Executive Summary

IN AN EFFORT TO UNDERSTAND emerging best practices in the micromobility field, the Remix team reviewed 17 cities' scooter and bikeshare policies. Four key ‘practice’ areas emerged from our research: enforcement, fees, caps, and data sharing. This executive summary covers some of our initial findings and recommendations, illuminating how cities are putting policy into action and setting themselves up for success.

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This chart represents the status of policies in November of 2018. When determining whether or not an agency used a standard format for reporting, the team used a narrow definition, highlighting only requests for regular program reporting in standard format versus requests to simply show availability data through a standard such as GBFS.

ENFORCEMENT

When considering the need for enforcement, three key focus areas emerged across most cities: vehicle parking, service areas, and the maintenance of those vehicles to ensure rider safety.

Parking | Service Areas | Maintenance/Safety |
---------|----------------|-------------------|
✔        | ✔              | ✔                 |

The cities that we felt were best set up for success were the cities who set unambiguous guidelines for device parking with clear consequences for vendors if they fail to enforce them. Examples include cities who build digital enforcement infrastructure, such as the ability to geofence equity areas to enforce distribution requirements, or cities that can easily pull reports on device state-of-repair.
FEES

Micromobility providers’ storefront is the public right-of-way, requiring additional city resources to be put toward managing that shared space. Fees allow cities to mitigate the financial impact of, and in some cases, capture revenue to invest in better infrastructure for safe operation. The review illuminated inconsistency in the total estimated amount of potential fee revenue, suggesting an inconsistent approach to fee amount and administration. Some cities may be underestimating the resources necessary for proper management and delivery of safe infrastructure for operations.

DATA SHARING

The 17 cities reviewed for this study show an increasing awareness for laying the digital infrastructure necessary to actively manage emerging mobility. New specifications, such as the General Bikeshare Feed Specification (GBFS) and Mobility Data Specification (MDS), have emerged, helping cities request standardized data. Additionally, cities are starting to request real-time data versus a static report format, allowing them more freedom to pull data as frequently as needed. By placing our findings on the axis below, we see that the majority of cities are starting to make real-time data requests. A small few are leading the way by requesting their regular reports be provided in a data standard.

CAPS

Caps, or an upper limit on the number of vendors and/or devices, was common across the 17 cities studied. Of cities who established fleet caps, some also provided a clear path to increased fleet size by establishing utilization thresholds as a guide to balance supply and demand, and performance measures to encourage outstanding service for their communities. There was no correlation between fleet cap size and city size. Only three cities chose to allow the supply of devices to reach the point of less than 100 persons per vehicle deployed. Two cities restricted supply to the extent of thousands of people per vehicle deployed.

RECOMMENDATIONS

• When writing enforcement language, set clear, unambiguous rules around vehicle parking, service areas and vehicle maintenance.

• When setting fees for micromobility, consider establishing modest per-trip fees to pay for program management, enforcement and broader mobility goals such as safer streets, equity and designated parking. Fees to promote safer streets and better parking can help ensure the program is more successful.

• When establishing a cap, implement a utilization threshold to better balance supply with demand rather than accidentally stifling the growth of a program. Additionally, tie performance to opportunity to expand to encourage delivery on other key program goals.

• Establish digital infrastructure that allows for effective management and oversight of your program, as well as future planning efforts, such as building bike lanes or placing street furniture to improve program success.
TODAY, RESIDENTS IN OVER 50 U.S. CITIES are trying shared dockless e-scooters and bicycle services as a new way of getting around town. Based on recent statistics, they are getting used in a serious way. In a month’s time, Portland estimated over 178,000 rides traveling more than 270,000 miles. Santa Monica reported over half a million trips, and over a million miles on their dockless electric scooters alone. These figures represent a monumental change in city movement and local leaders are taking note.

