.

*Transportation Research Part A: Policy and Practice*, 130, 440–451.

<https://doi.org/10.1016/j.tra.2019.09.056>

Hu, W. (2023, November 18). Why Revel Shut Down Its Moped Service in New York. *The New York*

*Times*. <https://www.nytimes.com/2023/11/18/nyregion/revel-mopeds-nyc-e-scooter.html>

Igleheart, A. (2023). *Special Fees on Plug-In Hybrid and Electric Vehicles*. National Conference of

State Legislatures. <https://www.ncsl.org/energy/special-fees-on-plug-in-hybrid-and-electric-vehicles>

Klein, G. (2015). *How public and private came together to make Capital Bikeshare a success*.

Greater Greater Washington. <https://ggwash.org/view/39464/how-public-and-private-came-together-to-make-capital-bikeshare-a-success>

Klein, N., Brown, A., & Thigpen, C. (2023). Clutter and Compliance: Scooter Parking Interventions

and Perceptions. *Active Travel Studies*, 3(1). <https://doi.org/10.16997/ats.1196>

Knight, H. (2023). Exclusive: Another company leaves S.F., blaming ‘the most onerous regulations’ in the world. *San Francisco Chronicle*.

<https://www.sfchronicle.com/sf/bayarea/heatherknight/article/bird-scooter-business-17782443.php>

Kobenhavns Kommune. (2022). *Bilag 6—Indtægter, udgifter og takstberegning*.

[https://www.kk.dk/sites/default/files/agenda/c5d39137-acf1-44dc-a043-5de1d6d18542/fb70ea0f-7d4c-42d0-b7e6-96831ce5f61a-bilag-6\\_0.pdf](https://www.kk.dk/sites/default/files/agenda/c5d39137-acf1-44dc-a043-5de1d6d18542/fb70ea0f-7d4c-42d0-b7e6-96831ce5f61a-bilag-6_0.pdf)

Krauss, K., Doll, C., Isi, F., & Thigpen, C. (2022). *The Net Sustainability Impact of Shared Micromobility in Six Global Cities*.

[https://www.isi.fraunhofer.de/content/dam/isi/dokumente/ccn/2022/the\\_net\\_sustainability\\_impact\\_of\\_shared\\_micromobility\\_in\\_six\\_global\\_cities.pdf](https://www.isi.fraunhofer.de/content/dam/isi/dokumente/ccn/2022/the_net_sustainability_impact_of_shared_micromobility_in_six_global_cities.pdf)

Les Travaux Publics. (2022, December 15). *Quelles perspectives pour les finances locales en 2023 ?* <https://www.fntp.fr/data/decryptages/quelles-perspectives-pour-les-finances-locales-en-2023>

Litman, T. (2004). Transit Price Elasticities and Cross-Elasticities. *Journal of Public Transportation*, 7(2), 37–58. <https://doi.org/10.5038/2375-0901.7.2.3>

Los Angeles County Metropolitan Transportation Authority. (2022). *METRO BIKE SHARE CONTRACT EXTENSION AND REPLENISHMENT*. <https://boardagendas.metro.net/board-report/2022-0150/>

Los Angeles County Metropolitan Transportation Authority. (2024). *Bikeshare Trip Data* [dataset]. <https://bikeshare.metro.net/about/data/>



Lowe, K., Ashton, P., & Kasal, Q. (2021). *Taxing New Mobility Providers* (p. 34).

<https://gfrc.uic.edu/taxing-new-mobility-providers-2/>

Lynch, J. A. (2024). *Public Procurement: Principles, Categories and Methods*.

<https://leanpub.com/procurement-principles-categories-and-methods/read>

Martin, E. W., & Shaheen, S. A. (2011). Greenhouse gas emission impacts of carsharing in North America. *IEEE Transactions on Intelligent Transportation Systems*, 12(4), 1074–1086.

<https://doi.org/10.1109/TITS.2011.2158539>

Meng, S., & Brown, A. (2021). Docked vs. dockless equity: Comparing three micromobility service geographies. *Journal of Transport Geography*, 96, 103185.

<https://doi.org/10.1016/j.jtrangeo.2021.103185>

Meng, S., Brown, A., Klein, N., Thigpen, C., & Haydu. (2024). *Shared scooter parking: The role of parking density and land use in compliance and demand*. Urbanism Next Center.

<https://www.urbanismnext.org/resources/shared-scooter-parking>

Millard-Ball, A., Murray, G., ter Schure, J., Fox, C., & Burkardt, J. (2005). *Car-Sharing: Where and How It Succeeds*. Transportation Research Board. <https://doi.org/10.17226/13559>

*Mobilitätsstrategie 2035: Teilstrategie Shared Mobility*, Vollversammlung des Stadtrates 20-26 / V 10861 (2023).

<https://risi.muenchen.de/risi/sitzungsvorlage/detail/7931800?dokument=v8120055>

Moller, B. (2023, August 3). *A Win-Win for Equity in Washington D.C.* <https://www.spin.app/blog-posts/a-win-win-for-equity-in-washington-d-c>

München Unterwegs. (2021). *2035 Die Mobilitätsstrategie der Stadt München*.

[https://cdn.muenchenunterwegs.de/live/static-content/2035\\_web\\_final.pdf](https://cdn.muenchenunterwegs.de/live/static-content/2035_web_final.pdf)

National Association of City Transportation Officials. (2023). *Shared Micromobility in the US and Canada: 2022*. [https://nacto.org/wp-](https://nacto.org/wp-content/uploads/2023/11/NACTO_sharedmicromobilitysnapshot_correctedNov3-2023-1.pdf)

[content/uploads/2023/11/NACTO\\_sharedmicromobilitysnapshot\\_correctedNov3-2023-1.pdf](https://nacto.org/wp-content/uploads/2023/11/NACTO_sharedmicromobilitysnapshot_correctedNov3-2023-1.pdf)

National Conference of State Legislatures. (2020). *Vehicle Registration Fees By State*.

<https://www.ncsl.org/transportation/vehicle-registration-fees-by-state>

National Institute of Statistics and Economic Studies. (2023). *Recettes du budget général*.

<https://www.insee.fr/fr/statistiques/2381416#tableau-figure1>

Neumark, F., & McLure, C. E. (2023). Principles of taxation. In *Britannica*.

<https://www.britannica.com/topic/taxation/Principles-of-taxation>

New Mobility - Shared Electric Scooters, TRN-15.01 (2023).

<https://www.portland.gov/transportation/regulatory/escooterpdx/documents/trn-1501-new-mobility-shared-electric-scooters-full/download>

New York City Department of Transportation. (2020). *Carshare Parking Pilot: First-Year Progress Report*. <https://www.nyc.gov/html/dot/downloads/pdf/nyc-carshare-pilot-report.pdf>

New York City Department of Transportation. (2022a). *East Bronx Shared E-Scooter Pilot: Final Report*. <https://www.nyc.gov/html/dot/downloads/pdf/east-bronx-shared-e-scooter-pilot-report.pdf>

New York City Department of Transportation. (2022b). *Moped Share Permit Application Package*. <https://www.nyc.gov/html/dot/downloads/pdf/moped-share-permit-application-package.pdf>

Noland, R. B. (2019). Trip patterns and revenue of shared e-scooters in Louisville, Kentucky.

*Transport Findings*. <https://doi.org/10.32866/7747>

Noonan, C. (2023). *Micromobility Permit Program Update*. City of Kelowna.

