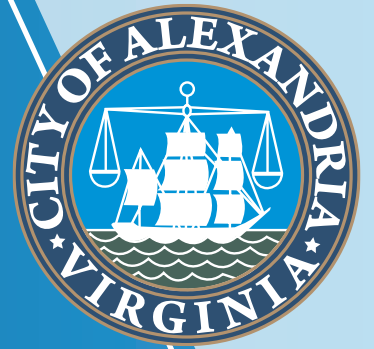


Alexandria Dockless Mobility Pilot Evaluation



November 2019



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Executive Summary

In November 2018, the City of Alexandria launched a pilot program to allow private companies to operate shared mobility devices (such as dockless bicycles and scooters available for rent) for a nine-month pilot period. Multiple neighboring jurisdictions permitted these devices and they began appearing in Alexandria without permits. The pilot program allowed the City to regulate and manage the scooter companies and users and gain a better understanding of the issues and concerns of the community.

What is the Dockless Mobility Pilot?

The purpose of the pilot was to evaluate the safety and use of shared electric scooters and the overall performance of scooter companies in Alexandria. During the pilot, City staff engaged with the public to gain insights about community scooter use and opinions, educate the public about the program, and provide parking and safe riding instructions. Trip data was collected and analyzed to determine where scooter trips occurred, and better understand issues such as safety and equity.

Alexandria's Pilot by the Numbers

- There are approximately 15,000 users registered in Alexandria.
- Riders took over 230,000 scooter trips in the first 9 months of the pilot.
- 1/3 of all weekday trips were taken during morning and evening commute hours.
- Approximately 50% of scooter users reported that they replaced driving trips by riding a scooter.
- 66% of complaints received via the City's Dockless Mobility email inbox were parking-related.
- 15 crashes involving scooters were reported during the pilot based on APD, operator, and citizen reporting.
- 18 minor injuries and 3 suspected serious injuries were reported due to a scooter crash.
- 20-25% of scooter trips in Alexandria started or ended near a Metro stop before the summer 2019 Metro shutdown (WMATA Platform Improvement Project).
- 51% support a Phase II pilot and 49% do not.
- Of those who support a Phase II pilot, 35% have never ridden a scooter.

Key Findings

1. Scooters have provided increased access and mobility in Alexandria.
2. Scooters are a new form of mobility and safe riding is a concern.
3. Improper scooter parking can disrupt the pedestrian right of way and impede ADA access.
4. Scooters could improve transportation equity but new policy is needed.
5. The program recouped costs but modifications to management will minimize City financial and staff resources.

Alexandria is Considering...

Installing more parking corrals, adding or modifying no-park zones, policy to require scooter distribution to address transportation inequity, improving data reporting and management, streamlining the reporting process for scooter parking issues, and more to improve the program.

Next Steps

The pilot program has demonstrated that shared scooters are providing a valuable transportation function, increasing mobility access and options in Alexandria. Given the challenges the City experienced during the pilot, as well as the rapidly evolving nature of shared mobility technologies and business models, more study is needed. Staff recommends a Phase II Pilot in 2020 to allow time for the City to implement and evaluate program changes.





Introduction

Shared bicycles and scooters are providing increased transportation options and enhancing mobility in communities across the United States. The Washington D.C. metropolitan area is at the national forefront providing shared mobility options for the region's residents, commuters, and visitors alike. The shared mobility industry—the devices and the technology—is evolving at a rapid pace and so cities must adapt to manage recent and upcoming innovations.

Shared Mobility Context



Docked Bikeshare

The District of Columbia launched the first station-based bikeshare system in North America in 2008. Alexandria joined the Capital Bikeshare system in 2012. The system is currently comprised of six jurisdictions in the D.C. metropolitan area and more than 4,300 bikes. There are 31 stations in Alexandria.



Dockless Bikeshare

Dockless mobility launched in the Greater Washington D.C. area in 2017 when companies requested to bring dockless bicycles to Washington D.C. Washington D.C. launched a demonstration in late 2017. Most operators that initially provided dockless traditional bicycles have since shifted to electric bicycles and scooters.

WHAT IS SHARED MOBILITY?

In this report, “shared mobility” refers to privately operated dockless electric-assist bicycles and electric-scooters.



Scooter Share

Scooter share first launched in the U.S. in September 2017 in Santa Monica, CA. In the summer of 2018, scooter companies deployed in more than 40 cities, often without permits or warning of their arrival and so cities were forced to quickly set up a regulatory framework to manage what was already happening in their jurisdiction.

Because other local jurisdictions, including Washington, DC and Arlington County permitted dockless bicycles and scooters, the devices began appearing in Alexandria in mid-2018 but there was no mechanism available to the City to manage the companies. Alexandria recognized that a permit process would give the City the means to manage the use of scooters in the City and so the dockless mobility pilot program was approved by City Council in November 2018.

Shared Mobility Growth

In 2018, people took 84 million trips on shared micromobility devices across the U.S., over twice as many as the previous year.¹ These included trips on both station-based bikeshare systems and dockless bikes and scooters, although the rapid growth in shared mobility trips in 2018 corresponded primarily to the introduction of scooter share across the country.