With the launch of these services, cities have an opportunity to hatch partnerships that help ensure safety, provide a clear business environment, and help achieve local goals through policymaking. We selected 17 cities’ recent policies to identify emerging best practices and themes, namely: enforcement, fees, fleet caps, and data sharing, and found cities have met the deployment of new dockless “micromobility”¹ services with an array of cautionary, enthusiastic and creative permit agreements. This report aims to answer the following questions:

- **Enforcement**: What are the core areas of concern for cities around micromobility service operations? How are these being conveyed?
- **Fees**: How are cities thinking about the financial impact of managing private micromobility provider operations on the public right-of-way? How might those fees be administered to represent not just this need, but to also make streets safer?
- **Caps**: How are cities thinking about fleet and vendor caps? What are the advantages and disadvantages of emerging practices?
- **Data Sharing**: What practices are emerging in requests for data? Which will provide cities with the digital infrastructure they need to actively manage and plan for the success of their programs?

¹ In this paper we will use the emerging term, ‘micromobility,’ as an umbrella for bikes, e-bikes, and e-scooter vehicles offered by micromobility providers through “dockless” smartphone enabled platform. The term has primarily emerged as a definition for lightweight electric powered vehicles, however, as many bikeshare systems move toward electrification, the line gets blurry.
**Enforcement**

Cities by and large are given the authority to enforce their traffic code. Each new traffic code regulation is, in turn, a new rule to enforce, often by way of patrol or public reporting. As cities write new ordinances and permits for dockless systems, three key topics emerged as central to enforce vendor operations: vehicle parking, service areas, and the maintenance of those vehicles to ensure rider safety. The chart below outlines the number of policies with language on each subject:

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Roughly three quarters of policies we surveyed had language on all three of these subtopics; parking regulations, the most common subtopic, appeared in all but two.

**VEHICLE PARKING**

Micromobility can potentially help agencies meet their equity goals related to the underserved edges to overcome specific, otherwise-vexing issues. A recent survey found that dockless electric scooters enjoy higher positive public perception from lower-income groups, indicating desire for the services in lower-income neighborhoods. These Sidewalks provide valuable space for people to travel and recreate safely on foot. The influx of micromobility devices increases competition for this already-scarce city resource. Despite this, cities frequently establish guidelines for micromobility device parking to occur in the “furniture zone.” NACTO defines this area as “the section of the sidewalk between the curb and the through zone in which street furniture and amenities, such as lighting, benches, newspaper kiosks, utility poles, tree pits, and bicycle parking are provided.” The furniture zone is typically the only remaining space on the sidewalk that can accommodate these new vehicles, though it too faces capacity challenges.

As an alternative, some cities like Santa Monica are starting to incorporate “micromobility corrals” where on-street parking is repurposed to expand storage and create a more permanent and legible home for these vehicles. City policies require vendors to build in mechanisms for educating users about proper parking, including in-app messaging and external outreach. Most policies we surveyed place the onus on vendors to enforce parking policy and pass through the costs of managing delinquent vehicles, such as ticketing and towing, to vendors as well.

Some cities, such as Austin and San Francisco, go further by granting themselves the authority to set up geofences, or specific areas where parking is digitally prohibited outright through the vendor app. Cities may request geofences in areas with high pedestrian volumes, which may consistently push the limits of sidewalk capacity or special events.
SERVICE AREAS

Whether citywide or confined to priority areas, cities and micromobility providers should have a shared understanding of where providers will deploy and rebalance vehicles. This helps both parties understand and manage vehicle supply, and gives cities the opportunity to maximize the public benefit of these programs.

Because the cities we surveyed vary greatly in total land area and number of permitted devices, we found no consensus on an approach to defining vendor service areas. Many cities leave this undefined in their policies, with the assumption that vendors will operate within city limits and rebalance devices accordingly. Others, such as Dallas, name specific streets as boundary lines. Still others, such as San Francisco, name specific neighborhoods that vendors must include within their service areas. This is often to achieve equity goals related to delivering new mobility options to traditionally underserved areas. Equity-focused pilot programs like Chicago’s confine service areas to disadvantaged neighborhoods while excluding the rest of the city.

Anecdotally, we’ve found a relationship between fleet cap regulations and the size of vendor service areas. In Remix’s hometown of San Francisco, for instance, SFMTA’s selected e-scooter vendors cordoned their operations to small fractions of the city. Working within a cap of 2,500 total scooters, vendors chose these boundaries presumably to maximize device density in areas where they anticipate heavy usage.