<https://kelownapublishing.escribemeetings.com/filestream.ashx?DocumentId=43935>

North American Bikeshare and Scootershare Association (NABSA). (2021). *2nd Annual Shared*

*Micromobility State of the Industry Report*. North American Bikeshare and Scootershare

Association (NABSA). <https://doi.org/10.7922/G2XD0ZZZ>

North American Bikeshare and Scootershare Association (NABSA). (2023). *4th Annual Shared*

*Micromobility State of the Industry Report*. <https://nabsa.net/about/industry/>

Pender, K. (2017, July 11). San Francisco issues permit rules for stationless bike share. *San*

*Francisco Chronicle*. [https://www.sfchronicle.com/business/networth/article/San-](https://www.sfchronicle.com/business/networth/article/San-Francisco-issues-permit-rules-for-stationless-11281616.php)

[Francisco-issues-permit-rules-for-stationless-11281616.php](https://www.sfchronicle.com/business/networth/article/San-Francisco-issues-permit-rules-for-stationless-11281616.php)

Populus. (2018). *The Micro-Mobility Revolution*.

Portland Bureau of Transportation. (2019). *2018 E-Scooter Findings Report*.

<https://www.portlandoregon.gov/transportation/article/709719>

Price, J., Blackshear, D., Blount, Jr, W., & Sandt, L. (2021). Micromobility: A Travel Mode Innovation.

*Public Roads*, 85(1). <https://highways.dot.gov/public-roads/spring-2021/02>

Regional Transportation Authority. (2024). *Moving the System*. [https://www.rtachicago.org/transit-](https://www.rtachicago.org/transit-funding/moving-the-system)

[funding/moving-the-system](https://www.rtachicago.org/transit-funding/moving-the-system)

Sacramento City Council. (2018). *Resolution 2018-0313: Car Share and Electric Vehicle Charging*

*Space Parking Permit Fees*. [https://www.cityofsacramento.org/-](https://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/Transportation/Projects-and-Services/Car-)

[/media/Corporate/Files/Public-Works/Transportation/Projects-and-Services/Car-](https://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/Transportation/Projects-and-Services/Car-)

Share/R2018-0313-Car-Share-and-Electric-Vehicle-Charging-Space-Parking-Permit-Fees.pdf?la=en

SAE International. (2019). *SAE J3194: Taxonomy & Classification of Powered Micromobility Devices*. [https://www.sae.org/standards/content/j3194\\_201911/](https://www.sae.org/standards/content/j3194_201911/)

San Francisco Municipal Transportation Agency. (2017a). *On-Street Car Sharing Pilot Program Evaluation Report*.

[https://www.sfmta.com/sites/default/files/projects/2017/Carshare\\_eval\\_final.pdf](https://www.sfmta.com/sites/default/files/projects/2017/Carshare_eval_final.pdf)

San Francisco Municipal Transportation Agency. (2017b). *Shared Electric Moped Parking Permit Proposal*. SFMTA Board of Directors Meeting.

[https://www.sfmta.com/sites/default/files/agendaitems/2017/6-20-](https://www.sfmta.com/sites/default/files/agendaitems/2017/6-20-17%20Item%2011%20Shared%20E-moped%20-%20slide%20presentation.pdf)

[17%20Item%2011%20Shared%20E-moped%20-%20slide%20presentation.pdf](https://www.sfmta.com/sites/default/files/agendaitems/2017/6-20-17%20Item%2011%20Shared%20E-moped%20-%20slide%20presentation.pdf)

San Francisco Municipal Transportation Agency. (2021). *2021-2022 Powered Scooter Share Program Permit*. [https://www.sfmta.com/sites/default/files/reports-and-](https://www.sfmta.com/sites/default/files/reports-and-documents/2021/08/2021_scooter_permit_terms_and_conditions_and_appendices_final_for_permit-lime.pdf)

[documents/2021/08/2021\\_scooter\\_permit\\_terms\\_and\\_conditions\\_and\\_appendices\\_final\\_for\\_permit-lime.pdf](https://www.sfmta.com/sites/default/files/reports-and-documents/2021/08/2021_scooter_permit_terms_and_conditions_and_appendices_final_for_permit-lime.pdf)

San Francisco Municipal Transportation Agency. (2024a). *Shared Electric Moped Parking Permit Program*. <https://www.sfmta.com/projects/shared-electric-moped-parking-permit-program>

San Francisco Municipal Transportation Agency. (2024b). *Shared Mobility Fines and Fees*. <https://www.sfmta.com/shared-mobility-fines-and-fees>

Schellong, D., Sadek, P., Schaetzberger, C., & Barrack, T. (2019). *The Promise and Pitfalls of E-Scooter Sharing*. <https://www.bcg.com/publications/2019/promise-pitfalls-e-scooter-sharing>

Schiller, Z., & Davis, C. (2017). *Taxes and the On-Demand Economy*. Institute on Taxation & Economic Policy.

<https://itep.sfo2.digitaloceanspaces.com/ondemandeconomytaxes0317.pdf>

Schmitt, A. (2019, January 10). Bird Quietly Ends a Much-Hyped Bike Lane Subsidy. *Streetsblog USA*. <https://usa.streetsblog.org/2019/01/10/bird-quietly-ends-a-much-hyped-bike-lane-subsidy>

Schwieterman, J. P., & Bieszczat, A. (2017). The cost to carshare: A review of the changing prices and taxation levels for carsharing in the United States 2011–2016. *Transport Policy*, 57, 1–9. <https://doi.org/10.1016/j.tranpol.2017.03.017>

Schwieterman, J. P., & Spray, H. (2016). *When Sharing is Taxing: Comparing the Tax Burden on Carsharing Services in Major U.S. Cities*. Chaddick Institute for Metropolitan Development at Depaul University. <https://las.depaul.edu/centers-and-institutes/chaddick-institute-for-metropolitan-development/research-and-publications/Documents/WhenSharingIsTaxing-072116-final.pdf>

Seattle Department of Transportation. (2024). *Car Share Permits*. <https://www.seattle.gov/transportation/permits-and-services/permits/parking-permits/car-share-permits>

Senatsverwaltung für Umwelt, Mobilität, Verbraucher- und Klimaschutz. (2023). *Regulierung von Mietfahrzeugen nach Straßengesetz*. Abgeordnetenhaus von Berlin.

<https://www.parlament-berlin.de/ados/19/mobil/vorgang/mobil19-0219-v.pdf>

Shoup, D. (2011). *The High Cost of Free Parking*. APA Planners Press.

Simson, P., & Ketibuah-Foley, J. (2023, November 23). Scooter provider could be fined over slow rollout. *BBC*. <https://www.bbc.com/news/articles/c7298982rg5o>

Streets, Traffic and Parking, Chapter 160A Article 15 North Carolina General Statutes.

[https://www.ncleg.net/EnactedLegislation/Statutes/PDF/ByArticle/Chapter\\_160A/Article\\_15.pdf](https://www.ncleg.net/EnactedLegislation/Statutes/PDF/ByArticle/Chapter_160A/Article_15.pdf)

Tax Policy Center. (2023). *State Motor Fuel tax Rates*.

<https://www.taxpolicycenter.org/statistics/state-motor-fuels-tax-rates>

*Transportation Subsidies* (2022).

<https://madison.legistar.com/View.ashx?M=F&ID=11101803&GUID=13C56C59-1547-48D1-A825-6F6F5F104D94>

United States Bureau of Labor Statistics. (2024). *Table 3. State and local government workers by occupational and industry group* [dataset].