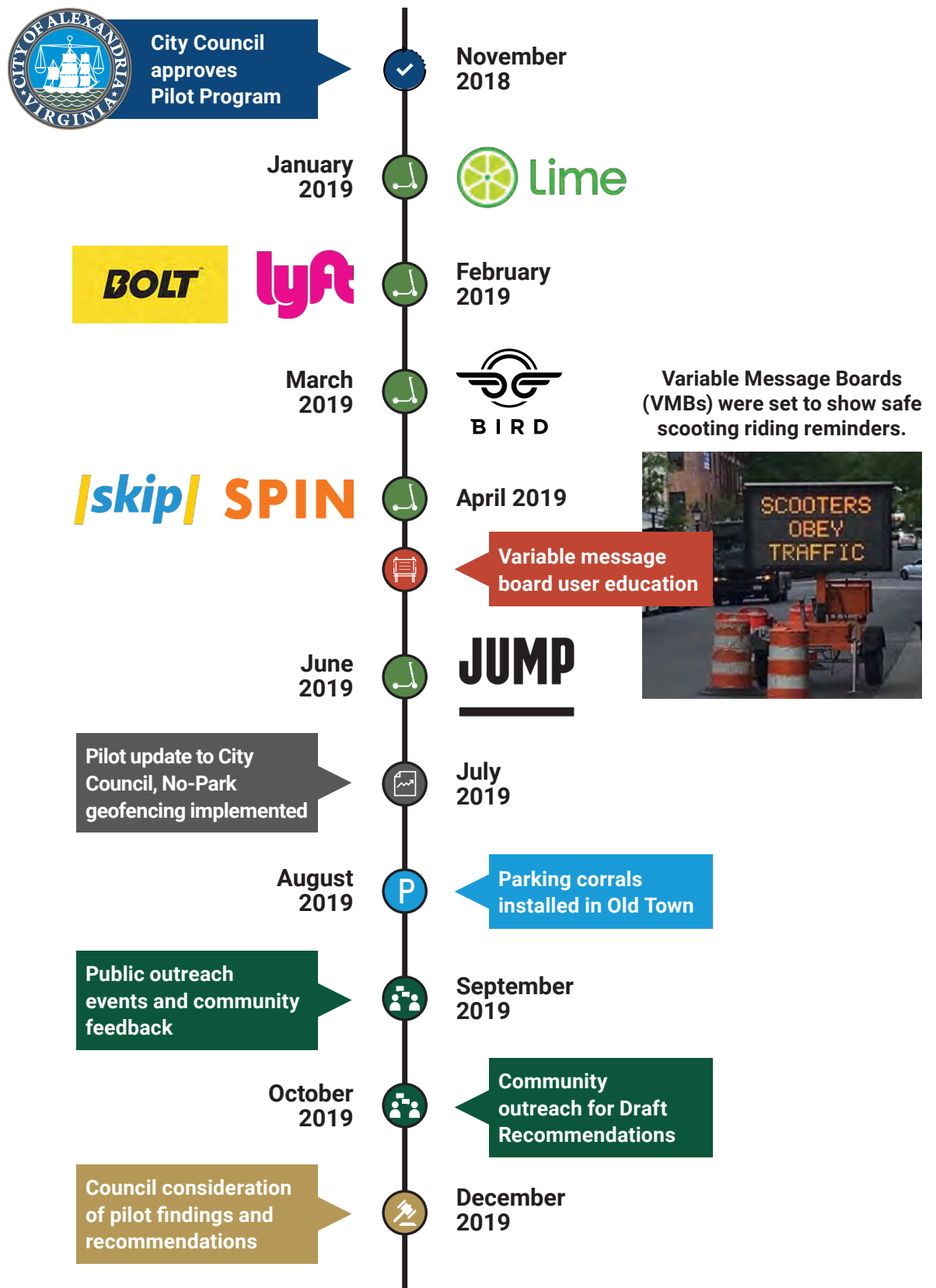
HOW DOES SCOOTER SHARE WORK?

Shared scooter systems have the following characteristics:

- Scooters are rented for one-way trips using a mobile phone application.
- During the pilot, all companies offered an option to rent a scooter via phone call or text message (to facilitate use without a smartphone).
- Scooters are parked where companies stage them and where users end their trips.
- Companies regularly pick scooters up for charging, to perform maintenance, and to redistribute scooters in the system.
- Scooters are permitted to park in the public right-of-way.

¹ Shared Micromobility in the U.S.: 2018. National Association of City Transportation Officials (NACTO). <https://nacto.org/shared-micromobility-2018/>

Timeline of Dockless Mobility in Alexandria



Program Goals

The Alexandria Pilot program's goals are to:

- Manage and regulate scooter use in the City.
- Analyze successes and issues through data analysis, community input, and a review of leading practices from other communities.
- Gather information for program adjustments or next steps (policy changes, future pilot conditions, or other longer-term management approaches).
- Expand access to more transportation modes.
- Identify safety concerns.

Advancing the City's Mobility Goals

The scooter pilot provides the City an opportunity to advance its transportation policy goals and objectives outlined in:

- Strategic Plan Alexandria FY 2017–FY2022
- City of Alexandria Complete Streets Policy
- City of Alexandria Transportation Master Plan
- Eco-City Alexandria Environmental Action Plan 2040

"In 2022, Alexandria is regionally linked and easy to navigate regardless of resources or ability. City government supports a wide variety of safe, connected transportation options that enable access to daily activities."

- Strategic Plan Alexandria FY2017-2022, Page 26

Regulatory Framework and Compliance

The Dockless Mobility Pilot was managed under existing laws and regulations, and a memorandum of understanding between the operators and the City.

LAWS AND REGULATIONS

Federal, State and City laws and regulations were applicable to scooters during the pilot program.



Sidewalk Riding

- Virginia state law conflicted on sidewalk regulations. Section 46.2-903 prohibited scooters from riding on sidewalks but Section 46.2-904 allowed scooter riding on sidewalks. This contradiction meant that sidewalk riding was not enforceable by Alexandria Police during the pilot under State law.
- Under City Code, bicycle riding is permitted on sidewalks except on King Street and several other streets.