MAINTENANCE/SAFETY

Any public fleet of shared vehicles will be subject to heavy use (and abuse), so timely and thorough vehicle maintenance is essential. Damaged vehicles present safety risks that providers must mitigate. Many providers’ bikes and scooters are designed for individual consumers rather than as commercial vehicles, making them especially vulnerable to vandalism and rapid wear and tear. In response, many cities are requesting maintenance records from providers to hold them accountable for the safety and usability of their devices.

Seattle stands out for the specificity of its maintenance records requirements. In addition to service histories, the city requests information on product recalls, user reports of unsafe or damaged vehicles, and tallies of vehicles taken out of service for repair, all on a monthly basis.

Most city policies we surveyed that included language about incident reporting asked for summary data on weekly or monthly cadences. None required details regarding the severity, mode type, or weather/road conditions surrounding the collisions, which are common among already established state and local collision record-keeping systems for motor vehicles.

RECOMMENDATIONS

• Six to twenty bicycles can fit in a single on-street parking space. Before singularly citing the “furniture zone” as a guideline for scooter parking, cities should identify areas where sidewalks are already overcrowded, and consider converting on-street vehicle parking to a designated micromobility parking zone, to reduce potential conflicts with pedestrians.
• Guidelines for parking should be unambiguous and set clear consequences for vendors, should they fail to enforce these guidelines.
• Consider mobility goals such as equity, device density, or first/last-mile trips, and how these may play out geospatially. Define these zones where possible and establish enforceable rebalancing directives to providers.
• Require vendors to prove that their devices are in good repair through reporting.

Fees

Fees are a common mechanism to recapture the cost of managing a permitted program or service. Fees were found to be administered in three ways across the surveyed cities: annual fees, per vehicle annual fees, and/or daily vehicle and/or trip fees. Out of the 17 cities surveyed for this paper, 14 administer annual permit fees, 11 administer annual per vehicle fees, and four take the extra step of charging daily fees, such as a per vehicle or per trip fee. It was also common to see enforcement fees for removal of abandoned or illegally parked vehicles defined in the regulation. See "Micromobility Fee Administration by City" table.

COST RECOVERY CONSIDERATIONS

Setting fees for new programs means considering the potential impacts and needs for successful management and oversight of a new program. Some of these considerations relate to administerial costs, such as the time it takes to develop, review, and oversee the program reporting. Other costs are enforcement related, such as the number of enforcement officers necessary to ensure compliance.

Though not included in our survey, the City of Oakland made public their line-itemed scooter program estimates, which help provide insight into administrative cost recovery considerations. Their scooter program will require at least three employees to manage day-to-day implementation and evaluations, complete community outreach, and enforce parking and distribution requirements. In addition to the personal investments, Oakland and other cities are setting aside budget for software to monitor scooter distribution. All together, Oakland estimates this will cost the city nearly $288,000.

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<th>Daily Fees, Per: Vehicle/ Trip/ Station</th>
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INFRASTRUCTURE COST RECOVERY

Outside of city-by-city calculated administrative burden, a quick media survey reveals the common demands for ensuring program safety related to blocking the sidewalks, riding on the sidewalks, and safely sharing the road with large, fast-moving vehicles. Solving for these issues may mean investments in infrastructure. While some of this burden falls on the providers to enforce directly, others may be better addressed through city interventions, such as:

- Scooter corrals and bikes racks, which create formal and organized locations to leave scooters and bikes, leaving the sidewalks clear.
- Bike lanes, which give riders a safe alternative to the sidewalk; even better, protected bike lanes reduce conflicts with large, fast-moving vehicles discussed above.

Santa Monica and Seattle have begun investing in micromobility infrastructure, creating drop zones on the streets and sidewalks. According to Santa Monica’s city manager, the $1/per vehicle/per day fee structure is expected to generate over $1 million annually specifically for mobility and safety improvements, including scooter corrals as shown below.