<https://www.bls.gov/news.release/ecec.t03.htm>

United States Census Bureau. (2024). *2022 American Community Survey (ACS) Public Use*

*Microdata Sample (PUMS)* [dataset]. <https://www.census.gov/programs-surveys/acs/microdata/access/2022.html>



- US Department of Transportation Bureau of Transportation Statistics. (2023). *Average Fuel Efficiency of U.S. Light Duty Vehicles* [dataset]. <https://www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles>
- US Department of Transportation Bureau of Transportation Statistics. (2024). *Bikeshare and E-scooters Systems in the U.S.* <https://data.bts.gov/stories/s/Bikeshare-and-e-scooters-in-the-U-S-/fwcs-jprj/>
- Valdivia, A. G. (2020, February 14). Barcelona's Moped-Sharing New Licenses To Challenge Leading Companies. *Forbes*.  
<https://www.forbes.com/sites/anagarciavaldivia/2020/02/14/barcelonas-moped-sharing-new-licenses-to-challenge-leading-companies/?sh=181cc63a592d>
- Zipper, D. (2021, October 4). The Dubious Logic of Scooter Lock Rules. *CityLab*.  
<https://www.bloomberg.com/news/articles/2021-10-04/the-flawed-law-that-aims-to-tame-e-scooters>
- Zipper, D. (2024, January 5). E-scooter companies are going bankrupt. That should alarm you even if you hate them. *Fast Company*. <https://www.fastcompany.com/91005446/e-scooter-companies-are-going-bankrupt-that-should-alarm-you-even-if-you-hate-them>

## APPENDIX 1 - SUMMARY OF PROGRAM FEES IN EACH JURISDICTION

**Table 6. Program fees for the 118 jurisdictions included in the study**

City	Country	Fees					
		Per trip	Per vehicle		Annual	One-time	Other
			Permitted	Deployed			
Alexandria, Virginia	US	-	\$75 / year	-	\$10,000	\$150	-
Antwerp	BE	-	-	-	-	-	-
Arlington County, Virginia	US	-	\$80 / year	-	-	\$100	-
Atlanta, Georgia	US	-	\$50 / year	-	\$12,000	\$100	-
Auckland	NZ	-	\$10.50 to \$77.00 / year <sup>1</sup>	-	-	-	-
Austin, Texas	US	\$0.15	\$80 / year	-	\$1,500	-	-
Bari	IT	-	€15 / year	-	-	-	-
Bartlesville	US	\$0.05	-	-	-	-	-
Berlin	DE	-	€36 / year	-	-	€120	-
Birmingham, Alabama	US	-	\$20 / year	-	\$500	-	-
Bloomington, Indiana	US	\$0.10	-	-	\$10,000	-	-
Boise, Idaho	US	\$0.10	-	-	\$100,000	-	-
Bothell, Washington	US	\$0.10	-	-	-	\$125	-
Boulder, Colorado	US	\$0.15	-	-	\$3,300 <sup>2</sup> \$1,800 <sup>3</sup>	-	-
Bremen	DE	-	€33.8 / year	-	-	-	-

<b>Brisbane</b>	AU	-	\$620.50 / year	-	-	-	-
<b>Brussels</b>	BE	-	€50 / year	-	-	-	-
<b>Carthage, Missouri</b>	US	\$0.05	-	-	-	-	-
<b>Charlotte, North Carolina</b>	US	\$0.01 to \$25.00 <sup>1</sup>	-	-	-	-	-
<b>Chicago, Illinois</b>	US	-	\$1 / day	-	-	-	-
<b>Christchurch</b>	NZ	-	\$86.25 / year	-	-	\$136	-
<b>Cincinnati, Ohio</b>	US	\$0.20	-	-	-	\$5,000	-
<b>Cleveland, Ohio</b>	US	\$0.15	-	-	-	\$250	-
<b>Colorado Springs, Colorado</b>	US	\$0.10	\$75 / year	-	-	-	parking corral fee
<b>Columbus, Ohio</b>	US	-	\$75 / year	-	-	\$500	-
<b>Copenhagen</b>	DK	-	177 kr. / year (bicycles) 378 kr. / year (scooters)	-	-	-	-
<b>Corpus Christi, Texas</b>	US		\$60 / year	-	-	-	-
<b>Dallas, Texas</b>	US	\$0.20	\$35 / year	-	-	\$2,000 <sup>2</sup> \$1,000 <sup>3</sup>	-
<b>Denver, Colorado</b>	US	-	-	-	-	-	-
<b>Detroit, Michigan</b>	US	-	-	-	-	-	-
<b>Dortmund</b>	DE	-	€60 / year	-	-	-	-
<b>Dusseldorf</b>	DE	-	€30 to 50 / year (scooters) <sup>1</sup> €10 / year (bicycles)	-	€35 (bicycles) €35 (scooters)	-	-

Edinburg, Texas	US	\$0.15	-	-	-	-	-
Edmond, Oklahoma	US	\$0.05	-	-	-	-	-
Emeryville, California	US	-	-	-	\$5,000	\$2,500 <sup>2</sup> \$1,000 <sup>3</sup>	-
Fairfax, Virginia	US	\$0.05	-	-	-	\$5,000	-
Frankfurt	DE	-	€36 / year	-	€40	-	-
Frederiksberg	DK	-	1,000 kr. / year	-	37,000 kr.	-	-
Geelong	AU	-	-	-	-	-	-
Gold Coast	AU	-	-	-	-	-	-
Göteborg	SE	-	1,200 kr. / year	-	-	-	-
Grand Rapids	US	-	-	-	-	-	-
Hamilton	NZ	\$0.13	-	-	-	\$300	-
Hamburg	DE	-	-	-	-	-	-
Hutt Valley	NZ	-	-	-	-	-	-
Indianapolis, Indiana	US	-	-	\$1 / day	-	\$15,000	-
Jacksonville, Florida	US	-	-	-	\$21,900	\$2,500	-
Kelowna	CAN	-	-	\$0.40 / day	-	\$500	-
Lansing, Michigan	US	\$0.10	-	-	\$2,500	-	-
Lille	FR	-	€20 / year	-	-	-	-
Lincoln, Nebraska	US	\$0.20	-	-	\$10,000	-	-
Linz	AT	-	-	-	-	-	-
Little Rock, Arkansas	US	-	\$75 / year	-	\$10,000	-	-
London (Camden)	UK	-	-	-	-	£20,000	-

London (Ealing)	UK	-	-	-	-	£10,000	-
London (Hackney)	UK	-	-	-	£5,000	-	parking bay fee
London (Hammersmith and Fulham, Richmond, City of London, Lambeth, Kensington and Chelsea)	UK	-	£5.50 - 7.50 / year <sup>4</sup>	-	-	£1	-
London (Islington)	UK	-	-	-	£40,000	-	parking bay fee
London (Southwark, Tower Hamlets)	UK	-	-	-	-	£2,500	-
Long Beach, California	US		\$75 / year	-	\$25,000	-	-
Los Angeles, California	US	\$0.00 to \$0.40 <sup>1</sup>	-	-	-	\$20,000	-
Louisville, Kentucky	US	\$0.20	-	-	\$10,000	\$2,000 <sup>2</sup> \$1,000 <sup>3</sup>	-
Lubbock, Texas	US	-	-	-	-	\$750	-
Malmo	SE	-	1,825 kr. / year	-	-	-	-
Marseille	FR	-	-	-	€16,200 (bicycles) €16,200 (scooters)	-	-
Melbourne	AUS	-	-	\$1 / day	-	-	-
Milan	IT	-	€8 / year (scooters) €3 / year (bicycles)	-	-	-	-
Milton Keynes	UK	-	-	-	-	-	-