Parking

- Per Section 10-7-10 of City Code, bicycles must not be parked in a manner that unreasonably impedes pedestrian or vehicular traffic on a public roadway.
- Per the pilot program MOU, scooters were not permitted to be parked in a manner that unreasonably impedes pedestrian or vehicular traffic on a public roadway.



Devices

- Shared dockless bicycles must comply with Code of Federal Regulations (CFR) Title 16, Chapter II, Subchapter C, Part 1512 – Requirements for Bicycles.
- Both bicycles and scooters must comply with Code of Virginia Section 46.2-1015 requiring headlights, tail-lights, or reflectors.
- Bicycles and scooters must comply with Consumer Product Safety Commission standards.
- Scooters must meet the Code of Virginia Section 46.2-100 definition of a motorized foot-scooter powered by an electric motor having an input of no more than 1,000 watts.

OPERATOR REQUIREMENTS: MEMORANDUM OF UNDERSTANDING

Right-of-way permits were issued to scooter operators after each operator signed a Memorandum of Understanding (MOU) with the City. Seven companies were permitted to operate—Bird, Bolt, Jump, Lime, Lyft, Skip, Spin during the pilot program. The MOU set out the following conditions for operators:



Device Deployment

- Maximum of 200 scooters
- The number of scooters in operation was monitored by the City.



Management and Communication

- \$5,000 permit fee for 9 month pilot and additional \$5,000 extension fee.
- Establish a General Manager who served as the point of contact with the City.
- Collect and store bicycles and scooters for emergency, weather, or other City-defined events.



Safety

- Bicycles and scooters were required to meet State and federal safety standards.
- All operators signed an MOU Amendment in September which required them to notify the City if a user or the company contacted emergency services.



Parking

- Bicycles and scooters were not permitted to park in one location in the public right-of-way for more than seven days without moving.
- Operators were required to address complaints about incorrectly parked devices within 2 hours of being notified.



Data

- Operators were required to provide monthly data reports to the City.
- Operators were required to provide a publicly-accessible API on their website.
- Operators were required to use the General Bikeshare Feed Specification (GBFS) for its bicycles and scooters and to provide the City access to its GBFS data stream.



Penalties, Fines, and Remedies

- Bicycles and scooters were impounded by the City for noncompliance with the MOU.
- Operators were subject to fines or other costs from the City.
- Operators were subject to a \$5,000 surety bond with the City to pay for removal or storage of bicycles and scooters.
- Operators could be suspended if not compliant with permit terms.
- The City indemnified itself in the MOU so that operators assumed liability.

Adjusting Along the Way

Several adjustments were made during the pilot program:

- The City instituted no-park zones on the waterfront and at King Street Metro Station using geofencing technology.
- The City established corrals for scooter parking in high-ridership areas to shift parking away from the sidewalk onto the street.
- The City created and distributed scooter hang-tags, with riding and parking tips and information on how to contact scooter companies to report improper parking and other concerns.
- Scooter riding and parking in the Waterfront is a concern due to the high volume of pedestrians.

WATERFRONT ADJUSTMENTS

Data shows the impact of these mid-pilot changes on the Waterfront:

- Geofenced no-park zone
- 2 scooter parking corrals installed near the Waterfront

Have these Changes Helped?

- Before: approximately 1,500 scooters parked per month
- After: 80% decrease in scooter parking in the Waterfront
- Approximately 400 parked in or near corrals per month
- 50-65% decrease of scooter riding through/by the Waterfront area

Alexandria Scooter Corral Locations



Scooter Educational Hang-Tag

GUIDE TO RIDE SCOOTERS IN ALEXANDRIA, VA




#1 HOW TO RIDE



Follow all applicable traffic laws. That means:

- Stopping at  and  signs
- Yielding  to pedestrians
- Riding in the same direction as traffic

#2 WHERE TO RIDE

#2 WHERE TO RIDE



#3 WHERE TO PARK



- ✓ Scooter parking corrals
- ✓ "Furniture zone" (street lamps, bike racks)
- ✗ Blocking pedestrians or sidewalks
- ✗ Blocking driveways or vehicle travel lanes
- ✗ Blocking fire hydrants or on private property

#4 WHAT TO WEAR

Scooter companies' user agreements require wearing a helmet. Do not wear headphones in both ears.



#5 HOW TO GET STARTED



Download the mobile app for the bicycle or scooter you want to use. Then, create an account, enter your payment info, unlock a nearby device and start riding!



ALEXANDRIA, VIRGINIA
alexandriava.gov/scooters

NEED HELP?

IN THE CASE OF AN
EMERGENCY, CALL 911

TO REPORT
INCORRECTLY PARKED
SCOOTERS OR
OTHER CONCERNS,
CONTACT THE OPERATORS

BIRD (BLACK & WHITE)
HELLO@BIRD.CO
866.205.2442

BOLT (YELLOW & BLACK)
SUPPORT@BOLTOFFICE.COM
866.265.8143


JUMP (RED & BLACK)
SUPPORT@JUMPBikes.COM
833.300.6106

LIME (GREEN & WHITE)
SUPPORT@LIMEBIKE.COM
888.546.3345

LYFT (PINK & BLACK)
877.452.6699

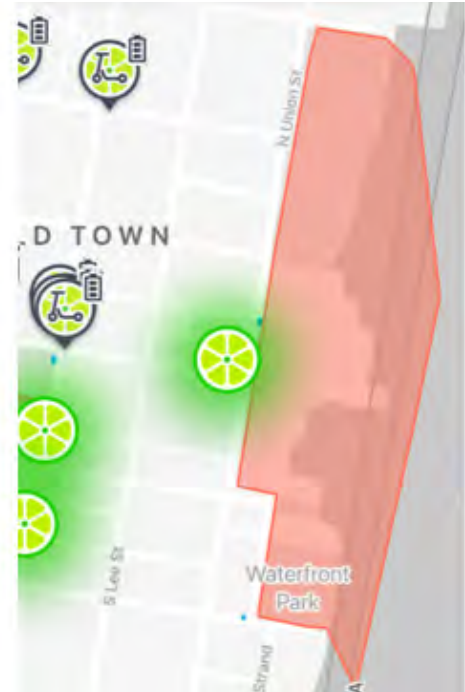
SKIP (BLUE & BLACK)
HELLO@SKIPSCOOTERS.COM
844.929.2687

