
SHARED MOBILITY PILOT PROGRAM SUMMARY REPORT

November 2019



City of
Santa Monica[®]



SUPREME



EXECUTIVE SUMMARY

From disruption to integration

The City of Santa Monica is a regional leader in providing sustainable mobility, launching Breeze Bike Share—Los Angeles County's first bike share system—and investing in over 100 miles of bike facilities, green lanes, improved transit connections to Expo Light Rail, and education/encouragement campaigns like GoSaMo and Safe Routes to School. Advancing sustainable mobility takes planning. Yet, like many cities across the world, Santa Monica was forced to react to a new disruptive mobility model—privately owned dockless shared e-scooters and e-bikes.

In September 2017, dockless shared mobility providers launched a new business model that allowed users to find, unlock, pay for and park a GPS-enabled scooter or bike with their smart phone. While no municipal regulation, permit, or requirements existed that enabled this new type of business to operate on City streets, Santa Monica saw the potential to move people in a new way. The City designed a pilot program to test shared electric scooters and bikes operated by private companies, using a flexible approach that could be responsive to community needs, technological advancements, and a nascent and evolving industry.

The City invited applications and competitively selected Bird, Jump, Lime, and Lyft. The four operators were granted an initial total fleet of 2,500 devices - 2,000 electric scooters and 500 electric bikes. Through the Pilot Program's performance-based fleet cap system, the fleet reached a peak of 3,250 devices by September 2019. The program included a code enforcement officer who monitored conditions daily, and a program administrator to facilitate progress on 93 items in the Administrative Regulations.

Staff engaged with the four service providers in over 58 meetings, on a weekly and monthly, basis to review compliance with the Pilot Program regulations, address issues, and provide feedback on shared mobility services. Standardized data was collected from service providers regarding operations and ridership over the first year, and the City developed data management and analysis systems to track ridership and operations.

Staff oversaw the program to respond to community concerns, identify necessary program adjustments, and communicate and track the performance of the operators over time. Staff also received feedback from the community and other cities through survey tools and in person engagements.

- City conducted two users surveys (4,200 completed responses), and a communitywide survey (1,261 completed responses) to inform program evaluation and consider potential next steps.
- The City organized 10 meetings of a Community Advisory Committee that discussed and identified challenges, successes, and potential solutions to issues.
- The City hosted a Shared Micro-Mobility Summit with 15 lead cities in micro-mobility including Seattle, Portland, Oakland, San Jose, Minneapolis and Washington DC. This convening crystalized some best practices and facilitated a conversation that could inform collective next steps and future collaborations.

How did people use shared electric scooters and bikes?

- Shared electric scooters and bikes were clearly a popular mobility option, generating a total of 2,673,819 rides from October 2018 through September 2019. Ridership peaked during the spring and summer months.
- Average trip time was 14 minutes and trip length was 1.3 miles.
- People used shared mobility devices most often for short work-related trips (29%), recreation (26%), eating out (14%), to get to/from home (11%), and shopping (8%).
- Of the 4,260 riders surveyed, 35% were residents of Santa Monica, 44% were residents of other LA County areas, and 21% were out-of-county visitors.

How did shared electric scooters and bikes help people get around Santa Monica?

- People rode all over Santa Monica, with the highest concentration in Downtown (28%), beach areas (13%), and the Expo Line Downtown Santa Monica Station (4%). Other hot spots included commercial corridors like Montana Avenue and Main Street and business and education centers, which together accounted for over half (60%) of all trip destinations.
- Nearly half (49%) of shared mobility trips replaced trips that would have otherwise been made by car, either driving alone or ride-hailing using Lyft or Uber. 39% of trips replaced walking trips—in some cases serving as a walking accelerator for those commuting to work or to running errands, and in other cases serving tourism or recreational purposes.



Community member using a scooters to commute to work

How did the Pilot Program work?

- The City took an active role educating the public, which increased public awareness about the program and its rules. 85% of riders and 90% of the general public reported a general awareness of the pilot's basic parking and riding rules.
- City Code Enforcement officers issued 299 citations for 929 violations and impounded over 1,200 devices for blocking access for people with disabilities, being parked in the street, slow operator response time, and other violations. The City installed 107 parking and pick-up zones citywide, helping to organize rider parking and manage service provider fleet deployment.
- Santa Monica was one of the first cities to enforce geofencing and digital policy tools to remedy parking, safety, and oversaturation problems. For example, the City and service providers implemented a deactivation zone around the beach area, which brought devices to 0 mph, largely eliminated conflicts, safety issues, and number of devices along the beach path.
- Companies introduced e-bike and other field staff to manage devices that complemented the City's retention of additional field oversight staff. Managing a constantly moving fleet citywide is challenging, and necessitates digital or other modern enforcement techniques.



Scooter and bike drop zone

How accessible were the services to people?

- Users are predominantly male (67%) and aged 25-34 (64%). Nearly half of riders earned annual income over \$75,000. Low-income programs were available but underutilized (253 sign ups) due to underinvestment in outreach and on-boarding. Companies should actively address barriers to a more diverse user base, including people living with disabilities.
- The program had company deployment maximums in order to minimize oversaturation and create equal access for riders throughout the community. Companies mostly met the Downtown/Beach deployment standards, but devices move throughout the day and resulted in over-concentrations. Active rebalancing is needed to maintain access.
- During the pilot program, companies did not deploy services or devices that provided additional access for people with disabilities such as tricycles or three-wheeled scooters.

What collisions were reported during the Pilot Program?

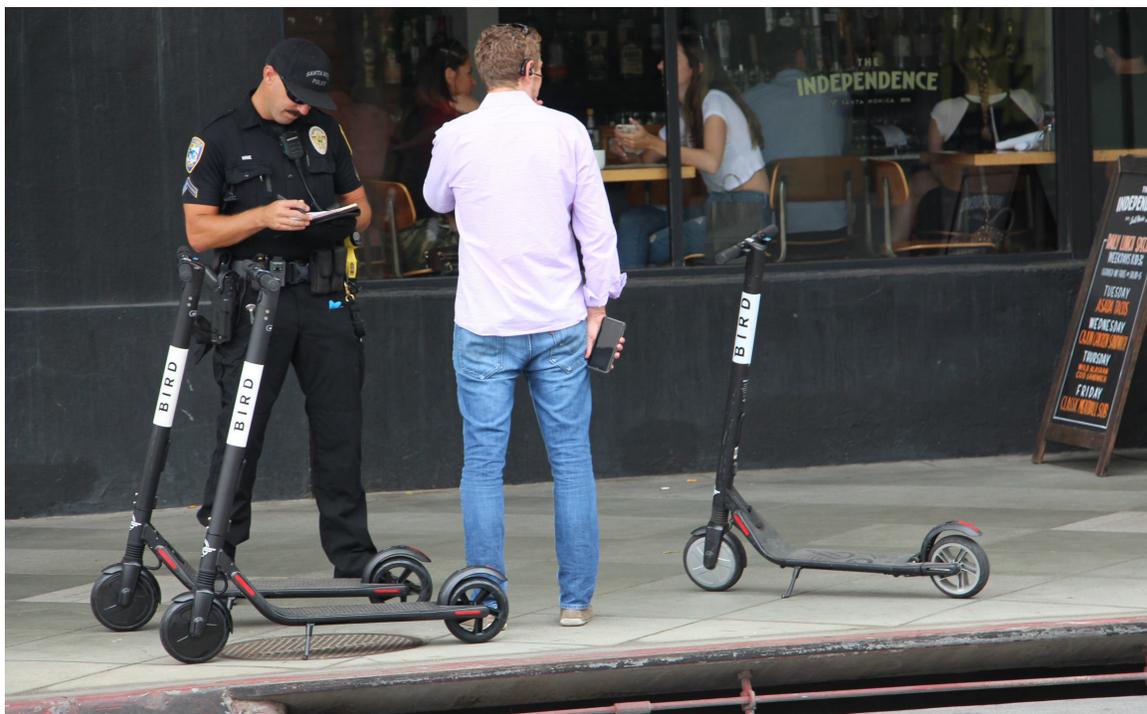
- There were 122 total reported collisions involving shared mobility devices from January 2017 to September 2019. 10% of the collisions resulted in severe injuries, while 80% of collisions resulted in a minor visible injury or complaint of pain.
- 47% involved a conflict with a motor-vehicle, 7% involved pedestrians, 21% of were caused by falling off the device, and 18% of collisions involved a fixed object. There were no fatalities on shared mobility devices during the pilot period.
- Strengthening and expanding rider education efforts will be critical to improve rider safety and better integrate shared mobility services as a part of Santa Monica's transportation network.



Shared mobility user riding in a protected bikeway

What was needed to provide safety education and enforcement for these new devices?

- Between June 2017 and early September 2019, SMPD issued 1,006 citations to e-scooter and e-bike riders. The most common citation was for riding without a helmet, a state law that was changed in January 2019.
 - The most common device parking issues were devices not being parked upright (17%) or not providing sufficient clearance in public right-of-way (25%).
 - The City rapidly installed 107 designated parking drop zones citywide, helping organize rider parking and manage service provider fleet deployment.
 - The City painted 19 miles of bikes lanes
- green, creating high visibility lanes that were funded in part by the Shared Mobility Use of Public Right of Way Fee.
- Though rider behavior improved over time, parking and safe riding issues persist. These user behaviors contribute to pedestrian discomfort and are currently infeasible to eliminate through field enforcement due to dispersion and ongoing movement of the devices. Companies share in the accountability to address sidewalk safety, and to develop systems that manage user behavior when operating their devices. Companies provided some in-app safety info; but few company outreach and safety events.



Shared mobility user cited for riding on sidewalk

Where do we go from here?

A lot of progress was made during the Pilot Program, and many operational areas improved with diligent efforts by City and company staff. Shared micro-mobility devices served millions of trips, half of which would have otherwise been taken in a car. The devices helped people get to destinations all over Santa Monica for work, recreation, dining, and shopping. Yet, delivery of public outcomes such as equity, affordability, sustainability and reliability still need improvement. As the city takes next steps, it should consider strategies that address some of the challenges.

- **Public right-of-way management** – improve fleet management and user parking to reduce clutter and obstructions.
- **Rider behavior** – reduce sidewalk riding, tandem, and other unsafe behaviors.
- **Equity and access** – increase access and engagement among diverse users with emphasis on income, ability, and disadvantaged communities.
- **Device design and maintenance** – accelerate device improvements to durability to withstand long-term shared use on public streets.
- **Effective Management** – refine tools to manage the dispersed devices, including data and internal systems.
- **Manage volatility** – seek to protect the public from industry volatility through partnerships that can provide consistent, reliable, equitable, and safe shared mobility options.

As Santa Monica considers next steps for shared micro-mobility, it can continue to work with the continuously evolving companies providing mobility solutions and systems. Throughout the country, cities are trying these solutions and engaging in a variety of ways. As the industry changes, cities will have to keep changing too. In the near term, Santa Monica can continue to seek improved regulations, market-based tools, education/engagement, technology, and partnerships. Cities are increasingly working together to identify best practices, share information, and collaborate on regional and sub-regional solutions. Coordination across cities and with private companies are crucial parts of learning and evolving the industry collaboratively.



Scooters deployed along curb



SECTION 1

BACKGROUND AND CONTEXT



Shared mobility in Santa Monica

Over the past two decades, Santa Monica has established itself as a regional leader for innovating and expanding transportation options for community members in order to reduce carbon emissions and congestion, and improve access and quality of life in the community. City Council and staff have been willing to explore and test innovative transportation solutions that have the potential to expand of mobility options. This leadership is evident policy decisions like the Bike Action and Pedestrian Action Plans, infrastructure investments like installing over 100 miles of bike facilities, restructuring Santa Monica Big Blue Bus routes to integrate with Expo Light Rail in 2016, and expansive education/ encouragement campaigns like GoSaMo and Safe Routes to School. In November 2015 Santa Monica launched LA County's first publicly-owned bike share system—Breeze Bike Share. Breeze used an innovative smart bike solution that enabled users to park anywhere and was the City's first public shared micro-mobility service.

In fall of 2017, privately-owned dockless shared micro-mobility emerged as a new business and operating model that allowed users to find, unlock and park a GPS-enabled scooter or bike with their smart phone. This new model was a disruptive application of trending app-enabled mobility, marrying the increasing customer expectation of on-demand transportation with readily available real-time information enabled by people's personal phones.

Using similar market entry tactics as ridehailing services like Uber, Lyft, and ofo (a Chinese dockless bike share service), shared mobility companies rogue launched their vehicles in the face of no enabling regulation, cease and desists letters, and the threat of mass impoundment. Building visibility and gaining a vocal constituency was a powerful tool to force cities to establish regulatory frameworks that permit their operation. Bird launched in Santa Monica in the fall of 2017. At the time, no municipal regulation or permit, existed that enabled this new type of business to operate in the City.