Apart from addressing common management demands that come from perceived or real conflicts with micromobility services, these investments have programmatic benefits, such as improved safety, and the creation of a virtuous cycle of increased ridership and continued investment. In New York, investments in bike infrastructure doubled the amount of bike trips in the last 15 years with steady or declining numbers of cyclist injuries and fatalities. The scooter companies themselves see the benefits of infrastructure investments; Bird and Lime created funds “to bring more protected bike lanes and better infrastructure for “micro mobility solutions.” This idea of funding infrastructure through fees on specific users is not new to the American transportation landscape. One of the largest national infrastructure projects, the Interstate Highway System, was largely built and is still maintained through the gas tax.

DYNAMIC FEES

Dynamic fees are fees that vary based on some criteria established by a city. Our survey returned some interesting use cases for dynamic fees, including per vehicle and per trip fees, as well as fees that adjust by equity distribution. Four of the 17 cities surveyed implemented a per trip or vehicle per day fee, making the overall revenue adjust based on fleet size or mode adoption. Dockless micromobility service adoption is rapid; multiple cities have reported 100,000+ miles traveled per month. With this kind of demonstrated popularity, it’s arguable that administrative and management costs could increase over time. Fees administered by number of vehicles or trips allow for cost recovery to scale with the program.

We are seeing cities adopt this thinking. For example, Portland charges $0.25 per trip, in addition to a $5,000 annual permit cost for each operator. According to the Portland Bureau of Transportation (PBOT), 472,069 scooter trips were recorded in the first three months of the pilot program. This means Portland generated nearly $120,000 in a quarter. Extrapolating out to a full year, Portland’s dynamic fee structure can generate up to half of the city’s entire Active Transportation budget just through the scooter program.

4 Source: https://www.li.me/blog/respect-the-ride-lime-commitment-rider-safety-education
Minneapolis Public Works Transportation and Public Works Committee demonstrated similar thinking in their July 2018 proposal to City Council. The proposal included recommendations for a voluntary agreement with the licensee for shared City infrastructure improvements. Under the voluntary agreement, the licensee would pay an additional $1 per shared scooter per day. The Committee estimated this fee would bring in approximately $36,000 in total over the four month pilot program.

**RECOMMENDATIONS**

- Cities need to consider the full costs of managing successful micromobility programs by reviewing the increased administrative, enforcement and infrastructure demand created by the service or program when establishing their fee structure.

- Whenever possible, modest fees should be used to improve the infrastructure used by these services, the improvement of which is tied to the success of the overall program and resident safety.

- Residents are rapidly adopting micromobility services. Fees should be administered in such a way that they keep up with this growth, either on a per trip or per vehicle per day basis. Inversely, if popularity dwindles, the fees will adjust proportionately.

- Dynamic fees may bring increased need for increased computing power, which may add to the administrative costs of the program, but improve the overall public benefit of the program.

**Caps**

Early dockless companies “disrupted” markets by dropping thousands of vehicles on city streets overnight. This approach, in which operators risked oversupply in favor of ensuring availability, caused public outcry for protection of the public right of way. This, as well as concern from city officials around protecting accessibility on the sidewalks, ultimately led to the issuance of several “cease-and-desist” orders. Likely in reaction to the early history of dockless programs, nearly every city surveyed instituted a fleet cap, or an upper limit on how many vehicles can be on the city streets. Caps allow cities to plan for increased street, bike lane and sidewalk demand, as well as provide an important policy lever, particularly when cap growth is based on performance.

**VEHICLE CAPS**

Per vendor cap size varies by city. The lowest cap surveyed was 100 vehicles per vendor, while the highest was 5,000 per vendor. To get an estimate of the total possible vehicles allowed on the roadway, we assumed three vendors would provide service, unless a vendor cap was specified. The result was a range of 300 vehicles on the roadway on the low end, and 25,000 vehicles on the roadway on the high end. We saw no relationship between cap size and population size, resulting in high variance in vehicle availability per person in several cities, and opening up more questions about how initial caps are set to ensure successful programs. Getting the cap size too small may inhibit adoption, or far worse, increase user risk. For instance, studies have shown a consistent inverse relationship between adoption of biking and the frequency of crashes.
VEHICLE CAPS AS A LEVER (PERFORMANCE CAPS)

Many cities are using caps to reward vendor performance and actively balance supply and demand. These performance caps are a great way to clearly articulate and align desired program goals with vendor efforts. Utilization of the vehicles (about three times per day) has risen to the forefront of a good balance of supply and demand, and cities are using this metric to allow for increases or decreases in cap sizes. Nashville set incremental increases in the cap, starting at 500 vehicles, moving to 750 vehicles in the second month, and 1,000 in the third month, and gives the vendors the option to apply for expansion afterward. At each opportunity for expansion, the fleet vendors must prove they have met the regulations put forth, report on the number of violations received, and prove they meet or exceed the "average utilization threshold."