SPIN (ORANGE & BLACK)
SUPPORT@SPIN.PM
888.262.5189



ALEXANDRIA, VIRGINIA
alexandriava.gov/scooters

Alexandria No-Park Zones (Red) and Corrals (Green Markers) as Viewed on Scooter App



A scooter User Rents a Scooter from a Parking Corral in Old Town



Report Framework

This report analyzes the pilot program using data collected by the scooter operators and information collected by the project team. National leading practices were reviewed to support and inform the City's management approach for the pilot program. Community engagement included community and business organization meetings, scooter education and outreach events, and an email inbox for community comments. An online feedback form was

conducted to collect user information and understand community attitudes toward the pilot program and how they see the program moving forward. Data from the program was analyzed to understand ridership, usage, and safety trends. Building on these data sources and the City's experience throughout the pilot program, this report outlines policy and planning recommendations for the program in Alexandria.





Leading Practices

Leading practices that have emerged as most effective in the Capital Region and across the U.S. were reviewed to help improve the City of Alexandria's pilot program and address issues that arose during the pilot.

In September 2019, the National Association of City Transportation Officials (NACTO) released the second edition of its *Guidelines for Regulating Shared Micromobility*, which outlined best practices for cities and public entities to regulate and manage shared mobility.

The City of Alexandria is considering a number of changes to the program's memorandum of understanding and City Code based on Leading Practices regionally and nationally.



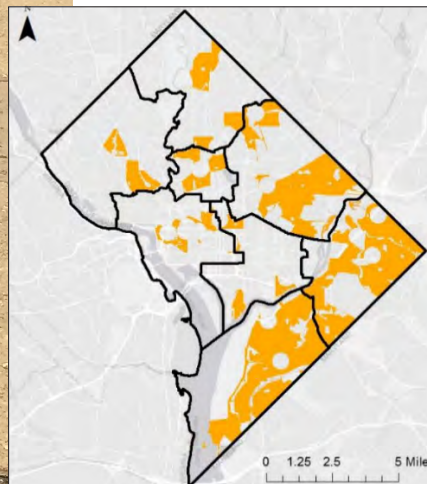
Equity Requirements

Equity has been a central topic of concern in shared mobility programs since bikeshare was first launched in the U.S. Shared bicycles and scooters can be low-cost transportation options, can enhance connections to a City's existing transit system, and can reduce the

need for residents to own a vehicle. However, to realize these benefits, everyone must have equal access. Initial deployment of bikeshare stations and scooters often concentrates in neighborhoods with higher incomes or lower concentrations of people of color. As a result, cities should require equity to be at the forefront of their scooter programs.



Braille messaging on a scooter for identification by people with vision disabilities



District of Columbia Draft Scooter Equity Emphasis Areas

Leading cities used the following mechanisms to promote equity

Category	Supportive Actions and Requirements	Leading Examples
Scooter Distribution and Rebalancing	Define geographic areas for equitable device access. Set minimum scooter rebalancing requirements in those areas. Monitor scooter distribution throughout these defined geographic areas during the pilot or permit period and upon evaluation.	Baltimore, Washington D.C., Chicago, Portland, St. Louis
Discounted Pricing Programs	Require free or reduced cost rides for people with lower incomes. This can be accomplished through City-specified reduced cost ride program requirements, such as requiring free unlimited trips under 30 minutes.	Baltimore, Oakland, Seattle, and Washington, D.C.
Non-Smartphone and Cash Rental Access	Require non-smartphone options to rent a scooter (e.g. call or text-to-rent) and a cash payment option.	St. Louis, Chicago, Oakland, Seattle, and Washington, D.C.
Local Workforce Development	Require operators to specify how they will provide skills training and make an effort to hire local employees.	Chicago, Oakland, and Washington, D.C.
Adaptive Devices	Incentivize or require provision of adaptive scooters or bicycles as part of each operator's fleet to provide access to the program by people with mobility disabilities.	Baltimore, Bellevue, Los Angeles, Oakland, and Seattle
Braille Messaging, Embossed lettering, QR Codes, etc.	Require braille messaging, embossed lettering, QR codes, etc. on scooters to facilitate reporting of improperly parked devices by people with vision disabilities.	Washington, D.C., Montgomery County, MD
Multi-Lingual Communication	Require non-English languages commonly spoken in the service area on company websites, apps, rider education materials, customer service lines, and any other communication methods.	Baltimore, Bellevue, Chicago, Oakland, Seattle, and Washington, D.C.

Equitable Scooter Distribution and Rebalancing

- Baltimore requires vendors to distribute 25% of vehicles in specific areas with lower average household income levels.
- Washington, D.C. defines equity areas in its 2020 draft permit requirements based on an analysis adapted from the Metro Washington Council of Governments Methodology for Equity Emphasis Areas, which identifies areas with concentrated low-income, African American, Asian, or Hispanic/Latinx populations. Operators would be required to deploy a minimum of 20 devices per area.
- Chicago requires 25% of scooters be distributed in each of two pilot sub-areas by operators, and requires proportional distribution throughout the sub-areas. It has fined operators that do not comply.
- The City of Portland requires that 20% of the scooter fleet be made available in East Portland. Equity requirements were enforced at the end of the pilot program.
- St. Louis requires companies to keep 20% of their fleet in specific neighborhoods, which has generated high ridership and comparatively longer trips than other areas.