Santa Monica saw the potential to move people in a new way. As one of the first cities exposed to shared micro-mobility devices like scooters, Santa Monica did not have a playbook for regulating and managing these new services. Rather than ban the services, the City decided to explore, test, and evaluate shared mobility devices as a new sustainable transportation option that could potentially advance the community's broader transportation goals. The City designed a pilot program structured around a flexible approach that could be responsive to community needs, technological advancements, and a nascent and evolving industry with limited experience collaborating with public agencies.



Recent timeline of mobility in Santa Monica



Breeze Bike Share launch



2016

Metro Expo Line launches operations, bringing light rail to Santa Monica.

Santa Monica Big Blue Bus routes are restructured as part of the Evolution of Blue to provide bus connections to rail.

Blue @ Night service starts at Memorial Park Station.

Mobility campaign is launched prior to Expo Line opening, and later taken on by the GoSaMo Transportation Management Organization.

City Council selects "Mobility" as one of five key strategic goals for all key city endeavors.



2017

BIRD Scooters arrive in Santa Monica.

Santa Monica opens Lincoln Boulevard Peak Period Bus Lanes.

Council Adopts the Downtown Community Plan, land use and mobility strategy.



2018

Santa Monica launches the Shared Mobility Pilot Program to better understand shared mobility and how it serves the community.

Big Blue Bus MODE (Mobility on Demand for Everyone) launches in partnership with Lyft.



Scooter safety training class



SECTION 2

ESTABLISHING A SHARED MOBILITY PILOT PROGRAM

Why did the City respond with a pilot program?

On June 26, 2018, City Council directed staff to develop a Shared Mobility Device Pilot Program, regulating dockless shared micro-mobility companies and technologies. The challenge was to enable a low-emission, reliable and affordable transportation option for Santa Monica, while also managing public right-of-way (PROW) organization, Americans with Disabilities Act (ADA) access, and safety issues, among others.

To inform the development of the Shared Mobility Device Pilot Program, City staff reviewed the Breeze Bike Share system, interviewed 12 dockless micro-mobility companies and studied other dockless bike share pilot programs in Seattle, Washington DC, Dallas, and San Francisco. This informed approach led to a pilot program for e-scooters and e-bikes that was reflective of existing market conditions, evolving technology, and lessons learned. The City established minimum requirements by ordinance, and supplemental flexible expectations that could be refined as necessary through Administrative Regulations. In the 93 Administrative Regulations were minimum criteria on distribution and fleet size, and desired features included, features such as sidewalk riding detection, system integration with transit, ADA accessible devices, and enhanced public engagement efforts. In light of the rapid changes going on in technology-enabled mobility, a pilot program

was chosen as the best structure to:

- Develop and test new policy, regulatory, and enforcement tools through firsthand experience
- Move quickly to adapt to a rapidly changing industry, but leave room to learn and adjust as appropriate
- Evaluate new device and service providers in a growing industry
- Explore partnership models with private companies
- Capture and analyze new mobility data to enable data-driven decision-making
- Allow the City time to experiment with different management tools like “Geo-fencing” along the beach path and the creation of shared mobility device drop zones to improve parking “tidiness”



Biking on green bike lane along Ocean Avenue

A pilot shaped by Santa Monica goals and objectives

Santa Monica established a set of goals for the Shared Mobility Pilot Program that are reflective of the City's broader sustainability, safety, and mobility objectives. Through the Pilot Program, Santa Monica sought to:

- Diversify mobility options for residents, employees and visitors to Santa Monica
- Protect public health and safety
- Reduce sidewalk, pathway and ADA blockages
- Reduce emissions from short trips and provide connections to transit
- Maximize user awareness of safe and legal behaviors for operating shared mobility devices
- Create an enforceable framework for managing shared mobility services
- Ensure use of PROW benefits public mobility
- Ensure private operators respond to pervasive issues and service complaints

These goals and objectives guided the development of the Pilot Program's regulations, described on the next page.

City of Santa Monica's New Mobility Principles

Rapid mobility technology advances have raised new opportunities and challenges regarding mobility option, PROW management, partnerships and data. Reinforcing the community's core mobility goals and principles is an important first step to address new issues and to guide decision-making. The following principles come from Santa Monica's adopted community plans, and presented to Council as the guiding principles of the City's Mobility Strategic Goal.

- Put people and safety first.
- Give all people access to mobility choices.
- Pioneer a clean mobility future.
- Design great streets for health and wellbeing.
- Leverage private sector innovation in new mobility that serves community needs.
- Strengthen government services with data-driven decision-making.

How were providers selected?

The Pilot Program utilized a request for applications process to pick service providers. This procurement process was launched on July 10, 2018 with a request for applicants, to be part of the Pilot Program launch on September 17, 2018.

Applicants submitted information on how they would meet the terms and conditions of the Pilot Program including but not limited to: business information, operations and system management, system maintenance, equipment and technology information, approach to parking and roadway safety, education and engagement, data and reporting.

Information requested in the application provided a clear connection with the types of

administrative regulations the Pilot Program set in motion, such as the number of devices allowed on the street, maintaining equitable access, and providing adequate levels of customer service. The full list of submitted applications and the Administrative Regulations are located at: www.smgov.net/sharedmobility.



Lyft staff (above), and Lime and Girl Scout volunteers helped educate riders on scooter safety

Pilot Administrative Regulations

The goals and objectives outlined on the previous page, and collaboration with leading cities, informed the development, evaluation, and testing of regulatory practices during the Shared Mobility Pilot Program. These Administrative Regulations included 93 topics and were used to help manage, and collaborate with service providers.

Terms, Parameters and Guiding Principles

- **Term of permit:** Approx. 16 Months
- **Number of operators:** Up to four operators. Two electric scooter and two electric bike service options desired
 - » Selected operators: Bird, Jump, Lime, Lyft
- **Number of device:** Initial Fleet Size
 - » Bird: 750 e-scooters
 - » Jump: 500 e-bikes, 250 e-scooter
 - » Lime: 750 e-scooters
 - » Lyft: 250 e-scooters
 - » Total Launched: 2,500 devices
- **Dynamic Cap Adjustment Process**
 - » Performance-based cap system allowing fleet increases if service providers exceed average daily ridership of three rides per electric bike and four rides per electric scooter and the terms of the Administrative Regulations. Similarly, if utilization falls below the target ridership, operators may be asked to decrease fleet size.
- **Use of shoulds/musts**
 - » Minimum requirements (with terms like "Must," "Shall," and "Required") and desired value-added features (with terms like "Should," "Desirable," "Preferred," and "Advantageous")
- **Partnership and expectation to develop innovations**
 - » Pilot Program operators must actively engage with City staff to resolve issues and to develop solutions to improve service performance throughout the duration of the Pilot Program.
- **Pilot Program Staffing**
 - » Administration, management, and enforcement of the Pilot Program required the time of one program coordinator and one dedicated code enforcement officer. Staff costs of the Pilot Program were intended to be funded by the permit fees that the providers were required to pay.

Regulatory Categories

- Equitable access
- Device specifications and technology
- System design and distribution/ Deployment
- Parking (users parking)
- Maintenance
- Customer service
- User engagement
- Outreach and Education
- Data sharing and reporting

The findings of monitoring these regulations are summarized in the following section and provide lessons to consider as Santa Monica develops a plan to address shared mobility tools at the conclusion of the Shared Mobility Pilot Program.

What structures exist to enable shared mobility?

The ways cities engage with the shared mobility industry has been in a period of change and experimentation. Traditional dock-based bike share systems tended to be provided by government agencies in partnership with private sector operators under various types of contract agreements. As tech companies became interested in providing the services, cities have tried enabling the services under a conditional use or street use permit structure. Among the elements that can be explored in a pilot program are the partnership structure, permitting conditions, market exclusivity, and financial arrangements.

Types of agreements between the cities and private shared mobility operators include:

- **Direct Contracts** are established between the City and individual operators, with set service levels/ performance criteria. Penalties can be defined in contract terms. Frequently, a city pays an operating fee to the contracted service provider to maintain and run the service in the City. Currently, Santa Monica's Breeze Bike Share is owned by the City, but managed through a contract agreement.
- **An Ownership** model is in place where the City owns and operates a facility or service such as the Big Blue Bus. The owner is responsible for direct maintenance, staff needed to operate the service, and day-to-day operations. This model is used to provide traditional public services and critical services to the community.
- **A Conditional Use Permit** is a mechanism used to allow operations that can satisfy a general set of regulations. Regulation may be challenging to enforce and limit the City's flexibility to address issues that may arise. Conditions may be extensive or minimal depending on the level of performance needed. Note: Permits may also be issued without conditions, which further diminishes the ability to ensure performance.
- **A Franchise Model** provides one or more business franchisees with exclusive market access and defines a set of rules and service levels to provide a service. This model is used in Santa Monica to direct what taxi services can operate in Santa Monica. The taxi service model also includes progressive and detailed enforcement terms.





SECTION 3

PROGRAM AND SYSTEM PERFORMANCE



SECTION 3.1

How does shared mobility contribute to our transportation mix?

Anticipated Outcomes

The City anticipated that shared mobility devices would provide another way for people to move around Santa Monica, and help improve access and reduce reliance on cars for a variety of different trip types, contributing to Santa Monica achieving broader sustainability and wellbeing goals.

Lessons

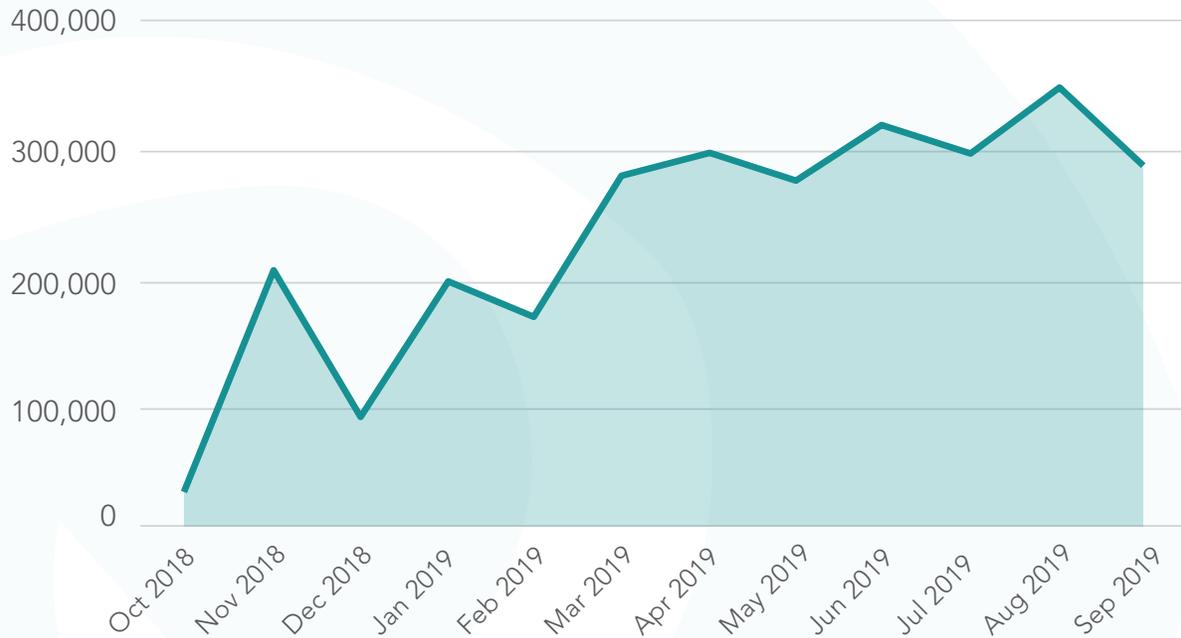
During the pilot period, shared mobility devices were used throughout the City of Santa Monica, throughout the day and for a variety of trip purposes. While ridership clearly peaked during the summer months (likely due to an influx in visitors), key destinations like the beach, downtown Santa Monica, other commercial corridors consistently generated trips and trips were dispersed throughout the city. Additionally, the emergence of shared mobility devices served as a popular alternative to drive alone, and ridehailing, or as a way to travel a little faster than walking trips. According to the User Surveys, 49% of trips displaced an auto trip.

People ride for a variety of reasons

The Shared Mobility Pilot Program supported a range of short connections between nearby destinations for residents, those employed in Santa Monica and visitors to the area. Of the 4,260 people who completed city user surveys, 35% were residents of Santa Monica, and 44% were residents of other LA County areas, and out-of-county visitors made up 21% of total respondents. Riders generated

a total of 2,673,819 rides from October 2018 through September 2019, at an average duration of 14 minutes and length of 1.3 miles, with activity peaking during the spring and summer months. According to user surveys shared mobility devices are most commonly used for short work-related trips (29%) and for recreation (26%), followed by dining out trips (14%).