Cities are also using caps to encourage equity outcomes. Salt Lake City, for example, allows 200 vehicles per vendor, or 500 if vendors distribute the bikes in equity areas. Seattle set its cap at 5,000 per vendor (a total of 20,000 vehicles) and gave bonuses for additional accessible bikes, such as trikes, to be added into the fleet.

The number of vendors has a direct relationship to the total potential vehicles on the roadway. For example, if the per vendor cap is 5,000 and the vendor cap is set at 3, a city will have a maximum of 15,000 vehicles. While having multiple vendors can mean healthy competition, especially in early markets, there are likely diminishing returns due to increased compliance work.

We found two examples of high-volume vendor cities who provided divergent yet thoughtful ways of approaching vendor and vehicle caps. San Francisco Municipal Transportation Agency conducted a request for proposal process to select scooter vendors and received twelve applications. The agency gave themselves the option to select multiple vendors, and ultimately selected two vendors with contracts at 625 vehicles per vendor. Alternatively, Seattle Department of Transportation, set their cap at four vendors at 5,000 devices, and gave themselves authority to reallocate unused fleet capacity to other vendors.

RECOMMENDATIONS

- Caps should be tied to program performance targets. "Performance caps" should align vendor and city understanding of success, and set regularly scheduled reviews.
- Performance caps arguably need no hard-and-fast limit. Instead, cities should set clear expectations for device utilization, relying strictly on this measure to indicate whether steps need to be taken to better balance supply and demand.
- Empirical research exposing the inverse relationship between adoption of cycling and crashes (safety in numbers) makes it important for cities to consider the possibility that setting too low of a cap and retarding swift adoption could expose program users to prolonged safety risks.
- Cities should strike a balance between encouraging healthy competition between vendors and capacity for administrative oversight when setting a vendor cap.

Early dockless bikeshare providers risked over supply in favor of ensuring as-needed availability. Performance caps with utilization thresholds encourage providers to balance supply and demand, while also allowing for continued program growth.

Source: AP

CAPS ON VENDORS

Some cities, particularly those experiencing a high volume of vendor interest, are choosing to cap the number of vendors operating in their jurisdictions.
Data Sharing

The transportation industry has matured in its understanding and capacity for data analysis. New standards, such as the General Bikeshare Feed Specification (GBFS) and Mobility Data Specification (MDS) have emerged. This recent emergence of MDS is particularly exciting in that it enables cities to build off best practices of other cities and take advantage of an ecosystem of tools for analysis and enforcement of their policies and programs. Cities are starting to request real-time data (an innate component to MDS), versus a static report format, allowing them more freedom to pull data as frequently as needed. We’ve plotted the regulations we reviewed in the quadrants below, based on two axes:

1. Real-time vs. static, and
2. Bespoke vs. standardized formats.

Encouragingly, over half require data in a real-time format, and two are leading the way by requesting their regular reporting in a standard format, such as GBFS or MDS.

Based on our research, we see these core data sharing policy features:

- Universal agreement on the need for trip and fleet availability data
- A variety of approaches toward customer feedback and other data
- The need for data sharing agreements between private vendors and public authorities to meet transportation, safety, and equity goals.

Since they’re the essential components of the data policies we surveyed, we’ll reiterate our findings on trip and fleet availability data here.

TRIP DATA

Until now, cities often relied on analyzing inferred trip data from sources such as surveys, complex travel demand models, or smartphone location data aggregators to achieve this goal. With micromobility, the data can be retrieved from its source at the provider level, allowing cities to work more quickly with private partners to reach mutual success. Though not included in our initial survey, Santa Monica is requesting information in the emerging open data standard, MDS, mentioned earlier. In addition to the real-time and historical trip and availability data cities are looking for, MDS provides a method for cities to digitally communicate operational restrictions to multiple providers.