Data Requirements

Many cities are requiring more comprehensive data than previously in order to understand where scooters are being used and better inform program management and policy.

Category	Supportive Actions and Requirements	Leading Examples
Data Formats	Require consistent and industry-standard data reporting formats. Some cities require operators to provide data through an application programming interface (API) that is compliant with the Mobility Data Specification (MDS). MDS-compliant APIs allow cities to gain insights about device use and operator performance to inform their policy and planning decisions.	Most cities, including Alexandria.
Third-Party Dashboards	Some cities use third-party platforms to streamline data provision and performance monitoring. Third-party aggregator platforms can also help address privacy concerns because individual trip data is not reported.	Many cities, including Alexandria.
Crash Data and Injury Surveillance	Crash reporting does not yet capture scooter use in a standardized way in most jurisdictions. In light of this: <ul style="list-style-type: none"> • Health department and other epidemiological studies are currently the most comprehensive and accurate source of scooter injury surveillance. • Hospital admittance data provides the most complete dataset of scooter-involved crashes. • Cities are working with health departments, EMS/Fire, and police departments to incorporate fields that differentiate scooters and other micromobility devices into incident reporting forms to increase safety analysis accuracy and completeness. • Educational materials are used to promote the use of new scooter-related codes by healthcare providers. 	City of Austin, Los Angeles, North Carolina.



Parking Requirements

Accessibility is a concern for cities with scooter programs, and although improper parking or sidewalk riding affects all pedestrians, it particularly impacts people with disabilities. To improve parking behavior and maintain accessible sidewalks, cities can include regulations and education requirements within the scooter program.

Category	Supportive Actions and Requirements	Leading Examples
Removal of Devices	Require operators to retrieve inoperable devices within a reasonable time period (24-72 hours) and devices that impede the pedestrian travel zone—such as ADA routes and ramps, transit stops, or building entrances—immediately (2 hours).	Most cities, including Alexandria.
Parking Corrals	Parking corrals may be installed to better organize scooter parking when 1) scooter parking overwhelms available space to park on sidewalks, 2) there is high ridership to and from a specific location, or 3) where there is a desire from the community to better organize scooter parking.	Many cities, including Alexandria.
Geofencing No-Parking Zones	Geofenced “no-parking” zones around areas frequented by individuals with vision disabilities (e.g. campuses or buildings serving these people) or in areas with especially high pedestrian volumes and narrow sidewalks. Geofencing has a margin of error of 20 to 40 feet, and so geofencing no-parking zones for sidewalks is not feasible – but would work well to limit parking in large areas like the Waterfront or Market Square.	Many cities, including Alexandria.
Education	Require operators to instruct riders on parking requirements. Provide hang-tags on scooters with proper parking instructions. Offer educational events that include instructions on how and where to park.	Most cities, including Alexandria.



Speed and Safe Riding Facilities

The following leading practices apply to speed and safe riding facilities.

Category	Supportive Actions and Requirements	Leading Examples
Speed Restrictions	Set maximum speeds for a device that account for local conditions and balance scooter rider and pedestrian safety and comfort.	Washington D.C. (10 mph), Montgomery County (15 mph), Arlington County (15 mph in 2020), Alexandria (15 mph in 2020).
Slow-Ride or No-Ride Zones	Geofence areas as slow-ride or no-ride zones to address safety concerns or conflicts between scooter riders and pedestrians in areas of high activity. Geofencing has a margin of error of 20-40 feet, so geofencing slow zones and no-ride zones is most practical in larger areas of at least a block.	Santa Monica and the City of Spokane.
Education	Require operators to instruct riders on safe riding techniques. Offer educational events that include instructions on safe riding.	Most cities, including Alexandria.
Low-Stress Facilities	Consider how complete street design standards may need to change to accommodate a wider variety of low-to-moderate speed micromobility devices, including scooters, uniwheels, and other personal mobility devices. Accelerate the implementation of high-quality, separated bicycle infrastructure, especially on roadways with higher levels of traffic stress or high demonstrated or expected demand to support Vision Zero goals.	Most cities, including Alexandria.



Program Management

In leading cities, regulatory steps are outlined in the program structure and operator compliance is enforced by monitoring the data provided by vendors.

Category	Supportive Actions and Requirements	Leading Examples
Performance Measures	Define performance measures at the outset of the scooter program.	Most cities, including Alexandria.
Compliance Evaluation	Track data compliance, quality of customer service and response times, device distribution, and device utilization rates to evaluate operator performance.	Most cities, including Alexandria.
Fleet Size Adjustments	Set fleet maximums to correspond with expected demand in the city. Allow companies to deploy additional vehicles based on demonstrated ridership and other performance metrics defined by the city.	Many cities, including Alexandria.





Community Engagement

Community engagement was a critical aspect of the pilot process and so feedback from the public informed the recommendations in this report. This chapter describes the City's engagement efforts, which included the following actions:



Met with community and business organizations.



Organized and hosted scooter education and outreach events.



Collected community feedback via emails received at dockless.mobility@alexandriava.gov.



Conducted two online community feedback forms to gather public feedback.



Presented to and received feedback from multiple City Boards and Commissions

Community and Business Organization Meetings

The City met with five community and business organizations in August and September 2019. Staff heard from each group about their experiences with scooters including parking and other aspects of the program.