Total number of monthly trips taken on shared electric scooters/bikes



Source: Service Provider Mobility Data Specification (MDS) Data, October 2018-September 2019

Top 5 reasons for using shared electric scooters/bikes



Source: City of Santa Monica Shared Mobility Device Pilot Program User Survey Results, Wave 1 Conducted 01-25-2019 to 02-15-2019/Wave 2 Conducted 05-28-2019 to 06-09-2019

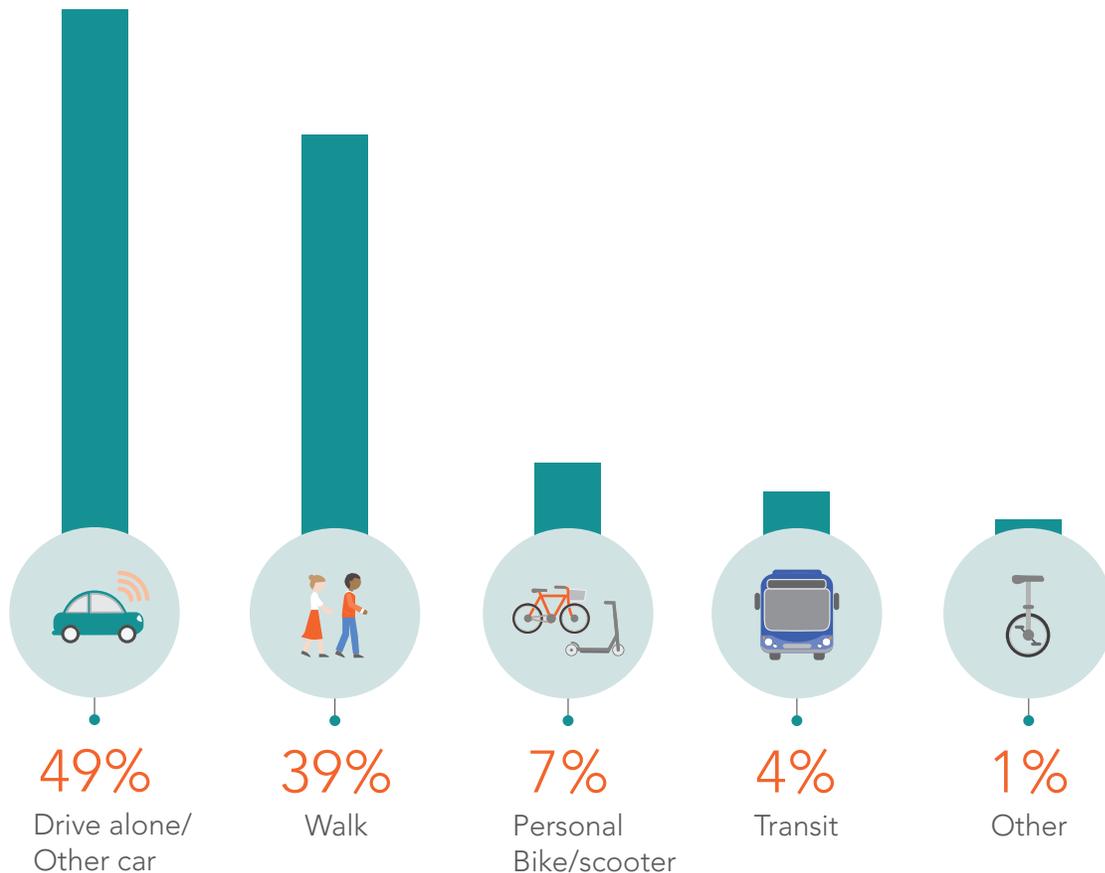
Shared micro-mobility displaced both vehicle and walking trips

Shared micro-mobility expanded the number of transportation options for residents and visitors in Santa Monica and began to change how some people get around. Nearly half (49%) of shared mobility trips replaced trips that would have otherwise been made by car, either alone or through a transportation network company like Lyft/Uber. Most riders drove less (55%) and used ridehailing options like Uber and Lyft less (56%) since these shared mobility devices became available. Shared mobility devices contributed towards Santa Monica’s goals of reducing direct

transportation-generated greenhouse gas emissions by providing access to options other than cars.

Over a third of trips (39%) taken on these devices replaced walking trips—in some cases serving as a walking accelerator for those commuting to work or to running errands. Most riders noted that they still walk (59%), bike (60%), and use transit (62%) about the same as before shared mobility devices arrived in Santa Monica.

Modes replaced by e-scooter/e-bike trips



Source: City of Santa Monica Shared Mobility Device Pilot Program User Survey Results, Wave 1 Conducted 01-25-2019 to 02-15-2019/Wave 2 Conducted 05-28-2019 to 06-09-2019

Shared mobility changed some people’s broader transportation use

The introduction of shared electric scooters and bikes provides an opportunity to shift transportation patterns and choices. User survey data shows that travel by foot and car were most impacted by the availability of shared electric scooters and bikes—both positively and negatively. In addition to users information, staff looked at the City’s bi-annual intersection count (which counts peak period crossings at 200+ intersections) and tracked electric scooters in 2019. Bicycle counts alone in the City declined by 6% between 2017 and 2019 from 21,883 to 20,543 crossings. However, bicycle and scooter counts combined equaled 34,589 crossings, which is 37% higher than bikes alone.

The availability of shared electric scooters and bikes correlated with a drop in Breeze Bike Share ridership, particularly during peak ridership months. Breeze Bike Share experienced ridership peaks during the summer months of 2016 and 2017. But as

electric scooters were introduced in the summer of 2018, Breeze Bike Share saw a 35% decrease in trips from the previous summer.

While Breeze Bike Share and bicycle trips observed via bicycle counts have declined, non-automobile trip modes appear to be increasing overall. Information collected from large employers annually through the City’s Transportation Demand Management ordinance in Santa Monica show that people working in Santa Monica are travelling by transit (+11%), bike/scooter (+19%), or by foot (+5%) at increased rates since Fiscal Year 17/18 to 18/19. These trips suggest that shared electric scooters and bikes may be increasing exposure to alternatives to driving, as trends suggest overall progress towards Santa Monica’s mobility goals.

Breeze Bike Share ridership trend



Source: City of Santa Monica, Trip Data Breeze Bike Share for 2016-2018 and January-August 2019

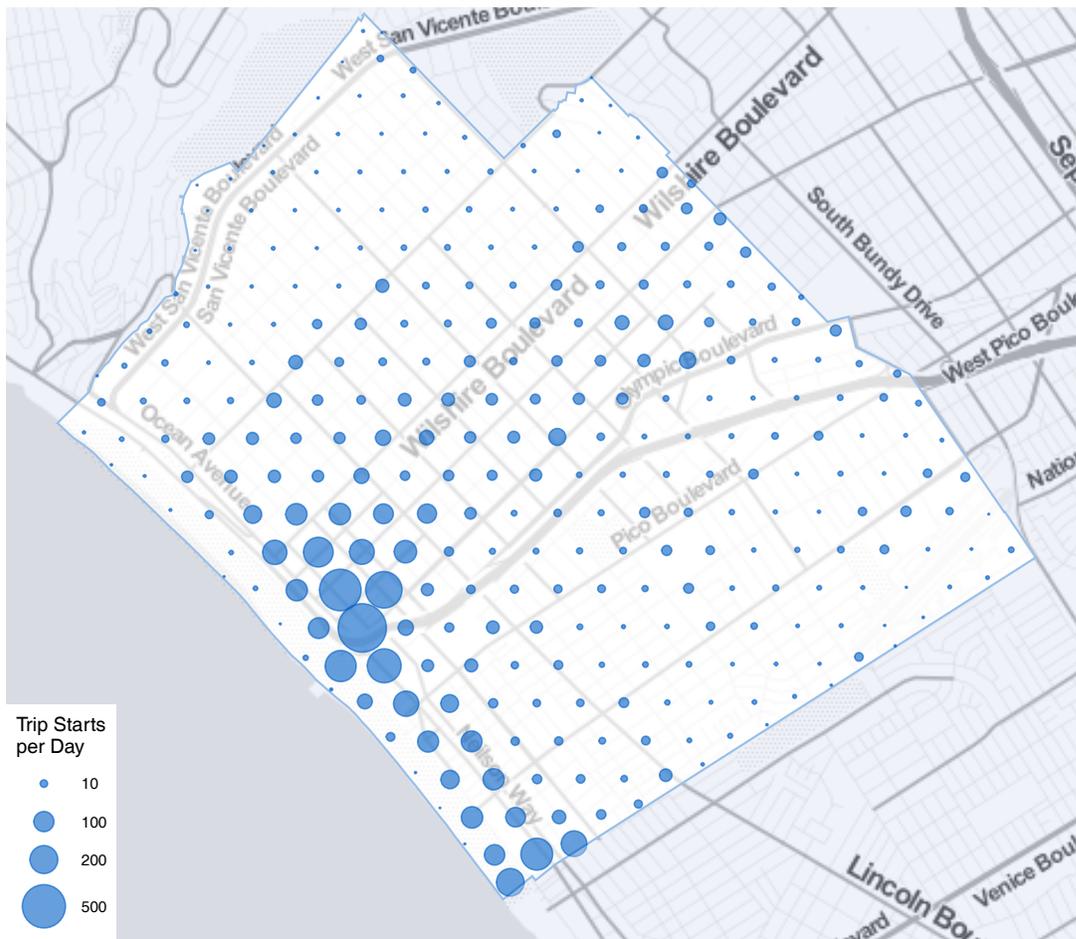
People used shared mobility to access many destinations

The increased availability of various mobility options in Santa Monica like Breeze, shared electric scooters and bikes, provide people the opportunity to access key destinations in a quick and convenient way. During the pilot period, people used shared mobility devices to access common destinations like the beach (13%), downtown (28%), and the Expo Line Downtown Santa Monica Station (4%).

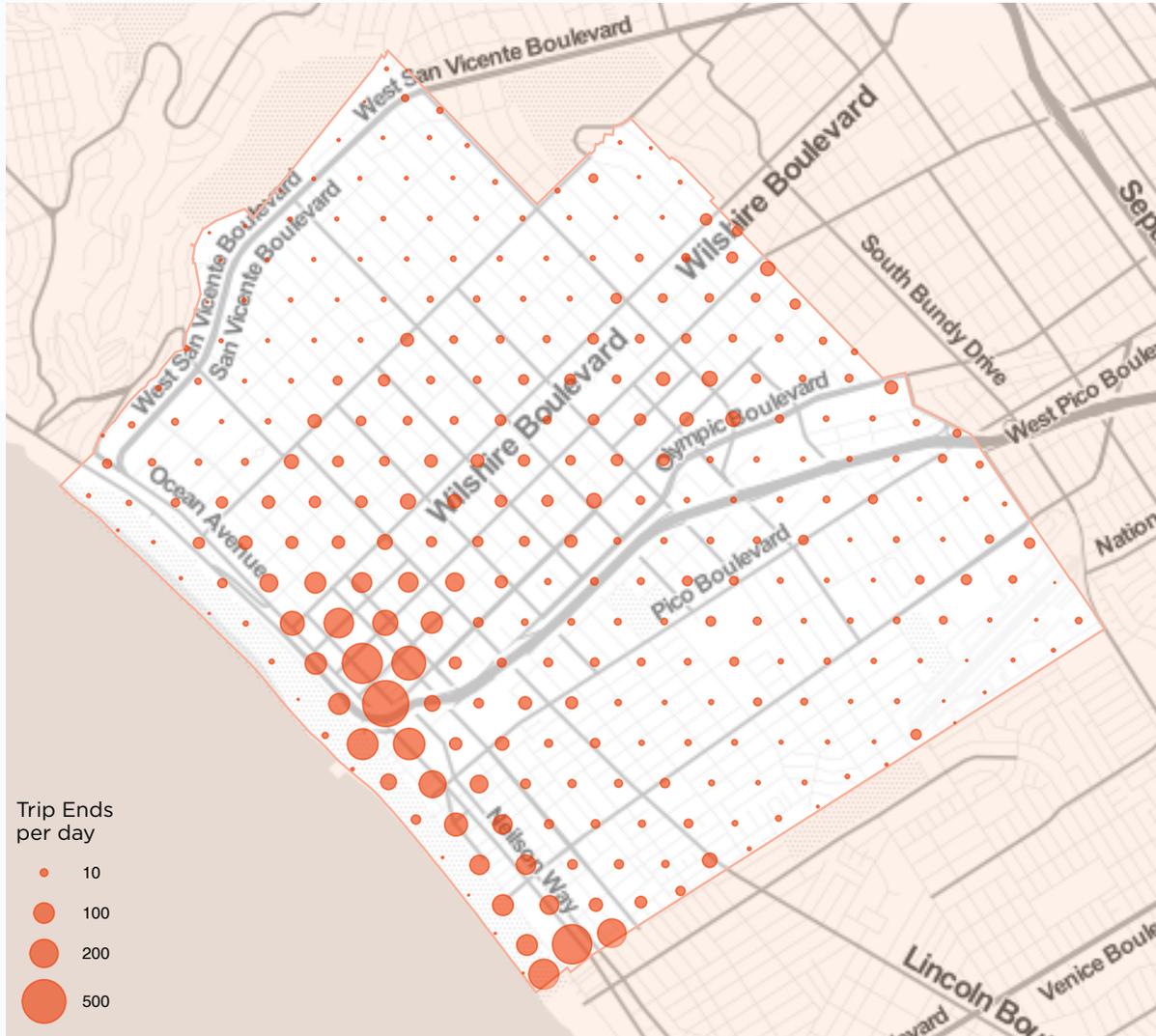
The City expected people to access these centers of activity with shared mobility

devices. Other hot spots for shared mobility trip destinations included commercial corridors such as Main Street, Pico Boulevard, and Montana Avenue, as well as the Watergarden office spaces and Santa Monica College. Together, these hot spots accounted for 60% of shared mobility trip destinations. This suggests that shared mobility is filling gaps in the transportation network to fulfill short trips between activity centers, potentially meeting new mobility needs that were unmet or underserved.