<b>Milwaukee, Wisconsin</b>	US	\$0.25	\$50 / year	-	-	\$300	-
<b>Minneapolis, Minnesota</b>	US	\$0.10	-	\$100 / year	-	-	-
<b>Mobile, Alabama</b>	US	\$0.15	-	-	\$5,000	-	-
<b>Monza</b>	IT	-	€5 / year (scooters) €10 / year (bicycles)	?	-	-	-
<b>Munich</b>	DE	-	-	-	-	-	-
<b>Nashville, Tennessee</b>	US	-	\$35 / year	-	-	-	-
<b>New York City (Bronx), New York</b>	US	-	\$130 / permit	-	-	\$15,000	-
<b>Norfolk, Virginia</b>	US	\$0.05	-	-	\$15,000	-	-
<b>North Vancouver</b>	CAN	-	\$40 / year	-	-	-	-
<b>Oakland, California</b>	US	\$0.10 if parked in metered parking zone	\$64 / year	-	\$30,000	\$2,500	-
<b>Ogden, Utah</b>	US	\$0.10	-	-	-	-	-
<b>Oklahoma City, Oklahoma</b>	US	-	\$30 / year	-	\$302	-	-
<b>Omaha, Nebraska</b>	US	-	-	-	-	\$5,000	-
<b>Orlando, Florida</b>	US	\$0.25	-	-	-	\$5,000	-
<b>Oslo</b>	NO	-	893 kr. / year	-	-	-	-
<b>Palmerston North</b>	NZ	-	-	-	-	\$150	-
<b>Paris</b>	FR	-	€25 / year (bicycles)	-	-	-	-
<b>Phoenix, Arizona</b>	US	\$0.15	-	-	\$15,000	-	-



Portland, Oregon	US	\$0.25	\$0.05 - \$0.20 / day <sup>1</sup>	-	-	\$500	-
Prague	CZ	-	-	-	-	-	-
Raleigh, North Carolina	US	\$0.15	-	-	\$7,500	-	-
Richmond	CA	\$0.20	\$25 / permit	-	-	\$2,500	-
Richmond, California	US	-	-	-	-	-	-
Richmond, Virginia	US	-	-	-	\$45,000	-	-
Rochester, Minnesota	US	\$0.15	-	-	-	-	-
Rome	IT	-	€12 / year	-	-	-	-
Rotterdam	NL	-	-	-	-	€949.1	-
Sacramento, California	US	\$0.10	\$0 - \$52 / year (bicycles) <sup>1</sup> \$104 / year (scooters)	-	\$4,400 <sup>2</sup> \$2,200 <sup>3</sup>	-	-
Salford	UK	-	-	-	-	-	-
Salt Lake City, Utah	US	\$0.10	\$30 / permit	-	-	-	-
San Antonio, Texas	US	-	\$20 / year	-	\$1,000	-	-
San Diego, California	US	-	-	\$0.75 / day	\$20,000	-	-
San Francisco, California	US	-	\$100 / year	-	\$44,041	\$6,173	-
San Jose, California	US	-	\$106 / year	-	-	\$3,500	-
Santa Barbara, California	US	-	\$5 / month	-	\$500	-	-
Seattle, Washington	US	-	\$150 / year	-	-	\$232 <sup>2</sup> \$176 <sup>3</sup>	time spent on RFP application review

South Lake Tahoe, California	US	\$0.10	\$75 / year	-	-	-	-
Spokane, Washington	US	-	-	\$0.75 / day	\$17,000	-	-
St. Louis, Missouri	US	-	\$1 / year (bicycles) \$30 / year (scooters)	-	\$2,500	-	-
St. Paul, Minnesota	US	\$0.12 to \$0.25 <sup>1</sup>	-	-	-	-	-
St. Petersburg, Florida	US	-	-	-	-	-	-
Stockholm	SE	-	1,400 kr. / year	-	-	-	-
Stonnington	AUS	-	-	-	-	-	-
Sydney	AUS	-	-	-	-	-	-
Tampa, Florida	US	\$0.30	-	-	\$5,000	-	-
Tulsa, Oklahoma	US	-	\$50 / year	-	-	\$75	-
Vienna	AT	-	€30 to 50 / year <sup>1</sup>	-	-	-	-
Washington, DC	US	-	\$10 / month	-	-	\$325 <sup>2</sup> \$175 <sup>3</sup>	-
West Hollywood, California	US	-	-	-	\$20,000	-	-
West Sacramento, California	US	\$0.10	-	-	-	-	-
West Vancouver, BC	CAN	-	\$40 / year	-	-	-	-
Zurich	CH	-	120 fr. / year	-	-	1,500 fr.	-

Note: The absence of a fee type is indicated by a “-”. Fee amounts are expressed in the local currency.

<sup>1</sup> depending on location

<sup>2</sup> initial fee

<sup>3</sup> renewal fee

<sup>4</sup> depending on number of vehicles permitted per operator

## APPENDIX 2 - SHARED MICROMOBILITY PROGRAM FEE REVENUES IN 2022

**Table 7. Estimated program fee revenues for 63 cities in the study**

Jurisdiction	Modes	Program fee revenues				
		One-time	Annual			
			Total revenues (Thousands USD) <sup>3</sup>	Revenue per trip	Revenue per mile	Revenue as a percent of fare revenues
Alexandria	S + B	\$150	\$160	\$0.86	\$0.76	15%
Antwerp	S	\$0	\$0	\$0.00	\$0.00	0%
Arlington	S + B	\$5,000	\$121	\$0.23	\$0.18	4%
Atlanta	S + B	\$300	\$134	\$0.08	\$0.06	1%
Austin	S + B	\$0	\$1,343	\$0.39	\$0.32	6%
Bloomington	S + B	\$0	\$42	\$0.13	\$0.08	3%
Boise	S + B	\$0	\$106	\$1.69	\$1.33	26%
Boulder	S	\$3,300	\$20	\$0.17	\$0.16	4%
Brisbane	S + B	\$0	\$1,463	\$0.45	\$0.34	10%
Brussels	S + B	\$0	\$1,375	\$0.12	\$0.11	4%
Chicago	S	\$0	\$2,115	\$2.80	\$1.39	34%
Christchurch	S + B	\$172	\$74	\$0.09	\$0.08	2%
Cincinnati	S	\$5,000	\$31	\$0.20	\$0.20	3%
Cleveland	S	\$250	\$51	\$0.15	\$0.11	2%
Colorado Springs	S	\$6,480	\$73	\$0.45	\$0.30	8%
Columbus	S	\$2,000	\$165	\$0.22	\$0.21	4%
Copenhagen	S + B	\$0	\$287	\$0.28	\$0.17	4%
Denver	S + B	\$0	\$0	\$0.00	\$0.00	0%
Emeryville	S + B	\$2,500	\$5	\$0.18	\$0.11	2%
Gothenburg	S	\$0	\$830	\$0.33	\$0.28	8%

Hamilton	S + B	\$6,527	\$22	\$0.08	\$0.06	2%
Indianapolis	S	\$45,000	\$621	\$0.75	\$0.70	15%
Kelowna	S + B	\$769	\$112	\$0.47	\$0.38	14%
Lansing	S	\$0	\$8	\$0.14	\$0.10	3%
London (TfL)	S	\$240,083	\$0	\$0.00	\$0.00	0%
Long Beach	S	\$0	\$448	\$0.61	\$0.49	9%
Louisville	S	\$4,000	\$98	\$0.26	\$0.16	3%
Malmö	S	\$0	\$541	\$0.20	\$0.17	7%
Marseille	S + B	\$0	\$68	\$0.03	\$0.02	1%
Melbourne	S + B	\$0	\$431	\$0.14	\$0.12	3%
Milan	S + B	\$0	\$37	\$0.01	\$0.01	0%
Milwaukee	S	\$900	\$40	\$0.44	\$0.29	8%
Minneapolis	S	\$0	\$315	\$0.52	\$0.34	7%
New York City	S	\$435,000	\$0	\$0.00	\$0.00	0%
Norfolk	S + B	\$0	\$45	\$0.07	\$0.07	2%
Oklahoma City	S	\$0	\$25	\$0.07	\$0.05	1%
Omaha	S	\$5,000	\$0	\$0.00	\$0.00	0%
Orlando	B	\$30,000	\$130	\$0.25	\$0.27	5%
Oslo	B	\$0	\$800	\$0.11	\$0.13	4%
Palmerston North	S	\$285	\$0	\$0.00	\$0.00	0%
Paris	B	\$0	\$342	\$0.04	\$0.02	1%
Phoenix	S + B	\$0	\$18	\$0.15	\$0.15	2%
Portland	S	\$1,500	\$316	\$0.31	\$0.25	5%
Raleigh	S	\$0	\$61	\$0.17	\$0.18	4%
Rimini	S + B	\$3,505	\$0	\$0.00	\$0.00	0%
Rochester	S + B	\$0	\$14	\$0.15	\$0.12	3%
Rome	S + B	\$0	\$192	\$0.02	\$0.02	1%