Community and Business Organization Meetings

Organization/Group	Date
Del Ray Business Association	August 19
National Federation for the Blind	August 22
Cameron Station Civic Association	September 4
Alexandria business representatives	September 9
Old Town residents	September 16

What We Heard

Participants expressed several concerns, most often:



People sometimes ride or park scooters on the sidewalk in a way that compromises other people's comfort or use of the sidewalk.



Seeing scooter riders can be a challenge for drivers.



If restrictions on scooters are implemented, it could negatively impact businesses.



The community is still adjusting to scooters in the public right of way.



Residents wanted to hear how the City has tracked and responded to complaints received about the pilot.

National Federation for the Blind members commented that:



Scooters are silent, so people with vision disabilities can't hear them, which is particularly a concern on sidewalks.



Scooters parked on the sidewalk pose a tripping hazard for pedestrians with vision disabilities, especially because they may not be parked upright or in predictable locations.



The alarms that sound when locked scooters are moved can startle people with vision disabilities and make it difficult for them to hear the sound of traffic, which is important for orientation and navigation.



It is difficult for a person with a vision disability to identify and report an inappropriately parked scooter, because the relevant reporting information is not provided in a way that is accessible to people with vision disabilities, e.g., braille or QR code.



Scooter Education Outreach Events

The City conducted four scooter education outreach events in August and September 2019. The events provided an opportunity for the public to ask questions about the pilot and learn about safe operation and parking of scooters.

Scooter Education Outreach Events

Event	Date
Four Mile Run Farmers Market	August 11
Southern Towers Farmers Market	August 24
Old Town – King Street & Union Street	September 3
First Thursdays Del Ray	September 5

Key Takeaways

Key takeaways from the public education and outreach events included the following:



Many attendees had never ridden a scooter. Some used the event as an opportunity to try scooters in a safe environment and receive instruction on proper riding.



Some community members were initially unsupportive of the scooter program, but many came away with a better understanding of the program and the City's efforts to improve it after having an opportunity to ask questions and discuss concerns with City staff.

Alexandria Staff and Scooter Operator Representatives at a Scooter Education Outreach Event



Dockless Mobility Inbox and Call.Click.Connect

The City provided an email address that residents could use to comment on the pilot. Over 600 emails were received and reviewed by City staff. Many submissions raised concerns about scooter parking, sidewalk riding, unsafe riding, and a perceived need for more enforcement. Others wrote to express support, often citing how scooters had improved access and mobility in their day-to-day lives.

In addition to emails, the City also received 271 scooter-related tickets through its Call.Click.Connect system through mid-September.

Pilot Program Assessment Feedback Form

The City sought input on the program through a Pilot Program Feedback Form, including primary issues and challenges and ways the program could be improved.

The form was not a scientific survey and was distributed at public outreach events, published on the City's website, sent to the City's E-News email list subscribers, and shared with scooter users registered in Alexandria by operators. Responses were collected for 3 weeks in late August.

Who Did We Hear From?

- The feedback form received 2,914 responses.
- 38% of respondents have ridden a scooter and 62% have not.
- 8% of respondents who ride scooters do not have access to a vehicle.
- 8.5% of respondents identified as having a disability.
- Approximately 65% of respondents self-identified as white, 14% as non-white, and 20% declined to self-identify.



Where do you most frequently ride scooters in The City of Alexandria?



On a trail/path
(e.g. Metro Linear Trail)
Most frequently ride: 8%
Prefer to ride: 14%



In a bike lane
Most frequently ride: 26%
Prefer to ride: 53%



On the sidewalk
Most frequently ride: 17%
Prefer to ride: 14%



In the street
Most frequently ride: 48%
Prefer to ride: 19%

Pilot Program Assessment Feedback Form Results

Riders and non-riders were asked a series of questions about how the program is working, including what the top issues are, the changes that are needed, where more scooters are needed, and where people should be allowed to park scooters. These responses are summarized below.

What are the Biggest Issues with Scooters in the City?

- Incorrectly parked scooters
- Speeding or unsafe user behavior

What Changes are Needed?

For riders, the top three needed changes were:

- Establishing more dedicated space for riding scooters off sidewalks in areas with high usage
- Establishing more dedicated space for parking scooters off sidewalks
- Encouraging more responsible parking of scooters

Non-riders said the top 3 changes needed are:

- Enforcement of traffic rules for e-scooter riders
- Banning (parking and riding) scooters in certain areas
- Establishing more dedicated space for parking scooters off sidewalks