Trip-level data is most useful for understanding new mobility options’ impacts on other city infrastructure, such as transit and streets, which helps explain why we find this requirement coming from cities of all sizes and regions. The policies we reviewed show a clear consensus on what a “trip” means to them. Cities from Chicago to Houston want to see:

- Start and end times of individual rides on each micromobility device;
- The path of each ride; and
- The unique identification number of the device used for each ride.

5 Source: https://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/SMA-DivisionGuidelines_final.pdf
6 Source: https://github.com/CityOfLosAngeles/mobility-data-specification
7 Source: https://www.cityofchicago.org/content/dam/city/depts/cdot/bike/general/Chicago_DoBi_Pilot_Program_Updated_06.29.18.pdf
Trip data enables cities to make informed observations about the land uses most supportive of micromobility device use, the streets most in need of multimodal design treatments, and how these new modes interact with the rest of the transportation system, among countless other analyses.

**FLEET AVAILABILITY DATA**

Second to trip data in importance to policymakers is fleet availability data. Just as users need a picture of available devices near them, cities require this information to identify underserved (or oversupplied) neighborhoods and hold providers accountable for proper device rebalancing and/or recharging. Overall, we found that cities requested the following to understand if they were achieving their desired supply and rebalancing goals:

- Real-time locations of active and inactive devices
- The provision of availability data in the open GBFS standard

Fleet availability data serves multiple purposes. Providers display this information so users can locate vehicles. It’s also a core operational component of each provider’s service. Users of each micromobility app need to see current device locations to make use of the service. This same data is also useful to cities managing their public right-of-way. For example, like many cities, the Los Angeles Department of Transportation (LADOT) intends to enforce a cap on the number of deployed devices within city limits. They are able to do so by using fleet availability data to measure whether operators are complying with their rules.

Fleet availability data sharing requirements are also integral to measuring the success of policy goals around equity. Cities like Santa Monica cite “community wellbeing, sustainability and equity” in their policies, and that up-to-date fleet data can be used to verify that fleets are being rebalanced to serve lower-income communities. Nashville’s policy asks for scooters “to be available in neighborhoods and communities that are underserved by mobility and transportation options.” Location-enabled fleet availability data can help a city determine whether a provider’s device placement is equitably serving the public. Up-to-date fleet data can be used to verify that fleets are being rebalanced to serve lower-income communities and achieve intended equity goals.

**RECOMMENDATIONS**

- Require trip and fleet availability data from vendors to gain insight for planning and enforcement purposes.
- As cities pen enforcement, fee, and cap criteria, they should equally consider which standards and reports will best help them manage compliance of those criteria.
- Requesting MDS, a standardized, real-time format, is ideal, as that it is the only standard available that enables a line of digital communication between vendors and the city, and gives cities both current and historical trip insights, and device availability data.
Conclusion

At its core, the Remix Micromobility Policy Survey examined a moment in time where several cities sat down and brought their mobility priorities into focus. They asked: How should we be prioritizing the right-of-way? What behaviors would we like to encourage and discourage on our streets? How should we set ourselves up to manage compliance of multiple vendors? In many ways, the survey uncovered what we already knew: cities are the focal point of innovative new ideas and business models around transportation. They must embrace this responsibility with the longstanding need to ensure basic public responsibilities such as safety, equitable access, and opportunities for residents.

From our perspective, cities that will achieve the most success are those who are proactive in management and have clarity on how new mobility options can achieve wider goals for a vibrant, multimodal city. Attributes such as safety, equity, access, and sustainability are all opportunities presented by micromobility. Yet, to positively influence these traits, cities must be positioned through thoughtful policies backed with strong digital infrastructure. With these elements in place, the benefits will expand beyond the success of a single program to include several city programs, such as infrastructure improvement prioritization, traffic calming measures, Vision Zero and beyond.

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WRITING YOUR MICROMOBILITY POLICY? Reach out to the Remix Policy Team at hello@remix.com.