<b>Rotterdam</b>	B	\$998	\$0	\$0.00	\$0.00	0%
<b>Sacramento</b>	S + B	\$8,800	\$210	\$0.36	\$0.27	5%
<b>Salford</b>	S	\$0	\$0	\$0.00	\$0.00	0%
<b>Salt Lake City</b>	S	\$75,000	\$65	\$0.10	\$0.09	2%
<b>San Antonio</b>	S	\$0	\$42	\$0.06	\$0.06	1%
<b>San Diego</b>	S + B	\$0	\$1,180	\$0.51	\$0.60	11%
<b>San Francisco</b>	S	\$18,519	\$532	\$0.34	\$0.25	5%
<b>San Jose</b>	S	\$27,000	\$212	\$0.50	\$0.48	9%
<b>Seattle</b>	S + B	\$928	\$900	\$0.33	\$0.30	6%
<b>Spokane</b>	S + B	\$0	\$201	\$0.49	\$0.47	8%
<b>St Louis</b>	S	\$0	\$95	\$0.34	\$0.24	4%
<b>Stockholm</b>	S	\$0	\$1,660	\$0.22	\$0.21	6%
<b>Sydney</b>	B	\$0	\$0	\$0.00	\$0.00	0%
<b>Tampa</b>	S + B	\$0	\$233	\$0.31	\$0.28	5%
<b>Washington, DC</b>	S	\$1,300	\$987	\$0.20	\$0.15	3%
<b>West Sacramento</b>	S + B	\$0	\$8	\$0.10	\$0.05	1%

<sup>1</sup>“S” refers to a scooter-only program, “B” refers to a bicycle-only program, and “S+B” refers to a join scooter and bicycle program.

<sup>2</sup>Trips reported in 1,000s and distance reported in 1,000 kilometers

<sup>3</sup>Fare revenues and total annual program fees reported in US\$1,000s

<sup>4</sup>One-time fees rounded to the nearest US\$10

## APPENDIX 3 - VALIDATION OF FEE REVENUE ESTIMATES

We received fee revenue totals from 16 cities in the survey that we could compare against our independent estimates through public sources of system performance and trip fares. We report overall statistics, rather than specific cities' fee revenues, to protect respondent confidentiality.

On a city-by-city basis, the median difference between our estimate of fee revenues and the reported revenues was 0.0% and the mean difference was 4.4% (with our estimates being slightly higher than the revenue reported by cities). The middle half of the estimates (also known as the interquartile range) were between a 22% under-estimate compared to reported revenues and a 24% over-estimate relative to reported revenues.

On an aggregate basis - adding up our estimates of fee revenues across all cities and adding up all reported revenues across all cities - **our estimates were 0.8% lower than the revenues reported by cities** (\$4.48M USD in estimated fee revenues compared to a reported \$4.52M USD in fee revenues).



## APPENDIX 4 - SURVEY INSTRUMENT

### Micromobility Program Manager Survey of City Regulatory Policies and Fees

Thank you for taking our survey! The Transportation Research and Education Center at Portland State University and Sonoma State University are conducting a study exploring shared scooter policies, fees and requirements. In this survey, we have questions about your jurisdiction's policies and fee structures, the development of those policies, and their implementation. The survey should take around 15 -20 minutes, depending on the complexity of your program. Thank you for taking the time to participate. Your responses are valuable and will help us understand more about regulatory approaches being used to promote outcomes.

#### Statement of Informed Consent

Your participation is voluntary. You may opt out of the survey at any time. There are no expected physical or psychological impacts from taking part in the study. Your survey responses will be confidential. We will store the survey data on secured servers at Portland State University. It will not be possible to tell who said what in any reports. We do not anticipate any risk to you in answering the survey. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study. Individuals from the Institutional Review Board may inspect these records. If the data is published, no individual information will be disclosed. Portland State University does not release information about how any individual answers the survey and will not sell or give away the lists of respondents who participate in our research.

#### Any questions?

The Portland State University Institutional Review Board has reviewed this project. If you have any concerns about your rights in this study, please contact the PSU Office of Research Integrity at (503) 725-2227 or email [hsrrc@pdx.edu](mailto:hsrrc@pdx.edu). If you have questions about the study itself, please contact John MacArthur by telephone at (503) 725-2866, by e-mail at [macarthur@pdx.edu](mailto:macarthur@pdx.edu), or by mail at Transportation Research and Education Center (TREC), P.O. Box 751, Portland State University, Portland, OR 97207-0751. Our research can only be successful with the generous help of people like you. We hope you will enjoy answering our questions. Thank you for taking part in our survey!

Do you agree to participate in this survey? By clicking "Accept", you are consenting to participate in this survey. If you do not consent, please click "Decline" to navigate away from the survey.

- Accept
- Decline

#### Part 1: General Information

We will ask some general information about your role and the program. The other parts of the survey will ask questions about fee structure, parking requirements, and performance and project management.

Q1 Please provide the following information

- Organization:
- City:

Q2 What role(s) have you played in the shared scooter program? (select all that apply)

- RFP development
- RFP evaluation
- Contracting
- Oversight
- Policy development
- Other:

## Part 2: Policy and fee development

In this section, we are interested in learning about the process by which scooter policies, including fees, were developed in your jurisdiction.

Q3 What prompted your jurisdiction to begin developing shared scooter policies? (Please select any that apply)

- Shared scooter companies launched operations before the jurisdiction had a chance to create policies
- Shared scooter operator approached the jurisdiction looking to operate
- Jurisdiction wanted to be prepared for potential interest for shared scooters
- Jurisdiction wanted to discourage/prevent shared scooter operations
- Jurisdiction saw other places adopt shared scooter policies and wanted to follow suit
- Jurisdiction wanted to attract a shared scooter operator
- Other, please specify:

Q4 To what degree did any of the following groups play a role in creating your jurisdiction's most recent shared scooter policies?

	No influence	Little influence	Moderate influence	Great deal of influence	Unsure
Agency staff					
Elected officials					
Staff or elected officials					
Public (individuals)					
Public (interest/advocacy groups)					
Shared scooter operators					

Q5 Prior to the adoption of policies, did your jurisdiction engage in any of the following public input/engagement processes? (Please select all that apply)

- Public meetings specifically held to gather input on shared scooters

- Agenda item at a regularly held public meeting (e.g. board/council/commission)
- Meetings with specific community groups/stakeholders
- Solicitation of written comments
- Other, please specify:

Q6 Approximately how many public meetings were held to discuss the proposed policy?

Q7 Prior to the adoption of policies, did staff at your jurisdiction contact/consult staff in other cities?

(Please select all that apply)

- Yes, in writing (e.g. via e-mail)
- Yes, verbally (e.g. phone, online, in-person)
- No

Q8 Many jurisdictions charge shared scooter operators “permit fees”, sometimes on a per-trip, per-vehicle, or annual basis. Did your jurisdiction charge permit fees to shared scooter operators in 2022?

- Yes
- No

Q9 How was the fee structure decided? Please respond even if your jurisdiction does not have fees.

- Set by law in adopted law/ordinance
- Set by an administrative process
- Negotiated with operators
- Other, please specify:

Q10 Did your most recent RFP for shared scooter services/operations include a “blind auction” component?

In a blind auction, the RFP includes a section, where operators are asked to submit a proposed financial contribution to the jurisdiction, which is then scored as part of the RFP evaluation process.