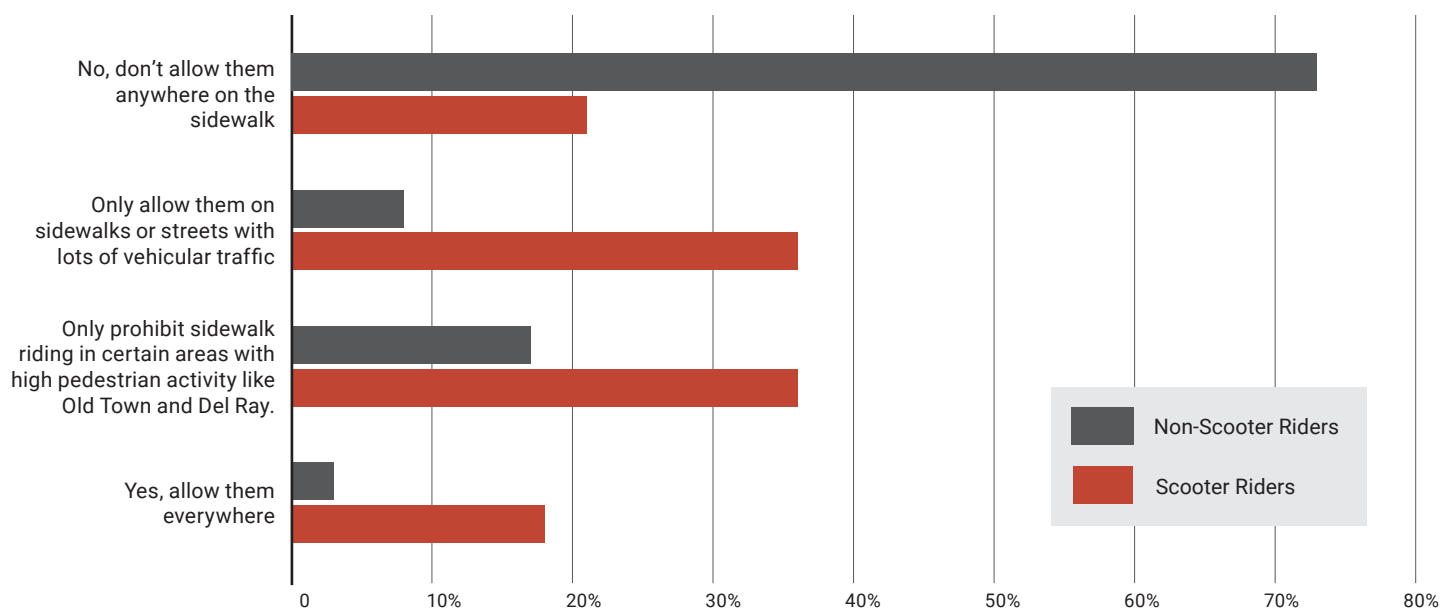
There was no substantial difference in preferred changes to the program between people with disabilities and those without.

Should Scooters be Allowed on Sidewalks?

64% of scooter riders felt scooters should be allowed on sidewalks under certain circumstances and 18% felt scooters should be allowed everywhere on sidewalks.

Almost three quarters (73%) of non-riders felt scooters should not be allowed anywhere on the sidewalk. This divergence of opinion may suggest that users are most comfortable in a separated space from traffic, such as a separated bike lane.

Do you think people should be allowed to ride scooters on the sidewalk?



Where should scooters be parked?



At a bike rack: 45%



At a designated space on the street: 39%



At a designated space on the sidewalk: 27%

Draft Recommendations Feedback

Commission Meetings

City staff met with City Council, the Waterfront Commission, and the Transportation Commission and solicited general public input through a Draft Recommendation Feedback Form to help define the requirements of a Phase II pilot. Three meetings were held to discuss the draft recommendations, as shown in the table below.

City Council and Commission Meetings

Organization/Group	Date
City Council	October 2
Waterfront Commission	October 13
Transportation Commission	October 16

What We Heard

Staff presented draft recommendations to the Waterfront Commission and Transportation Commission.

The Waterfront Commission did not take an official position on the recommendations but urges continued coordination between staff and the Commission if the pilot program is continued in 2020. Improving improper parking, unsafe riding, and excessive riding and parking in the Waterfront were noted as key issues and the Commission was generally supportive of efforts to create more corrals, assuming impacts to vehicular parking are minimized. Some noted the value that scooters provide as an additional transportation mode, while others emphasized the safety and parking issues as significant reasons to ban scooters.

The Transportation Commission moved to affirm that the draft recommendations in the proposed plan are consistent with the goals outlined in the City's Transportation Master Plan, adopted in 2008 after discussion of draft recommendations and a public hearing. The Transportation Commission recommended that City Council approve a Phase II Pilot Program for the Dockless Mobility Program for 2020 to allow staff to continue to work through the challenges with new forms of mobility. The Commission noted that stricter requirements of vendors participating in this program and updates to the City Code to provide the Alexandria Police Department more authority to enforce these rules were key in their recommendation.

Draft Recommendations Feedback Form

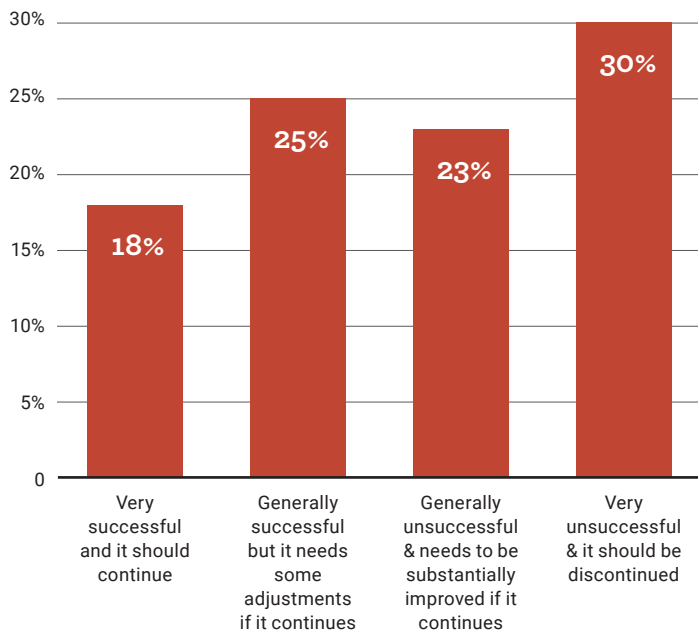
An additional feedback form was fielded to solicit community feedback on proposed recommendations for the Phase II pilot. Input from these meetings and feedback form was incorporated in the recommendations in this report.

Who Did We Hear From?