Shared mobility daily trip start locations



Shared mobility daily trip end locations



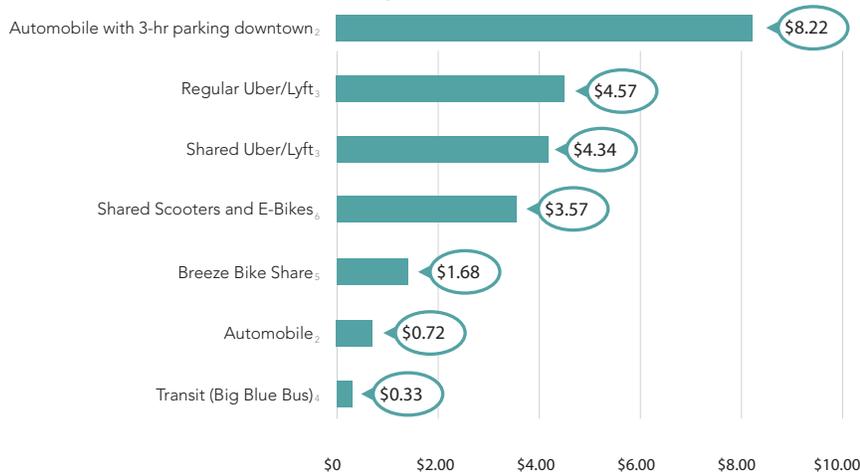
Source: Service Provider Mobility Data Specification (MDS) Data, October 2018-September 2019

Cost of Shared Electric Scooters and Bikes

Shared electric scooters and bikes promoted a quick way to travel short distances between destinations – however, that convenience comes at a cost. For a one-mile electric scooters and bikes are the second most expensive mode, second only to services like Uber and Lyft (private automobile is the most expensive if parking costs are factored in). While overall, these devices have shifted trips from auto modes to support sustainability goals, the cost may be a barrier to serving communities equitably. For low-income individuals, a series of short trips may quickly add up, and may not be financially accessible.

While shared mobility devices support goals for sustainability, unaffordable fares do not support Santa Monica’s equity goals, as access is not facilitated across diverse income groups. This challenge is compounded by the fact that service providers are profit oriented companies, as reflected by rising rates – originally \$0.15 per minute at the start of the Pilot Program, costs have risen to \$0.23 - \$0.30 per minute (in addition to \$1 for the first minute) as providers attempt to recoup costs of operation. For comparison, the publicly funded Breeze Bike Share program costs users 53% less for a one mile trip, even if a slow bike speed of 4.3 mph is assumed. More effective marketing of low-income programs would help offset user costs for some, and overall rates should be set to encourage affordable use by all.

Cost for a One-mile Trip



It should be noted that these costs vary depending on destination, but may increase costs by orders of magnitude depending on location and length of stay. For example, parking in Downtown Santa Monica at a parking meter would add \$2.50 an hour, more than tripling your costs even if you plan on staying for just one hour, which rapidly adds up. This may make e-scooters and bikes a viable alternative for short trips to busy destinations.

¹ Walking and using a personal bicycle were not included because their costs per mile is negligible in comparison to the other modes.

² “AAA’s Your Driving Costs”, AAA Exchange. Accessed October 3, 2019. <https://exchange.aaa.com/automotive/driving-costs/#.XZZ7akZKguW>

This is an AAA figure for the average vehicle driving 10,000 miles per year. Includes depreciation, finance, fuel, insurance, license, registration, taxes, maintenance, repair, and tires. Does not include parking costs.

³ RideRide hailing data is adapted from Uber with randomized 1-2 mile trips in Santa Monica using Uber trip cost estimator, <https://www.uber.com/us/en/price-estimate/>. Average trip cost can vary greatly depending on many variables like time of day, trip, distance, origin or destination, etc.

⁴ This is the average costs per mile for a basic fare on the Big Blue Bus. Including average fares, which has low-income fares, pushes it lower to \$.23 per mile.

⁵ Assumes an average rate of 14 minutes per mile multiplied by the Pay-as-you-go rate of \$0.12. Monthly and Annual memberships can push this costs down even further the more a user rides.

⁶ This is the average costs among all operators. The average speed is 5.5 mph (includes stops).



SECTION 3.2

What did we learn about rider behavior and safety?

Anticipated Outcomes

New transportation systems present the challenge of educating the users of proper riding rules and etiquette. The sudden onset of shared electric scooters and bikes in Santa Monica meant that there would be an adjustment period as residents and visitors learned to use these devices. The regulations established through the Shared Mobility Pilot Program for company outreach and a strong focus on education and engagement would guide riders to ride more safely and responsibly.

Lessons

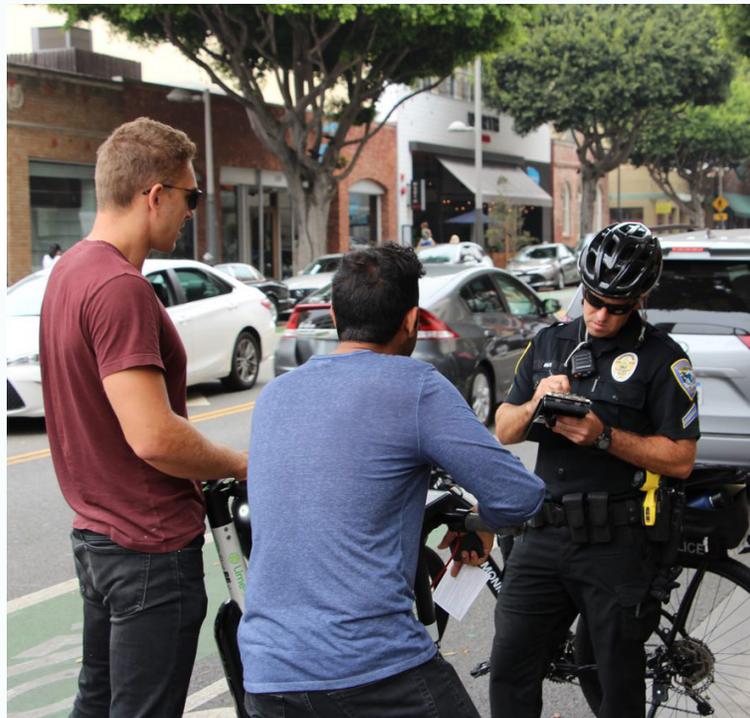
Education efforts are critical to ensure residents and visitors use new mobility services in a way that is safe and respectful of other people using the street. While surveys and citation rates suggest an improved understanding of the rules and regulations for scooter use, public perception suggests a different picture. Negative public perception appears to be focused on what riders do during a ride and what they do with their scooters upon completing their trip. Further education and engagement from service providers is necessary to ensure the benefits of the new mobility service are not outweighed by negative impacts on public right-of-way.

Rider behavior needs improvement

Sidewalk riding was a dominant concern throughout the Pilot Program. The emergence of shared electric scooters and bikes at times resulted in conflicts as riders learned new behaviors and as all users of the road adjusted to the presence of a new mode. The Santa Monica Police Department (SMPD) helped ease the transition by focusing enforcement on areas of concern based on community complaints. SMDP advising violators with warnings, installing visual messaging boards, posting on social media, and issuing citations. Between June 2017 and September of 2019, SMPD issued 1,006 citations to shared electric scooter or bike riders. While ticketing peaked in July 2018 at 250 citations, SMPD issued 50

average monthly citations during the summer of 2019.

Most citations (61%) were due to riders under the age of 16 operating an e-scooter or riding without a helmet. Riding on sidewalks and running red light signals accounted for 13% and 7% of citations, respectively. On January 1, 2019 new California State legislation took effect that changed the helmet requirement so that only riders under the age of 18 yrs old are required to wear a helmet. These behaviors are dangerous for riders and others around them, especially pedestrians.



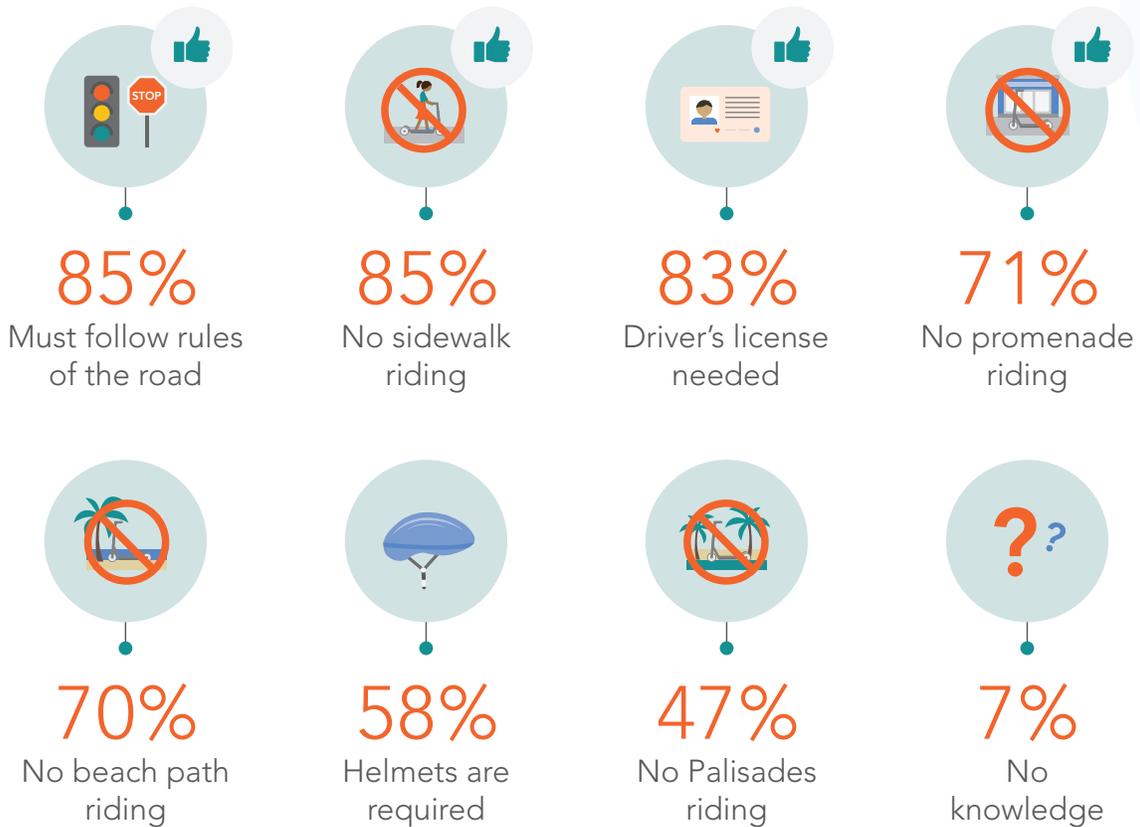
(Left) Mobility service providers inform riders of increased enforcement through their mobile app. (Right) A SMPD Officer cites riders.

Education is critical to improve shared electric scooter and bike rider behavior and awareness of the rules and etiquette. Seventy-five percent of riders felt they were familiar or very familiar with the shared mobility program, and similar rates (70%-85%) correctly identified rules applied to shared mobility devices. However, behaviors observed by the community often suggest the opposite, which might result from people having strong feelings tied to limited negative experiences. Surveys revealed strong differences of opinion between non-riders and habitual riders. Most individuals that had ridden a shared device only once

or never (73%) held unfavorable views of the impact of shared electric scooters and electric bikes, while 63% of habitual riders felt these devices provided favorable impacts on the transportation system.

Santa Monica has an added challenge for reaching new mobility users because the city is a major visitor destination for region and global tourists. With nearly 30% of user survey respondents living outside of LA County, the program was challenged to reach visitors about the rules of the road and shared mobility safety.

Rider awareness of e-scooter/e-bike rules



Source: City of Santa Monica Shared Mobility Device Pilot Program User Survey Results, Wave 1 Conducted 01-25-2019 to 02-15-2019/Wave 2 Conducted 05-28-2019 to 06-09-2019

Informational signage needs to be amplified

During the Pilot Program, Santa Monica launched a branded safety information campaign, new signage, sidewalk decals, digital message boards, city blog posts, community emails, social media notifications, and requiring in-app messaging be provided by all the permitted service providers. Survey respondents indicated awareness of Santa Monica’s shared mobility device rules, with up to 85% of riders and 90% of the general public indicating awareness of the pilot’s basic parking and riding rules. Santa Monica’s efforts to educate the public through a variety of communication channels likely contributed to the high level of self-reported awareness.