- No
- Yes

Q11 Please describe the blind auction and how it worked in the RFP evaluation process.

Q12 To what degree were any of the following consideration in determining the fee structure?

	Not a consideration at all	A minor consideration	A moderate consideration	A major consideration
Set fees high enough to raise sufficient revenue to cover the administrative costs of the program				

Set fees to raise revenue for user infrastructure improvement				
Set fees to influence operators to behave in a certain way				
Set fees low enough to ensure it is financially feasible for shared scooter companies to continue operating				
Set fees high to limit the number of devices in operation				
Set fees low enough to ensure lower costs for riders				

Q13 Do you think your performance-based fees, which aim to influence operator behavior, work effectively? Please share any relevant information, data or results.

Q14 Other than the above considerations, were there any other notable considerations in the decision of the amount/type of fees charged to operators? Please answer even if your program has no fees.

Q15 How did your jurisdiction decide on the dollar value(s) of your fee(s)?

Q16 Have your program fees changed over time, either across different phases of the program or within the same permit? If so, what caused the changes?

### Part 3: Parking

Q17 Now we would like to ask you a few questions about your regulations and approach to shared micromobility parking. Research shows that noncompliant parking declines rapidly when riders have access to parking locations within a 200 meter walk of their destination, which works out to about one parking location on every city block. How might your city achieve that density of parking? What barriers would hold you back from achieving that density?

Q18 What are the barriers to creating on-street scooter and bike parking infrastructure (e.g., bike racks or corrals in curbside car parking)?

Q19 What are the barriers to creating scooter and bike parking on sidewalks (e.g., bike racks or corrals in the furniture zone)?

Q20 Do you have any plans or interest in changing your parking regulations? What new requirements would you put in place?

Q21 Where would you prefer scooters to be parked, on-street or off-street (sidewalk/furniture zone)?

- On-street
- Sidewalk and/or furniture zone
- No preference
- Other/comment:

#### Part 4: Performance and Program management

Finally, we are interested in learning about the performance of your shared scooter program and how your jurisdiction currently manages the program.

Q22 How much time are staff tasked with overseeing and managing the shared scooter program, in terms of the number of full-time equivalent, FTEs? For example, if two employees both work half-time on the scooter program, you would write 1 ( $0.5 + 0.5 = 1$ ).

# of full-time equivalent (FTEs) [decimals OK]: \_\_\_\_\_

The following questions ask for details about the shared scooter program in your city in 2022.

Q23 How many shared scooter operators were permitted in the city in 2022?

Q24 What is the maximum number of individual scooters (vehicles/devices) permitted to operate in the city in 2022?

Q25 How many shared scooter trips were taken in your jurisdiction in 2022?

Q26 For approximately how many months was the shared scooter program in operation during 2022 (including regular seasonal pauses)?

0      1      2      3      4      5      6      7      8      9      10      11      12

Q27 In 2022, what fines or penalties did your jurisdiction have in place, for operators or for riders, for infractions? What were the amount(s) of the fine(s) for each type of infraction?

Q28 How much revenue did your jurisdiction collect from fines/penalties on shared scooter companies and/or riders in 2022? Please make your best guess, even if you aren't sure.

Q29 What fees did you charge to individual shared scooter operators in 2022?

To the best of your ability, please include the full details of all fees, including "flat" (e.g. annual or permit-based fees) and variable fees (e.g. per trip, per device).

Q30 How much revenue did your jurisdiction collect from fees on shared scooter companies in 2022? Please make your best guess, even if you aren't sure.

Q31 How does your jurisdiction allocate fee revenue? Are revenues directed to the General Fund or somewhere else? (Select all that apply)

- General Fund
- Somewhere Else

Q32 Please describe the fund(s) and where the fee revenues are allocated, and any policies or guidelines regarding eligible uses of program funds.

Q33 Has your jurisdiction installed any infrastructure improvements to improve shared scooter operations and/or rider experience and safety? (Please select all that apply.)

- Painted parking zone
- Installed parking racks/docks
- Installed signage
- Installed facilities for scooter riders (e.g., bike lanes/mixed-use paths)
- Improved pavement
- Other, please specify:

Q34 Has your jurisdiction contracted with any private company/organization (aside from the shared scooter operator) to handle aspects of your program (Please select all that apply.)

- Parking management and enforcement
- Enforcement of regulations (e.g., deployment requirements)
- Data analysis
- Program evaluation
- Public outreach
- Other, please specify:

Q35 Has your jurisdiction applied for grants to fund initiatives related to shared scooter operations?

- Yes, we successfully applied for and been awarded some grant funds
- Yes, we applied for funds but have not won any awards
- No

Q36 What were the grant award amounts, and how have you applied those grant funds toward the program?

Q37 State your agreement with the following statement: “If we were not able to charge fees to shared scooter operators, shared scooter systems would not be allowed to operate in my jurisdiction”

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q38 What challenges have you encountered with your program fee structure? Do you have any ideas on how you could address those challenges by making changes to the fee structure?

Q39 Does your agency produce an annual report or similar materials (staff report for Council/Board, etc) that are publicly available?

- No
- Yes. Please provide a link or directions for how to access these materials

Q40 Please enter your email, if you would like to receive a copy of the final report or article.



## APPENDIX 5 - METHODOLOGY FOR CALCULATING FEES AND TAXES FOR OTHER TRANSPORTATION MODES

### PRIVATE VEHICLES

The cost per mile of gas taxes is dependent on fuel economy. The average US light duty fuel efficiency in 2021 was 22.9 mpg (US Department of Transportation Bureau of Transportation Statistics, 2023). A vehicle with average fuel economy (22.9 mpg) in a median gas tax state (27.3 cents per gallon) would pay approximately 2.0 cents per mile in combined federal and state gas taxes (see Table 8). A car with poor fuel economy (15 mpg) operated in a high gas tax state (58 cents per gallon) would pay about 5.1 cents per mile. Conversely, a car with strong fuel economy (50 mpg) in a low gas tax state (9 cents per gallon) would pay only around 0.5 cents per mile.

**Table 8. Private vehicle fuel taxes per mile in three tax rate and fuel economy scenarios**

Scenario	Federal gas tax (per gallon)	State gas taxes (per gallon, 2022) <sup>1</sup>	Vehicle miles per gallon	Gas tax per mile
<b>High Cost</b> High state tax rate Low efficiency vehicle	\$0.184	\$0.576 Pennsylvania	15 mpg E.g., Ford Bronco Raptor 4WD, Jeep Grand Wagoneer 4WD (8-cylinder) <sup>3</sup>	\$0.051
<b>Medium cost</b> Median state tax rate Average efficiency vehicle	\$0.184	\$0.273 Median state rate	22.9 mpg US Light Duty Fleet Average (2021) <sup>2</sup>	\$0.020
<b>Low cost</b> Low state tax rate High efficiency vehicle	\$0.184	\$0.09 Alaska	50 mpg E.g., Toyota Corolla Hybrid, Hyundai Elantra Hybrid <sup>3</sup>	\$0.005

<sup>1</sup> (Tax Policy Center, 2023)

<sup>2</sup> (US Department of Transportation Bureau of Transportation Statistics, 2023)

<sup>3</sup> (Environmental Protection Agency, 2024)

Where variable fees exist, newer, more expensive, and heavier-vehicles generally pay more. Given the variability in the weight, market values, and age of individual vehicles, registration costs can vary considerably among drivers in the same state. Market research by ESRI, utilizing data from the US Bureau of Labor Statistics' Consumer Expenditure Survey, estimated that "vehicle personal property taxes and state and local registration fees" are \$258 USD per household on average (Environmental Systems Research Institute, Inc., 2024). Assuming an average of 1.82 vehicles per household (United States Census Bureau,

2024), this breaks down to \$142 USD per vehicle.