In addition to City efforts, shared mobility service providers were required to engage the community and deliver safe riding education campaigns as part of the Pilot Program. Service providers engaged community members via 113 engagement activities during the pilot including tabling at events, helmet distribution, and ongoing education during supply rebalancing efforts.

In spite of these efforts, Code Enforcement and ongoing complaints point to the need for amplified education campaigns. Management of the sidewalks and the comfort of pedestrians are important in Santa Monica and can be further improved.



An example of beach path signage



Prominent education campaigns sought to educate riders and visitors.

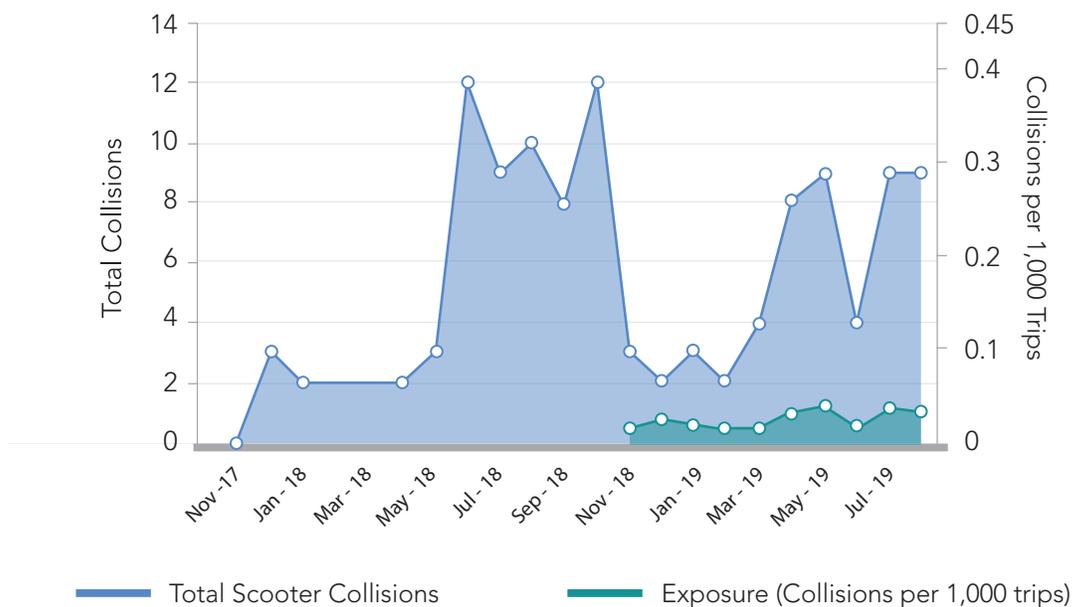
Crash rates declined over time

The rapid adoption of shared electric scooters and bikes by the community created an environment in which users may risk injury because they had no experience using this type of transportation option. According to SMPD, there were 122 total reported collisions involving shared mobility devices from January 2017 to September 2019. Collision frequency peaked before the launch of the Pilot Program, and decreased by 29% in the summer 2019. Collision frequency spikes in summer months, possibly due to increased rates of visitors. The shared mobility device crash rate was roughly .015 per 1,000 trips, typically impacting less than 1% of riders on a monthly basis. Among reported collisions only 10% resulted in severe injuries, while 80% of collisions resulted in a minor visible injury or complaint

of pain. There were no fatalities from scooter collisions during the pilot period.

Nearly half of recorded collisions (47%) involved a conflict with a motor-vehicle. While the general public identified conflicts between scooters and pedestrians on sidewalks as a top concern, only nine collisions (7%) involved pedestrians, whereas 21% of collisions were caused by falling off the device, and 18% of collisions involved a fixed object. A recent UCLA study of people treated at their Emergency Room facilities between September 2017 and August 2018 provided more comprehensive data since it included incidents where a police report was not made. Their data showed 80% of electric scooter collisions were caused by people falling off, 11% involved a fixed object, and 9% involved another vehicle.

Total scooter collisions and collision exposure



Source: City of Santa Monica Police Department Scooter Collisions 2017 – 2019

As for what caused the collisions, 36% of collision records do not indicate cause—likely due to the newness of collision recording practices for these devices. Improper turning (18%), unsafe speed (16%), and violating automobile right-of-way (10%) are three leading reported factors, but data does not confirm which party was responsible. Only five intersections in Santa Monica observed more than one scooter involved collision,

averaging 2.6 incidents per location. These include Main Street & Bay Street (4), Arizona Avenue & 6th Street (3), Broadway & Lincoln Boulevard (2), Broadway & Ocean Avenue (2), and Main Street & Pico Boulevard (2).



SMPD Officers and Code Enforcement Officers inform riders of the Beach Path prohibition

Parking compliance needs improvement

The community is concerned that devices obstructing travel paths might create accessibility challenges for people with physical, visual, and cognitive disabilities. This concern was exacerbated by higher rates of haphazard parking by electric scooter and bike users, resulting in disorganized sidewalks. The City created 107 on-street and sidewalk parking zones citywide. The service providers were required to offer parking incentives to riders to help encourage them to end trips in the designated drop zones; and they tested various incentives like small discounts off the next ride, or being entered in to a monthly raffle for \$100 of free rides. While these incentives helped to encourage riders to end their trip in an appropriate location, the incentive programs saw limited promotion across all service providers. Based

on device parking location data, only 0.08% of riders ended their trip by placing a scooter in a designated drop zone. While only a small percent of total trips, it seems that user parking behavior improved over time, as on average there was a 6% increase in electric scooters and bikes parked in designated zones between October 2018 and August 2019. Additionally, Santa Monica enforcement officers identified the most common device parking issues were devices not being parked upright (17%) or not providing sufficient clearance in public right of way (25%). With better education, clear in-app signals, strong and well promoted parking incentives and/or disincentives, and more drop zone locations, people might end their trips in authorized locations and preferably in designated drop zones.



Shared Mobility Drop Zone



SECTION 3.3

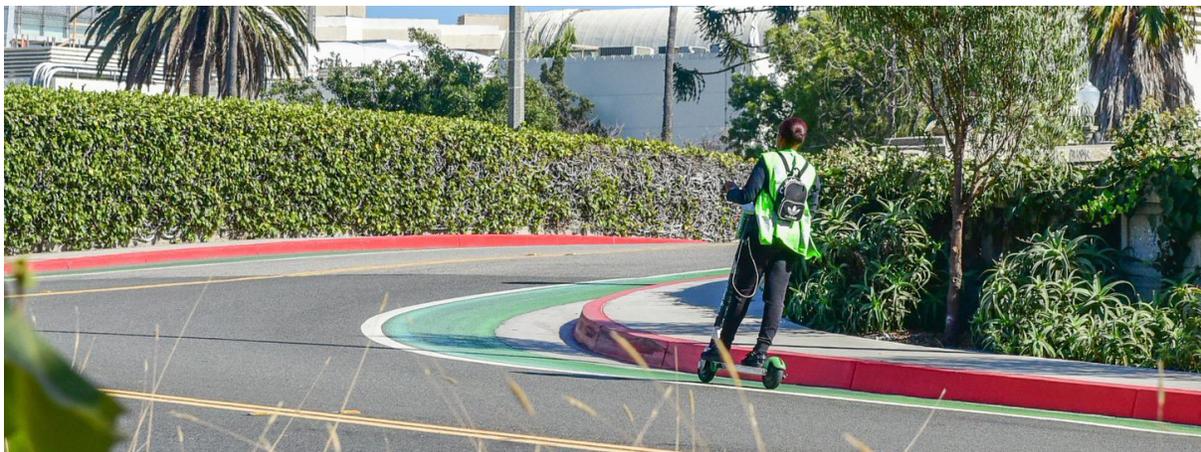
Did service providers offer equitable service?

Anticipated Outcomes

Shared scooters and bikes would be accessible to all residents and visitors regardless of home location or income level. Santa Monica's regulations required service providers to offer low-income rates to make systems affordable to a broad cross section of the community.

Lessons

Shared mobility service providers established low-income programs during the pilot period. However, the existence of programs alone are not enough to ensure access and broad adoption of these options. A range of resources, incentives, and reduced cost structures are needed to ensure equitable operations. Similarly, culturally-appropriate marketing and engagement efforts are necessary. Generally, each service provider adhered to the deployment distribution but cumulatively this led to over-saturation. Additional rebalancing throughout the day is needed to maintain a distribution that provides more reliable access to less frequented destinations.



Riders were higher-income, younger, and male

Nearly half of shared mobility device users (47%) reported an income above \$75,000. About 15% of riders earn income of between \$50,000 and \$75,000 per year. Only 17% of riders reported earning less than \$30,000

per year. Most riders were male (67%) and under 34 years of age (64%). The ridership imbalance by income, gender, and age is likely due to the following factors:

Trip cost barriers

Required access to a smartphone and data packages

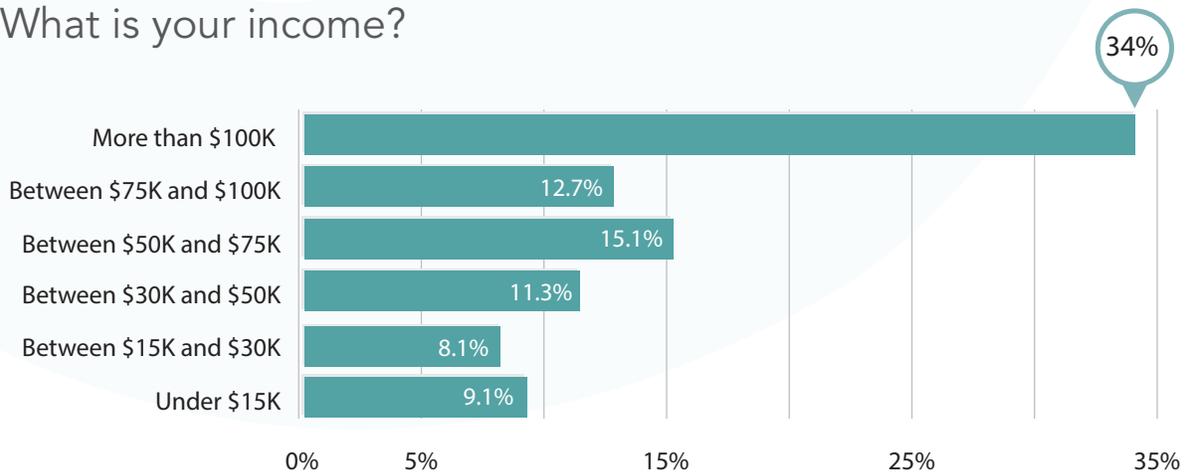
Access to banking services and credit required to pay for these services

Access to devices near low-income housing and low-income jobs

Language barriers in marketing and in-app experience

Source: City of Santa Monica Shared Mobility Device Pilot Program User Survey Results, Wave 1 Conducted 01-25-2019 to 02-15-2019/Wave 2 Conducted 05-28-2019 to 06-09-2019

What is your income?



Source: City of Santa Monica Shared Mobility Device Pilot Program User Survey Results, Wave 1 Conducted 01-25-2019 to 02-15-2019/Wave 2 Conducted 05-28-2019 to 06-09-2019

Reduced fare programs had low participation

All shared mobility service providers established a low-income program available to individuals on state or federal assistance. Program offerings allowed qualified individuals to use shared mobility devices at a reduced rate. Typical discounted rate offerings amongst companies were \$5 per month subscription or 50% reduced rate per trip. A total of 253 enrollments were completed across all of the four service providers during the Pilot Program.

Accessing information associated with these programs was challenging. App interfaces directed individuals to the operator's main website, typically linking the reader to customer service contact information. The

process required applicants to email each respective service provider with a valid form of photo ID and proof of enrollment in state or federal assistance programs.

Low-income programs were complemented by non-smartphone and cash payment options. While these features removed barriers for low-income and senior populations without a smart phone or a credit card, information on such payment options was not readily available and systems nor very convenient, resulting in limited enrollment. Limited marketing efforts and challenges navigating the equity programs likely contributed to the low participation rate.

Outreach focused on marketing and signups

Marketing efforts targeted specifically at low-income communities were limited. Most community engagement efforts undertaken by shared mobility device companies were general marketing opportunities. Companies primarily shared general service information at community events. At these events, shared mobility companies focused on safety and rules of the road, rather than their low-income program offerings. Some providers offered materials and app settings were offered in multiple languages to address language barriers. Spanish and Chinese were the most common languages in which materials were



Calificación en simple

Solicite en línea en www.lime.com/community-impact con la siguiente información:

- Nombre Completo
- Número de teléfono (este número debe ser para el teléfono que planea usar para LimeBike)
- Identificación válida con foto emitida por el gobierno.
- Prueba de bajo nivel de ingresos (por ejemplo, tarjeta EBT, factura de servicios con descuento o cualquier otro documento de programa de asistencia estatal o federal)

Service providers adhered to equitable deployment requirements

Shared mobility service providers were required to deploy devices broadly across Santa Monica to avoid deployment over-concentrations in high-demand locations, such as downtown, and provide reliable access throughout the City. To enforce this, Santa Monica allowed no more than one-third of a provider's fleet to be deployed in downtown. Typically, providers complied, as on average, 30% of fleet deployments were in downtown Santa Monica. However, The cumulative effect of all four service providers deploying 30% of their fleet in downtown

created areas of over saturation and walling effect in high density areas near the Pier and Expo terminus.¹ Similarly, as riders moved devices to popular destinations, companies could have more actively rebalanced the system. Moving forward, the City may consider identifying specific communities to target for deployment, or create more specific deployment zones and management requirements to facilitate equitable access.

Service providers did not deploy devices for people living with disabilities

During the pilot, companies did not deploy accessible devices, including hand cycles and tricycles, to better serve the needs of older individuals and people with disabilities. While device improvements were positive, and added stability, they did not introduce substantial accessibility features. The introduction of multiple device types adds operational complexity to ensure that devices are available on demand. Greater emphasis is needed to formalize the availability of accessible devices or revise the design of the existing devices to provide greater access for diverse customers.



¹Source: Service Provider Mobility Data Specification (MDS) Data, October 2018-September 2019

SECTION 3.4

What did we learn about how the shared mobility industry operates?

Anticipated Outcomes

Knowing the complexity of Breeze Bike Share operations, the City anticipated ongoing changes as new transportation companies began to operate. Santa Monica was willing to collaborate with service providers to develop tools and operational practices to guide electric scooter and bike deployment, rebalancing, maintenance, tracking, and reporting/ data systems. The City would leverage enforcement tools as necessary to mitigate potential safety challenges.

Lessons

Managing four operators challenged staff capacity, but City efforts improved areas of service provider compliance. The City effectively leveraged service provider data and contracted with enforcement support services to scale up work needed to issue citations, impound, and monitor compliance. The City established clear expectations for data sharing, which offered insights on service provider performance on metrics such as utilization and deployment. Further development of device design, data systems, and operations would be anticipated as companies mature into the industry.

Fleet size was established and adjusted to meet rider demand

To ensure competition amongst service providers and maintain options for the public, the City permitted four shared mobility service providers to launch a total fleet of 2,500 devices at the start of the Pilot Program. Service providers were allotted the following fleet sizes:

- Bird (750 electric scooters)
- Jump (250 electric scooters and 500 e-bikes)
- Lime (750 electric scooters)
- Lyft (250 electric scooters)

As the program progressed, the fleet size grew to 3,250 by September 2019. On an average day, roughly 70% of the permitted fleet (2,249 devices) were available across Santa Monica.

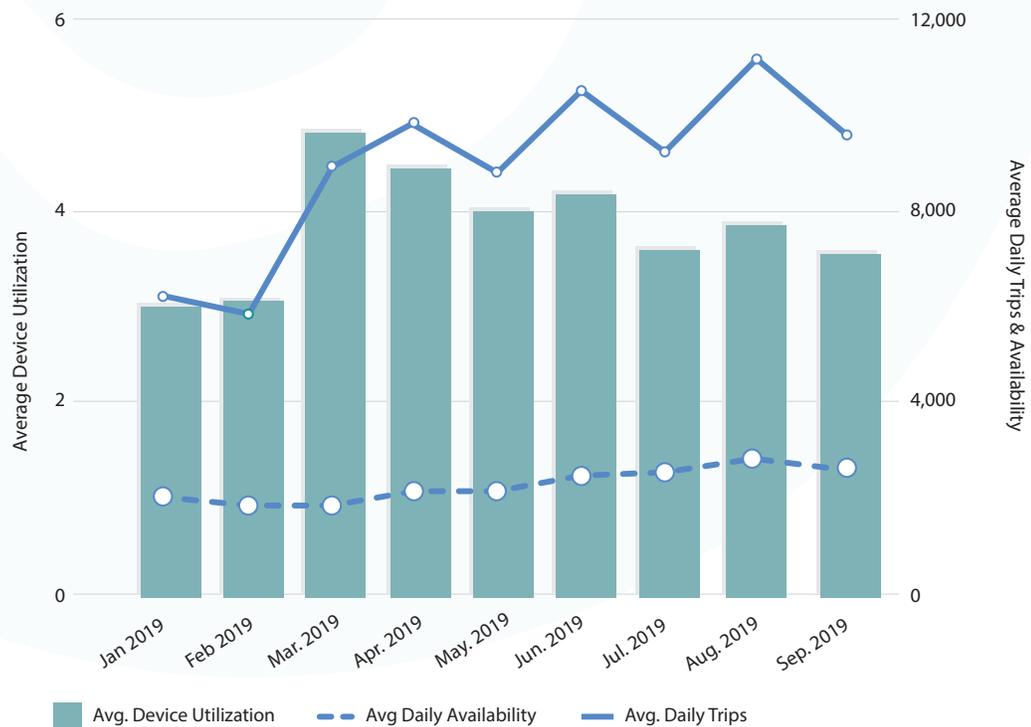
In order to limit over saturation of devices, encourage consistent availability of devices, and match the number of devices to ridership demand, the City established a flexible fleet size based on a Minimum Utilization Rate (MUR)—a standard measuring the average number of trips per device systemwide.

After reviewing past Breeze Bike Share system utilization and interviewing 12 shared mobility companies, the City established a desired MUR of three rides per day per electric bike or four rides per day per electric scooter to be the bases for fleet size

adjustments during the Pilot Program. This would give the ability to right-size the fleet sizes to meet demand. Through the course of the Pilot Program the MUR for individual operators fluctuated, between 2.5 and 5 trips per device per day, however the MUR for all four operators combined remained constant at about 4 trips per device per day. This indicates that the total program fleet size across all four operators as defined in the Administrative Regulations was meeting the rider demand.

However, in an effort to compete for ridership and increase MUR, the service providers were attracted to deploying devices in high traffic areas. Combined with rider relocation this tended to produce oversupply in some places like downtown and less access in neighborhoods.

Average daily trips and availability



Source: Service Provider Mobility Data Specification (MDS) Data, October 2018-September 2019

Deployment was most attractive in high-demand areas

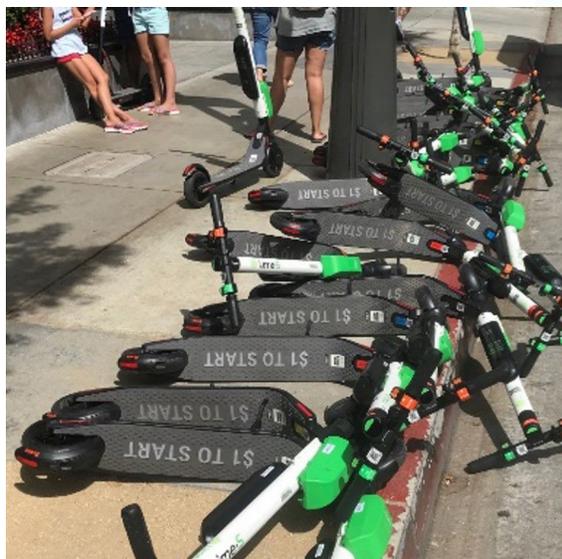
Deployment is a vital element to shared mobility service provider's operating model. Service providers deploy or rebalance devices throughout the day to better serve demand, and more violations. Service providers were responsible for haphazard deployments and dropping in prohibited areas.

To ensure an even distribution throughout the community, service providers were required to deploy no more than one-third of their assigned fleet in downtown, which, on average, the service providers complied with. Other deployment concentrations include the Expo Line stations (6%), destinations adjacent to the beach areas (5.7%), and dedicated drop zones (2.4%).

High demand locations such as Downtown and Main Street recorded more trip starts than deployments, due to a constant flow of devices in and out of these areas. Lower demand areas only recorded about 1 trip for every two devices deployed, particularly in lower-density residential locations. By balancing deployments between high and low demand areas, companies could achieve a satisfactory utilization rate while also meeting citywide access goals.

The City also established deployment restrictions to mitigate unsafe conditions for riders and pedestrians. Areas like the beach

area, parks, and the Third Street Promenade were prohibited deployment areas. Because areas adjacent to the beach were popular locations for people to access an electric scooter or bike, nearly 8% of deployments were adjacent to beach prohibited zones.



Deployment of scooters too close to the curb and knocked over

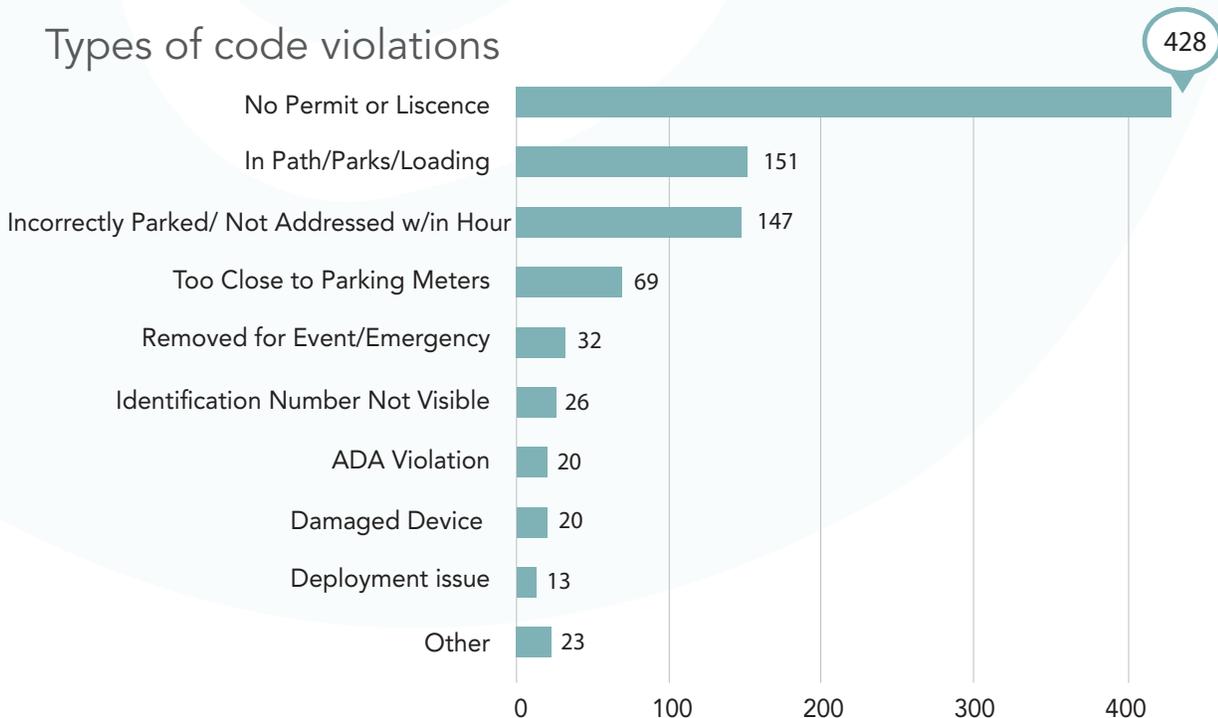
Impounds and citations encouraged improved order in the public right of way

The Pilot Program included a dedicated Code Enforcement officer to keep service providers accountable for incorrectly parked devices and appropriately manage the public right-of-way, which was noted as the highest concern amongst community members in the general community survey. The City received 393 Santa Monica Works request regarding micro-shared mobility devices between October 2018 and October 2019. Santa Monica used its impound and citations systems to improve order on streets and sidewalks. Most citations (53%) were due to device deployment by unpermitted service providers on Santa Monica’s streets. In response to City communications these companies eventually limited riders ability to start or end rides within Santa Monica, geofenced the city and slowed/ deactivated the devices upon entering.

Of the citations issued to permitted operators, 57% were related to “Incorrectly parked” devices and devices parked “In Paths, Parks, or Loading Zones”, which created obstructions in the public right-of way.

The City directly cited 158 ADA violations for shared electric scooters and bikes impacting ADA accessibility. The citywide distribution and constantly moving character of these devices was a challenge to enforce. In May 2019, the City contracted with a third party vendor to scale-up the reach of enforcement. The vendors work facilitated 138 of the 158 violations associated with ADA impounds. Over five months (5/24/2019 - 9/30/2019), the third party vendor assisted City enforcement efforts, resulting in 1,231 impounds.