The cost of registration-related fees on a per-mile basis is dependent on the amount of the fees and the mileage driven (see Table 9). The average vehicle miles traveled (VMT) per driver in 2022 was 13,476 miles (Federal Highway Administration, 2022). An average VMT driver charged \$142 in registration fees would pay 1.1 cents per mile. We create high cost and low cost scenarios based on differing fee costs and annual car mileage, with the goal of providing a likely range of per-mile fees that different drivers may experience.

**Table 9. Registration renewal costs per mile in three fee/tax and VMT scenarios**

Scenario	Renewal cost (total)	Miles driven per year	Renewal costs per mile
<b>High Cost</b> High fee/tax rate, newer/more expensive vehicle, low mileage	\$600 Hypothetical	5,000	\$0.120
<b>Medium cost</b> Average renewal costs, average VMT	\$142 <sup>1</sup>	13,476 <sup>2</sup>	\$0.011
<b>Low cost</b> Low fee/tax rate, older/less expensive vehicle high mileage	\$50 Hypothetical	20,000	\$0.003

<sup>1</sup> Assuming \$258 average household registration costs (Environmental Systems Research Institute, Inc., 2024) and 1.82 vehicles per household (United States Census Bureau, 2024)

<sup>2</sup> (Federal Highway Administration, 2022)

Battery electric vehicles do not pay fuel taxes. Since fuel taxes are a primary way road construction and maintenance is paid for, many states levy higher registration fees for BEVs to make up for lost state gas tax revenue (Igleheart, 2023). Igleheart (2023) finds that BEV-specific renewal fees range from \$50 to \$213 (Texas has a first-year EV registration fee of \$400). Some states also charge extra registration fees for hybrids and PHEVs, ranging from \$20 to \$160 per year). For comparison, a driver who owns a gas-powered vehicle with fleet average fuel economy, in a median gas tax state, and drives US average VMT would pay approximately \$161 USD in state fuel taxes in a year. In other words, the additional registration fees on EVs are generally similar in size to the fuel taxes BEVs avoid, which is the rationale behind the additional registration fees. (However, on the higher end, there are cases where additional registration fees for EVs are greater than fuel taxes avoided).

It should be noted that some cities have local gas tax, vehicle registration fee or on-street parking permit fee. These fees or taxes are not included in this analysis.

## RIDEHAILING

In the Lowe et al. (2021) analysis of ridehail fees, only 20 of the 50 largest US cities assessed government fees or taxes on ridehailing. Of the 20 cities, 14 levied flat fees/taxes and 7 levied percentage-based fees/taxes (one city, San Francisco, levied both types). Among cities with flat fees/taxes, 11 of 14 charged between \$0.10 to \$0.25 USD per trip. Three additional cities charged flat fees of more than \$0.50 USD per trip, with Chicago having the highest fee of at least \$1.25 USD per trip. Cities with percentage-based fees/taxes charged rates ranging from 1.4% to 11.38%. Assuming a median ridehail trip of 3.6 miles (Henao & Marshall, 2018) and median ridehail fare cost of \$2.50 per mile (Henao & Marshall, 2019), trip-based fees and taxes on ridehailing ranged from \$0.03 to \$0.35 USD per mile and \$0.11 USD per mile on average (see Table 10). In the 11 cities in common between Lowe et al. (2021) and our full analysis, shared micromobility trips were levied fees/taxes that were on average 5.3 times higher than ridehail trips (\$0.79 vs \$0.15).

Ridehail trips (in non-EVs) also consume fuel, and thus have associated fuel taxes. Fuel costs are sometimes explicitly passed on to riders as a fuel surcharge (Bellan, 2022). As previously described, this can plausibly range from \$0.01 to \$0.05 USD per mile depending on state gas tax rate and vehicle fuel economy.

Ridehail vehicles also have to be registered and thus have registration renewal costs. However, one confounding issue with ridehail is that services are framed as being provided by individuals using their personal vehicles, perhaps as a “side hustle.” Therefore, in many cases drivers presumably would have owned, registered, and used their vehicles personally whether they were ridehail drivers or not. We therefore exclude registration fees from our calculations of total fees and taxes for ridehailing.

**Table 10. Comparing ridehail and shared micromobility fees and taxes**

	Ridehail fees/ taxes <sup>1</sup>		Fees/taxes per mile		Shared micromobility fees/taxes as multiple of ridehail
	Flat (per trip)	Percentage-based	Ridehail <sup>2</sup>	Shared micromobility <sup>3</sup>	
<b>Atlanta</b>	–	8.90%	\$0.22	\$0.50	2.3x
<b>Baltimore</b>	\$0.25	–	\$0.07	–	–
<b>Boston</b>	\$0.20	–	\$0.06	–	–
<b>Chicago</b>	\$1.25	–	\$0.35	\$1.76	5.1x
<b>Columbus</b>	–	5.75%	\$0.14	–	–
<b>Fresno</b>	\$0.10	–	\$0.03	–	–
<b>Las Vegas</b>	–	3.00%	\$0.08	–	–
<b>Long Beach</b>	\$0.10	–	\$0.03	\$1.05	37.8x
<b>Los Angeles</b>	\$0.10	–	\$0.03	–	–
<b>New Orleans</b>	\$0.50	–	\$0.14	–	–
<b>New York</b>	–	11.38%	\$0.28	\$0.39	1.4x
<b>Oakland</b>	\$0.10	–	\$0.03	–	–
<b>Philadelphia</b>	–	1.40%	\$0.04	–	–
<b>Portland</b>	\$0.50	–	\$0.14	\$0.25	1.8x
<b>Sacramento</b>	\$0.10	–	\$0.03	\$0.78	28.0x
<b>San Diego</b>	\$0.10	–	\$0.03	\$1.01	36.4x
<b>San Francisco</b>	\$0.10	3.25%	\$0.11	\$0.70	6.4x
<b>San Jose</b>	\$0.10	–	\$0.03	\$0.98	35.5x
<b>Seattle</b>	\$0.85	–	\$0.24	\$0.80	3.4x
<b>Washington</b>	–	6.00%	\$0.15	\$0.51	3.4x
<b>AVERAGE</b>	\$0.31 per trip	5.67%	\$0.11 per mile All 20 cities above from Lowe, et al.	\$0.69 per mile All 53 cities with annual fees	6.3x
			\$0.15 per mile 11 cities above in-common between this study and Lowe, et al.	\$0.79 per mile 11 cities above in-common between this study and Lowe, et al.	5.3x

<sup>1</sup> (Lowe et al., 2021)<sup>2</sup> Derived from Lowe et al. (2021) rates assuming a median ridehail trip of 3.6 miles (Henao & Marshall, 2018) and median ridehail fare cost of \$2.50 per mile (Henao & Marshall, 2019).<sup>3</sup> Data from cities sampled in this study

## CARSHARE

Unlike traditional car rentals, carshare vehicles are distributed across a city as opposed to centralized offices. Vehicles can be quickly accessed by reservation-holders who unlock vehicles themselves via an app, similar to how shared micromobility vehicles are accessed. In recent years, different carshare models have evolved, similar in nature to the evolution of docked to dockless micromobility. Zipcar was a pioneer in systems with dedicated, “station-based” parking spaces, while new models allow for more free-floating parking, exemplified by companies and organizations such as GIG, car2go, and ReachNow, as well as peer-to-peer carshare through companies like Getaround and Turo.

From a city perspective, the goal of carsharing is to provide more access to people without cars and to encourage car-free or car-light living. One survey of households with carsharing memberships found they reduced their vehicles owned by 44 percent (Martin & Shaheen, 2011) and another study showed a reduction of vehicle miles travelled by a subset of peer-to-peer carsharing owners (Dill et al., 2019).