Types of code violations

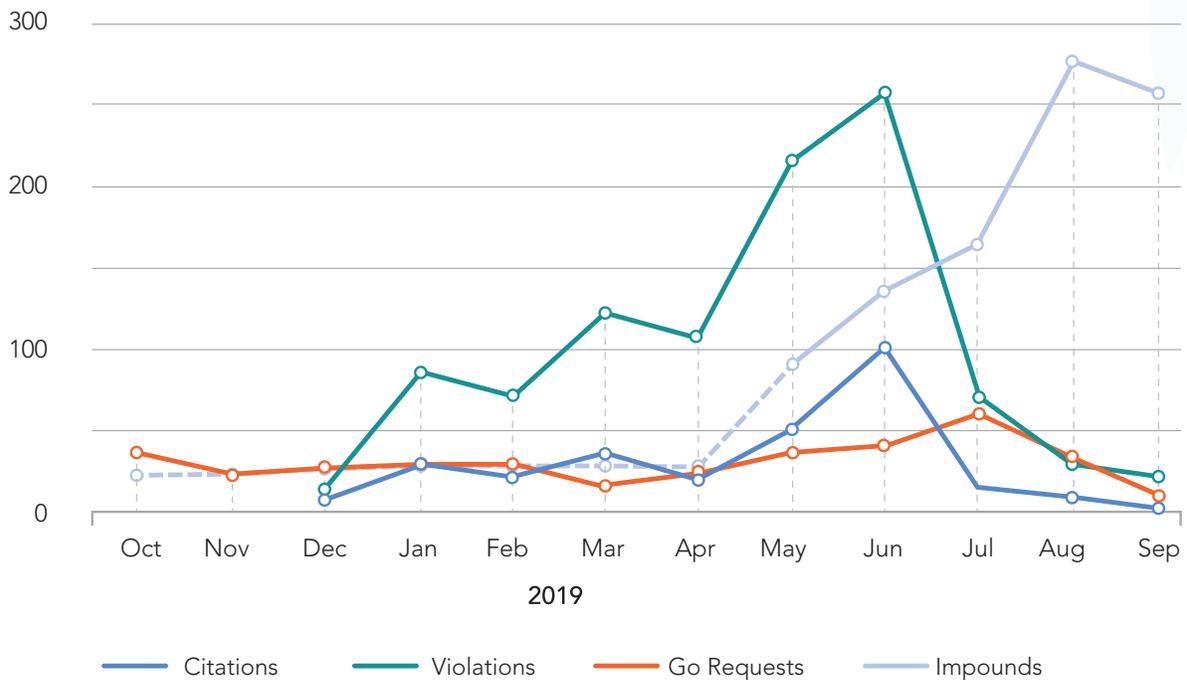


Source: Santa Monica Code Enforcement, Citation Reports September 2018 – August 2019

While citations illustrated the public space management challenges of shared electric scooters and bikes, impounding devices incentivized service providers to promptly address infractions. From October 2018 to May 2019, an average of 16 devices were impounded every month. Impoundments rose significantly to 257 during the summer months (June-August). As impounds increased, service providers employed resources to manage their fleets more actively resulting in a 72% decrease in violations identified by enforcement officers (from 259

violations in June 2019 to 73 in July 2019). The increased field presence and attention to removing problem devices from the public right-of-way, encouraged service providers to take a more proactive approach to maintaining safe and orderly public spaces. Service providers implemented strategies such as rolling out more nimble maintenance vehicles and increasing staffing to support system maintenance efforts.

Monthly Code Enforcement actions and service requests



Source: Santa Monica Code Enforcement, Citation Reports October 2018 – August 2019; Santa Monica Police Department, Citation Reports October 2018 – August 2019; Third Party Public Right of Way Management Support May 2019 – September 2019
 Note: Monthly impound data was not available prior to May 2019. There were roughly 180 device impounded over the the seven month period (October 2018 - April 2019) representing an average of approximately 26 devices per month.

Improved device technology can help to address issues

Shared mobility service providers rely on geospatial positioning system (GPS) data to pair a rider with a shared electric scooter or bike, track assets, and process payment. The City instituted creative digital policy solutions like “geofencing” to mitigate parking issues and conflicts between scooters and pedestrians on Santa Monica’s beach bike path. A geofence was created around the entire beach area. At first, the geofence simply reduced device speeds, but ongoing conflicts resulted in the need to establish a geofence that brought electric scooters to a gradual stop. Bringing scooters to a stop largely eliminated conflicts and safety issues along the beach path, as fewer users brought shared electric scooters or bikes to the beach path and trips on the beach path reduced by 70%. Sidewalk riding and drop-zone parking compliance are potential future use cases that could be tested and refined as GPS technology and environmental detection becomes more reliable.

Sidewalk riding was identified in the community survey and by Community Advisory Committee identified as a primary rider behavior challenge yet to be resolved. In Summer 2019, the City partnered with Amazon Web Services and the Cal-Poly San Luis Obispo Digital Innovation Hub to develop proof-of-concept for potential technologies to restrict sidewalk riding. Students and staff were able to develop an initial proof-of-concept that was shared with service providers to encourage them to develop their own solutions. Though this type of technology is not available today, service providers have indicated that deploying this technology at a broad scale is a priority to enhance community safety.

Santa Monica is leading the way in managing new transportation tools

As one of the first locations where shared electric scooters and bikes were launched, and due to a proactive City Council and staff, Santa Monica has established itself as among national leader in city policy and technical expertise related to micro-mobility data. The Pilot Program catalyzed efforts to develop new transportation data tools that can manage private service providers. The work is a keystone to achieving public goals and effective public space management. Additionally, Santa Monica staff are active participants in the Open Mobility Foundation, organized to guide the development of standardized software and data outputs, such as MDS. As future mobility innovations emerge, Santa Monica will continue to be in a position to lead in achieving equity and public safety through data and regulatory tools.

Operations and device data are critical to manage service providers

Without having objective baseline data from the service providers, the City would not be able to generate critical insights on operator performance and transportation system benefits. All service providers participating in the Pilot Program were required to provide standardized trip data, as well as to self-report activities on a regular basis (weekly to monthly depending on activity).

The City required compliance with the Mobility Data Specification (MDS) for trip data—an innovative data sharing standard now adopted by over 80 cities across the globe. MDS compliance ensured that providers accurately submit trip and other data in the required type, format, and frequency. MDS is a nascent data standard developed in an open source format on Github, gathering feedback and insights from regulators in cities from across the globe as well as numerous service providers.

MDS offers robust insights into trip patterns and vehicle status. MDS data, via a provider application programming interface (API), provide trip distance travelled, origin and destinations and duration. MDS also accounts for vehicle status changes, providing a historic inventory of vehicles available for customer use and vehicles out of service, or that have been removed from service.

City staff developed tools to process MDS

data outputs. Staff tested use of a third party data aggregator for geo-spatial and data visualization capabilities of this data set. MDS data allows City staff to better gauge device utilization to facilitate effective fleet management, enforce operational requirements such as deployment standards, and better understand how shared electric scooters and bikes are being used. For example, staff evaluated use of devices to access rail stations, and identified the most frequent trip destination.

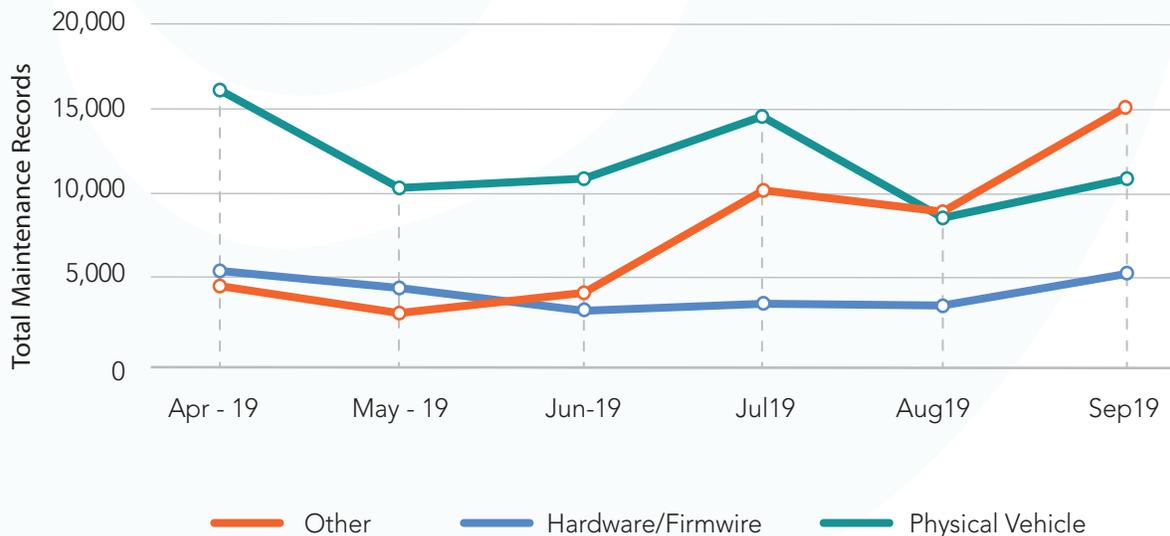
To ensure quality of service the City received other required reports from service providers. Weekly service provider reports outlined topics ranging from complaints received, maintenance records, and engagement opportunities. In the future, standardizing and automating incoming data—as is done with MDS—will reduce burden on the City and the service providers and allow Santa Monica to better serve the community in partnership with service providers.

Maintenance needs grew with ridership growth

Based on experience with Breeze Bike Share, Santa Monica understood that shared mobility systems require devices built to withstand abuse and high levels of maintenance. The City was eager to understand the longevity of electric scooter and bike hardware in these emerging forms. As a requirement to participating in the Pilot Program, each service provider submitted a maintenance plan outlining an approach for ensuring devices were maintained. Between April 2019 and September 2019, service providers self-reported a total of 168,048 maintenance actions to Santa Monica. As devices first were introduced

to the community, they were met with high levels of vandalism, as devices were placed in trees, destroyed on street corners, or tossed into bodies of water. Maintenance actions rose precipitously between June 2019 and July 2019—alongside ridership spikes. On average, roughly 53% of maintenance issues were associated with the physical condition of a device, including missing display covers, damaged handlebars, and inoperable throttles.

Maintenance records over time



Source: Operator Weekly Reporting (Bird, Jump, Lime, Lyft) April 2019 – September 2019. Standardized reporting began in April 2019.

Product resilience needs on-going work

Santa Monica staff conducted randomized field tests (78 tests in total) to understand the resilience of vehicles and how they operate in the field. Staff aimed to understand how residents and visitors experience device braking, steering and handlebar quality, floorboard sturdiness, and more. In general, devices were rideable and geofencing tools were working effectively to keep users from encroaching on restricted areas such as the beach path. While field tests were qualitative scans of devices and not full fleet inspections, they enabled Santa Monica staff to give service providers feedback on product issues such as stopping distances, remaining tire treads, lights, exposed cables, and other general maintenance issues. It was the operators responsibility to test and ensure the safety of the service provider.

With the emergence of later generations of devices, adjustments were clearly made improve operations in a commercial setting, featuring studier builds, a tamper proof bolts. However, devices continue to experience significant use, outdoor exposure and vandalism. All companies reported ongoing design efforts in these areas, but the pace of improvement is slow.



Lime staff servicing scooter devices



SECTION 3.5

What is needed to provide efficient oversight, management, and enforcement of mobility pilots?

Anticipated Outcomes

Initial allocation of a program coordinator and code enforcement office would centralize pilot program oversight, and other staff would be called into support as-needed. The flexible regulatory approach of the Shared Mobility Pilot Program would result in changing needs over time. The insights learned from the pilot would help to:

- Establish a baseline assessment of staffing and material needs
- Establish clear management parameters
- Refine oversight and enforcement practices in the long term

Lessons

Data requirements were critical to understand transportation system impacts and manage compliance and enforcement efforts. The program called on many additional policy and operational resources, and required the addition of contracted resources to effectively manage the service providers and deliver enforcement activities. Program staffing could not be accomplished without the reallocation of existing staff resources from other efforts, which delayed other projects.

Dedicated staff time and City resources

The Shared Mobility Pilot Program required administration, management, and enforcement. The City created two temporary full time equivalent (FTE) positions that were paid for through pilot program fees paid by the permitted service providers:

- The shared mobility program coordinator** oversaw program adjustments, communicated with, managed, and evaluated service providers, responded to community comments and complaints, and ensured data collection analysis and reporting. The coordinator had the authority to adjust fleet sizes. The coordinator also facilitated implementation of the signage, parking zones, geofenced areas, and beach path no-ride zone. The coordinator sought to foster changes in service provider behavior to better meet the needs of residents and businesses.
- The code enforcement officer** to document non-compliance in the field, enforce Shared Mobility Program regulations, and issue citations. The Code Enforcement officer worked with the shared mobility coordinator and the Police Department to respond to community complaints, retrieve and impound devices that posed a hazard, track field observations, and document issues, citations, and violations.

Annual Operator and Annual Per Device Fees (\$20,000 and \$130 per device respectively) generated \$418,545 to support the dedicated shared mobility staff positions and contracted support services, which cost the City \$567,859 and created a net expenditure for staffing and contractual services of \$149,314.

The program coordinator position was filled by existing staff. Temporary backfill

staffing was only available for 65% of the program duration due to hiring times and turnover of temp staff. This resulted in delays of other projects and initiatives, such as bike program Vision Zero and project implementation. Other staff supporting the Pilot Program came from Information Systems Department (MDS data), Santa Monica Police Department, City Attorney’s Office, Office of Communications, and executive staff (policy development). Moving forward, the City must consider the impacts of leveraging public resources, contracted support, and other tools to deliver pilots and other new innovative programs, without diverting resources from other programs and initiatives.

Operator and Per Device Fees and Staff Costs	
Operator and Per Device Fees Revenue	\$418,545
Staffing Expenditure	\$517,859
Contractual Services Expenditure	\$50,000
Total	\$149,314
PROW Fee and Infrastructure Investment Costs	
Public Right-of-Way Fee Revenue	\$997,000
Capital Improvements Expenditure	\$2,030,115
Materials Expenditures	\$56,250
Total	\$1,089,365

Engage expertise and perspectives from the community

As part of the Shared Mobility Pilot Program, the City collected input through a citywide perception survey and two user surveys. The City also convened a Shared Mobility Community Advisory Committee (CAC) to gather diverse perspectives on the challenges and opportunities created by shared electric scooters and bikes. Members of the committee represented concerned residents and business owners who delivered a constructive, solutions-oriented approach in their feedback. The CAC met 10 times, including 8 times with representatives from all the service providers and City Staff. The group discussed and identified challenges, successes, and potential solutions. The CAC recommended the following considerations for future shared mobility programming:

Considerations for Next Steps

- Create more detailed deployment plans to create better distribution and less clustering.
- Expand infrastructure like parking zones and parking incentive programs.
- Limit the number of permitted operators to two and employ a dynamic cap that uses utilization to guide total fleet size.
- Implement a mechanism to ensure operators can not withdraw from the City

without notice.

- Development of improved maintenance and inspection protocols.
- Ensure ongoing collaboration between the City, broad range of community members and service providers through a formalized advisory committee and/or regular check-ins at existing City Commissions.
- Consider and manage shared electric scooters and bikes as a transportation service.
- Hire and/or contract adequate resources to support code enforcement and effective administration of Shared Mobility regulations.
- Consider a second pilot to further test solutions to unmet challenges in a changing industry.

A comprehensive review of findings resulting from the Shared Mobility Committee can be found as an Appendix in the November 2019 Shared Mobility Pilot Program Staff Report to City Council. The CAC and collaborative conversations helped to build connections between community members and companies. It created an venue to problem solve among otherwise oppositional groups.

Data is critical for understanding mobility insights and measuring community perspectives

Without regular and objective data, the City would not have been able to effectively manage or evaluate the Pilot Program. This pilot program provided an opportunity to leverage traditional and innovative data sources to gain a better understanding of

shared electric scooters and bikes, their use, and how the community perceives them. The table below outlines key data inputs, sources, what makes them important, and how they can be improved:

Why is it Important?	
Mobility Data Specification (MDS)	MDS data was provided by service providers via an API and included trip records and changes in device status. This data allows the City to understand factors such as total trips, trip distance, trip time, destinations, and provider deployments to guide how public resources can be used to best manage the program and integrate shared mobility devices into the broader transportation modes. No personal or payment information is collected in MDS.
User and community surveys	Survey tools provide a snapshot of how the community is using and/or integrating scooters and bikes, and general public perceptions. Using input from surveys, the City can better understand what issues should be prioritized to improve the quality of life for Santa Monica residents.
Collision data	Collision data provided by the Santa Monica Police Department is critical to understand the scope of and to address safety issues. By better understanding the factors associated with crashes involving electric scooters, the City and partners can identify educational resources and other service providers strategies to reduce crashes and injuries.
Citations	Santa Monica’s Code Enforcement team issued citations to service providers when not in compliance with administrative regulations. This data is helpful for guiding conversations between the City and service providers and helps identify areas for improvements in regulatory compliance.
Compliance reports	During the Pilot Program, service providers submitted compliance reports, summarizing their efforts to distribute scooters equitably, highlighting education campaigns, and other compliance measures.

Partnerships help to manage service providers

During the pilot, the City tested a few strategic partnerships with contractors to support enforcement and evaluation efforts.

- **Third Party Data Aggregator:** The City tested a third party data aggregator to support the City's data management, analysis, and fleet visualization based on the data feed generated by the MDS API. The data platform identified spatial and temporal deployment and trip patterns and provided insights on fleet sizes and operations. This partnership informed program management, enforcement, and evaluation.
- **PROW Management:** The City hired a field crew during summer 2019 to support code enforcement efforts. The contractor documented field conditions and impounded immediate hazards to maintain a safe and orderly public right-of-way. The results were nearly instantaneous, as the contractor allowed for quicker responses from the City, increased capacity to impound, and improved self-regulation by the service providers.



Scooters and bikes deployed at bus stop making it difficult for transit riders to exit the bus

Clearly communicate the role and benefits of shared mobility

In 2017, shared electric scooters suddenly arrived on Santa Monica streets, simply with directions on how to use the devices via an app. The public was given no context or information about what shared electric scooters were and how they might help them get around. Without a coordinated message, the community expressed negative feelings about the sudden disruption.

The disruptive approach continues to affect public perception, especially among non-riders who were 70% of the general community survey respondents. Among non-riders only 10% have a very favorable or favorable view of share mobility's impact on transportation. In contrast, 63% of habitual riders have a very favorable or favorable view of shared mobility's impact on transportation. Non-riders overwhelmingly felt that pedestrian and bike safety, sidewalk conflicts, and parking clutter were the most serious concerns faced by the community. For habitual riders, sidewalk conflicts and parking clutter were also primary concerns, along with insufficient dedicated lanes for riding electric scooters and bikes.

Developing a more structured pilot program allowed the City to re-center electric scooters and bikes around Santa Monica's broader goals and position them as potentially viable mobility solutions. Santa Monica's successful pilot messaging is reflected in resident's broadly understanding of the rules applicable to these devices, and 67% of residents observing signage detailing proper riding etiquette. New strategies in partnership with service providers are needed to foster understanding of these services in the broader context of mobility solutions.



Service provider staff educating the community on scooter safety



SECTION 4

MOVING FORWARD

Celebrating our successes

Shared electric scooters and bikes are one of the most promising mobility options to compete with drive alone trips and ridehailing services like Uber and Lyft. While their initial entry into Santa Monica was disruptive, **Santa Monica responded by actively managing change with a watchful, but hopeful eye.**

Rather than banning shared mobility service providers, Santa Monica led a nationwide movement to develop an innovative permit program and flexible regulations that allowed shared mobility service providers to operate shared electric scooters and bikes on Santa Monica streets. The pilot explored, tested, and evaluated the viability of shared electric scooters and bikes as a sustainable transportation option. **The City learned a lot over the last year.**

Over the course of the pilot, Santa Monica achieved the following successes:

- Shared electric scooters and bikes were clearly a **popular mobility option**, generating over 2.67 million trips and serving the diverse travel needs of Santa Monica’s residents and daily visitors.
- Shared electric scooters and bikes **displaced short drive alone and ridehail trips** that pollute our air and congest our streets.
- The City took a **strong role in enforcement and public awareness**, which dramatically reduced code violations and increased public knowledge about the program and how to ride safely and legally.

- The City rapidly **adapted to device parking challenges by installing 107 drop zones citywide**, helping to organize rider parking and manage service provider fleet deployment.
- Santa Monica was **one of the first cities in the world to enforce geofencing and other digital policy tools** to help remedy parking, safety, and oversaturation problems.
- Santa Monica led the charge nationally as it **used the Mobility Data Specification to ingest trip and vehicle data** from permitted service providers. This data was an invaluable asset to manage and evaluate these services and how they served the public and will continue to help the City plan for safe street infrastructure and manage the street.
- The City partnered with third party contractors for enforcement and analytics support, which **effectively expanded staff capacity.**





As we move forward, there is room for improvement

The Pilot Program delivered significant mobility benefits and integrated new mobility services into the daily lives of many local and regional riders. However, the introduction of shared electric scooters and bikes created challenges for the City and the public. While the Pilot Program included tools to manage risks and mitigate potential nuisances, the City found that some regulatory and management tools did not sufficiently achieve the intended outcomes of the pilot. While the service providers largely met minimum operational requirements as defined in the Administrative Regulations, these efforts did not always achieve the desired pilot program outcomes—especially regarding equity, safety and rider behavior. Below are key policy and program areas that need improvement as the City considers the next steps for shared mobility in Santa Monica.

Equity and access

More work is needed to expand equitable access to shared mobility. Low use of affordable programs, and limited equity strategies should be addressed by companies that participate in any future programs. Equity efforts should include engagement with disadvantaged communities to define needs and priorities.

Public right-of-way management

Moving forward, Santa Monica should focus on tools that help service providers to ensure balanced and organized fleet distribution and drive better rider parking compliance. Service providers and riders should more actively respect the needs of people with disabilities navigating sidewalks. The City can continue to expand the availability of drop zones and companies can integrate in-app solutions to encourage riders to park in geofenced drop zones. Santa Monica should continue to work on tools and data systems for efficient and effective PROW management for mobility service like MDS.

Rider behavior

Whether a casual local rider or a tourist, rider behavior needs to improve quickly. Too many scooter riders exhibited risky behavior like sidewalk riding, riding without a helmet, tandem riding, and riding in the wrong direction, among others. Everyone should be aiming to turn inexperienced uninformed riders to experts quickly. Santa Monica wants to increase ridership, reduce collisions, and improve comfort for all that experience Santa Monica's streets. This is an opportunity to not only improve scooter rider behavior, but to also encourage more people-friendly streets for everyone.

Design and maintenance

Service providers are improving their products to ensure rider safety and longer-lasting devices. In partnership with other cities across the nation, Santa Monica should take a more proactive approach to nudge the industry to develop better device hardware, app features, and operational tools quickly. The City seeks well-maintained scooters and bikes that last longer and protect riders. Riders should interact with apps that actively engage people about education, parking information, and incentives for good behavior.

Staff and resources

The dispersed and perpetually moving nature of shared micro-mobility requires a high level of administrative, data, and enforcement effort regardless of the regulatory structure. In order to ensure effectiveness in meeting community outcomes, Santa Monica should seek to provide adequate resources to support the adaptation of the program, rules, oversight, and enforcement. Data and technology will be increasingly essential to manage the PROW in real time.

Evolving industry trends

The business model for privately-owned shared micro-mobility is still unclear with companies actively adjusting to financial demands, changing rates and staffing as well as targeting new markets and exiting others. These fluctuations bring significant

uncertainty about the long-term stability and viability of this model. If these devices are to function as public transportation, they need to be stabilized and reliable. Santa Monica will focus on developing regulatory structures or direct partnerships that will ensure consistent, reliable, equitable, and safe shared mobility options.

Sustainability

Concerns are being raised about the emissions and waste impacts of rebalancing/charging operations and the waste stream from device parts and batteries. While service providers have worked on device design and released refined versions, e-scooters will still degrade quickly from the harsh outdoor environment and user abuse. Device design and system maintenance need to integrate more sustainable operations practices through technology, vehicle fueling, and other means. Full shared mobility operations emissions and life-cycle assessments should be considered in selecting partner service providers.

Ideas for tools to achieve better outcomes

Future iterations of the regulatory framework for shared mobility in Santa Monica should continue to accelerate mode shift, climate, equity, livability, and affordability outcomes. The City can expand tried and tested approaches from the pilot, but also apply new regulations, management tools, and incentives to achieve better outcomes. These could include:

Smart regulations

- Refined outcomes, outcomes-focused management tools, and performance measurement
- Refined specifications, guidelines, and requirements
- Consider managing a block-by-block, hub-based system, instead free-floating management
- Dynamic, performance based fleet sizes
- Clear standards and expectations for device parking and deployment, device design, operational obligations

Price signals and incentives

- Fare capping to remove price volatility and keep fare structure cheaper than automobile options
- Expand affordable access programs and outreach
- Rider credits and parking incentives
- Refined and progressive fee structure for violations to facilitate operational improvements without disruption of service

Comprehensive education and enforcement

- New rider etiquette and education campaigns
- Expansion of visual tools in the right-of-way, including sidewalk decals and stencils, large education banners, signs, and more
- Continued deployment of City code enforcement officers and field support

Technology tools

- Geofencing toolkit for speed zones, drop zones, parking restrictions, and incentivized parking
- New MDS analytical and management tools
- Required in-app messaging and education
- Active experimentation with new tools like sidewalk riding detection technology

Partnerships

- Partnership model that reduces risk of service interruptions and increases public outcomes
- Joint safety and education campaigns with service providers and the community organizations
- Continued internal program oversight and proactive development of management tools.

What's next?

The City of Santa Monica has a responsibility to advance transportation infrastructure and mobility options that not only offer a public mobility benefit, but also improve Santa Monica's quality of life. Santa Monica is willing to test and scale mobility options that connect people to the opportunities, reduce congestion, and contribute to a more livable community. We are also in a climate crisis and, as such, Santa Monica is committed to advancing many forms of sustainable mobility.

Shared electric scooters and bikes emerged as promising mobility options that could help the City meet those objectives. They fulfilled mobility needs of our diverse and growing population. In 2019, the City was in learning mode and there is a lot more to learn and improve upon. As the City considers the future of shared mobility in Santa Monica, it should focus on the following priorities and learning objectives:

- Better rider behavior, especially sidewalk riding
- Better devices and data
- A more manageable operating environment
- A more affordable, consistent and reliable service
- Better organized sidewalks
- Better alignment with public outcomes
- Stronger compliance models