Cities often charge carshare program fees to offset lost parking meter revenue. For example, in Sacramento, California, the city explained that “the annual base flat permit fee for a metered space is calculated as the average gross revenue per meter during the most recent completed fiscal year” (Sacramento City Council, 2018). In some cities, the fees are set lower than the lost parking meter revenue, likely as a way to encourage shared cars rather than personally owned cars. And in Sacramento, the city implemented performance-based fee variations that seek to encourage zero-emissions vehicles through fee discounts (Sacramento City Council, 2018).

In addition to program fees, Schwieterman & Spray (2016) estimated that carshare trips were subject to a 17.0% tax on average (including sales tax). Tax rates could be much higher than this though, particularly on short duration rentals in cities with flat fees, because the impact of flat fees dissipates over longer duration rentals. In 10 cities with flat fees, tax rates on 1-hour carsharing reservations ranged from 21% to 62%. Building off this work, Schwieterman & Bieszcza (2017) estimated that in a high-fee/tax scenario (3 weekly one-hour, 5 mile trips, 37% fee/tax rate), this equates to \$0.66 per mile.

In four US cities where we could identify carshare program performance metrics, we found that program fees per mile ranged from \$0.03 USD per mile (in New York City) to \$0.40 USD per mile (in Minneapolis, Minnesota). Taxes per mile ranged from \$0.17 USD (San Francisco, California) to \$0.60 USD (Seattle, Washington).

**Table 11. Comparing carshare and shared micromobility program fees**

City	Carshare	Shared micromobility
<b>Seattle, Washington</b>	Free floating: \$300 annual per vehicle \$0.50 per trip (ICE), \$0.25 per trip (EV) <sup>1</sup> \$1.25 per trip (Shared Asset Fee) <sup>2</sup>	\$150 annual per vehicle \$232 initial permit fee, \$176 renewal permit fee
	Estimated 17.3% tax rate (sales tax plus other carshare-specific taxes) <sup>7</sup>	10.3% sales tax
<b>Minneapolis, Minnesota</b>	\$620 annual license + processing fee <sup>3</sup> \$690 annual per vehicle (meter + carsharing fee) <sup>4</sup>	\$100 annual per vehicle \$0.10 per trip
	Estimated 22.1% tax rate (sales tax plus other carshare-specific taxes) <sup>7</sup>	8.0% sales tax
<b>San Francisco, California</b>	Annual fee per dedicated parking space: \$1,560 for Zone 1, \$900 for Zone 2, \$240 for Zone 3 <sup>5</sup>	\$100 annual per-vehicle for the first year \$44,000 annual permit fee
	Estimated 8.6% tax rate (sales tax only - no carshare-specific taxes) <sup>7</sup>	8.6% sales tax
<b>New York City, New York</b>	\$475 annually for dedicated parking spaces No fee or permit for carshare using existing parking spaces <sup>6</sup>	\$15,000 permit \$130 per scooter (for scooters after the 1,000th in fleet)
	Estimated 19.9% tax rate (sales tax plus other carshare-specific taxes) <sup>7</sup>	8.9% sales tax

<sup>1</sup> (Seattle Department of Transportation, 2024)<sup>2</sup> (GIG Car Share, 2024)<sup>3</sup> (City of Minneapolis, 2024)<sup>4</sup> (City of Minneapolis, 2016)<sup>5</sup> (San Francisco Municipal Transportation Agency, 2017a)<sup>6</sup> (New York City Department of Transportation, 2020)<sup>7</sup> (Schwieterman & Bieszczat, 2017)

## SHARED MOPEDS

Shared moped services are located only in a small handful of large US cities, while these services are much more prevalent in Europe. In Washington, DC, the city imposed a small performance bond (\$10,000 USD) but no program fee (District Department of Transportation, 2021). New York City charged a \$1,050 USD initial permit fee for the first 6 months of operation, with a \$4,100 renewal fee for every 6 month period thereafter (New York City Department of Transportation, 2022b). At one point in 2020, one of the main shared moped operators, Revel, had 3,500 mopeds in operation across various boroughs of New York City (Hu, 2023). In line with Washington, DC's approach, San Francisco initially charged no fee, nor did it require a permit for operations, for shared moped and carshare programs in 2012, when shared moped operator Scoot began operations (Pender, 2017). In 2017, San Francisco instituted a permit program and imposed fees at a rate of \$325 USD per year per vehicle, or \$162.50 USD if deployed for six months or less (San Francisco Municipal Transportation Agency, 2017b). The annual vehicle fee was framed as a permit to park in certain places around the city. As of 2023, this rate was reduced to \$107 per year (San Francisco Municipal Transportation Agency, 2024a).

In Washington, DC and New York City, the shared micromobility operators are charged substantially more than shared moped companies, while in San Francisco, the program fees were more comparable between micromobility and mopeds. Shared micromobility companies were charged a flat annual fee of \$43,734 USD in the 2021 and 2022 fiscal years (\$5,394 USD application fee and \$38,340 program fee). San Francisco also charged a per-vehicle fee of \$100 USD per device in the FY 2021 framed as a “bike rack fee” to “help ensure” the presence of sufficient bike racks in the city (San Francisco Municipal Transportation Agency, 2024b). This rate is similar to the most recent moped rate. Three shared scooter operators paid between \$112,500 and \$150,000 USD in bike rack fees in FY2021.

Data on shared moped fees in Europe were more challenging to identify. In Barcelona, the city charges a \$77 annual per-vehicle fee (Valdivia, 2020).



**Table 12. Comparing shared moped and shared micromobility program fees**

<b>City</b>	<b>Shared mopeds</b>	<b>Shared micromobility</b>
<b>Washington, DC</b>	\$0	\$10 per vehicle per month \$325 initial permit fee \$175 renewal permit fee
<b>New York City, New York</b>	\$1,050 for initial 6-month permit \$4,100 for 6-month renewal  Multiple boroughs, including Manhattan 3,500 mopeds as of 2020	\$130 per vehicle per permit (1-year) \$15,000 one-time permit fee  Bronx-only Permitted: 3,000 scooters in phase 1, 6,000 in phase 2
<b>San Francisco, California</b>	\$107 annual per-vehicle fee	\$100 annual per-vehicle for the first year \$44,000 annual permit fee

## DOCKED BIKESHARE

In Los Angeles, California, the region's docked bikeshare program completed 290,310 trips in 2022 (Los Angeles County Metropolitan Transportation Authority, 2024), with an operating budget of \$15 million USD for 2022 (Los Angeles County Metropolitan Transportation Authority, 2022), equating to \$52.53 in government investment per trip. The typical trip fare of \$1.75 for a 30 minute ride covers only 3% of the operating expenses. Revenue from sponsorships and other avenues likely cover some of the remaining \$50 per trip.

In Washington, DC, the city allocates budget from DDOT's Capital Improvement Plan for capital expenditures (\$2.2 million USD per year) and from the city's General Fund for an operating costs (\$1.2 million USD per year) subsidy (District Department of Transportation, 2020). While revenues from user fares recoup about 75% of operating costs, they only cover 60% or less of capital and operating expenditures. The bulk of the remaining capital and operating expenses are covered by the city's investment, followed by some revenue from advertising and development proffers. This substantial public investment reaps benefits in terms of lower trip fares and a robust low-income fare program.

Other cities have also begun following Washington, DC's lead to invest in their docked bikeshare systems for public benefit. For example, the California Bay Area's metropolitan planning organization, MTC, recently announced a \$20 million (USD) investment in the regions' docked bikeshare program over the next three years (Goodwin & Krull, 2023). With that investment come slightly lowered trip costs, an expansion of the system's e-bicycle fleet, and additional docking stations.

Depending on the contractual agreement, in some cities docked bikeshare operators may pay the city in the form of revenue sharing or by committing to offering program benefits, like low-income fare programs, which have monetary value.