- The feedback form received 829 responses
- 40% of respondents have ridden a scooter and 60% have not
- 9% of respondents who ride scooters do not have access to a vehicle
- 10% of respondents identified as having a disability
- Approximately 74% of respondents self-identified as white, 10% as non-white, and 15% declined to self-identify

Draft Recommendations Feedback Form Results

- 51% support a Phase II Pilot and 49% do not
- Of those who support a Phase II Pilot, 35% have never ridden a scooter
- 80% of all respondents support the installation of more corrals
- Priorities for enforcement: traffic violations (failure to stop at stop signs or red lights), sidewalk speeding, parking in a way that impedes pedestrian traffic or ADA accessibility
- Sidewalk riding: 67% of program supporters say scooters should be allowed where bikes are allowed, while 85% of those who do not support the program would prefer to ban scooters from all sidewalks



* No opinion: 4%





Data Analysis and Findings



Methodology

The findings in this section are based on quantitative and qualitative data collected throughout the pilot period.

Quantitative inputs

Availability, trip, collision, route, and complaint data provided by operators were cleaned and compiled for analysis. The process of cleaning and analyzing operator-provided data is documented in detail in Appendix C. Injuries and collisions reported by the Alexandria Police Department (APD) and Fire/EMS, by residents via the City's Dockless.mobility@alexandriava.gov email address, and by the Alexandria Health Department were also incorporated into the analysis.

Qualitative inputs

Community feedback and complaints were provided through resident emails to the Dockless.mobility@alexandria.gov email address, the City's Call.Click.Connect system, and the Pilot Program Assessment Feedback Form. Focus groups with civic associations and business groups were also included as information sources to inform the report findings and recommendations.



KEY FINDINGS:

Five key findings emerged from the qualitative and quantitative data analysis:

1. Scooters have provided increased access and mobility in Alexandria.
2. Scooters are a new form of mobility and safe riding is a concern.
3. Improper scooter parking can disrupt the pedestrian right of way and impede ADA access.
4. Scooters could improve transportation equity but new policy is needed.
5. The program recouped costs but modifications to management will minimize City financial and staff resources.



KEY FINDING: SCOOTERS HAVE INCREASED COMMUTING OPTIONS AND MOBILITY IN ALEXANDRIA.

ALEXANDRIA SHOULD CONSIDER

Implementing a Phase II Pilot Program through December 2020 with a modified MOU, application and permit fee structure.

SUPPORTING DATA & COMMUNITY INPUT



More than **230,000 scooter trips** were reported from January through September 2019.



Approximately **225,000 miles** were traveled via scooter during this period.



Average trip time is **10-15 minutes**, with an average trip distance of **just under 1 mile**.



Scooter companies report there are **approximately 15,000** active users in Alexandria.



Approximately **780 devices** were available on a typical day (approximately 1/2 of the total permitted).

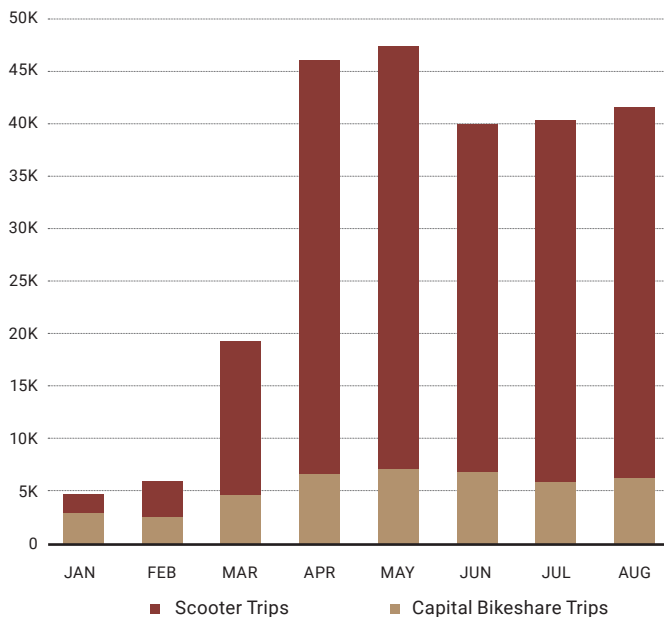


Approximately **1/3** of weekday scooter trips were taken during **commuting hours**.

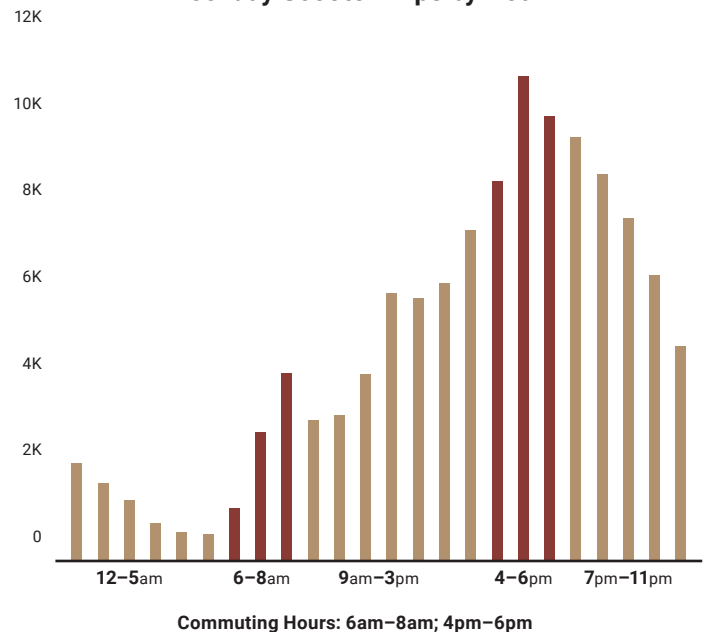


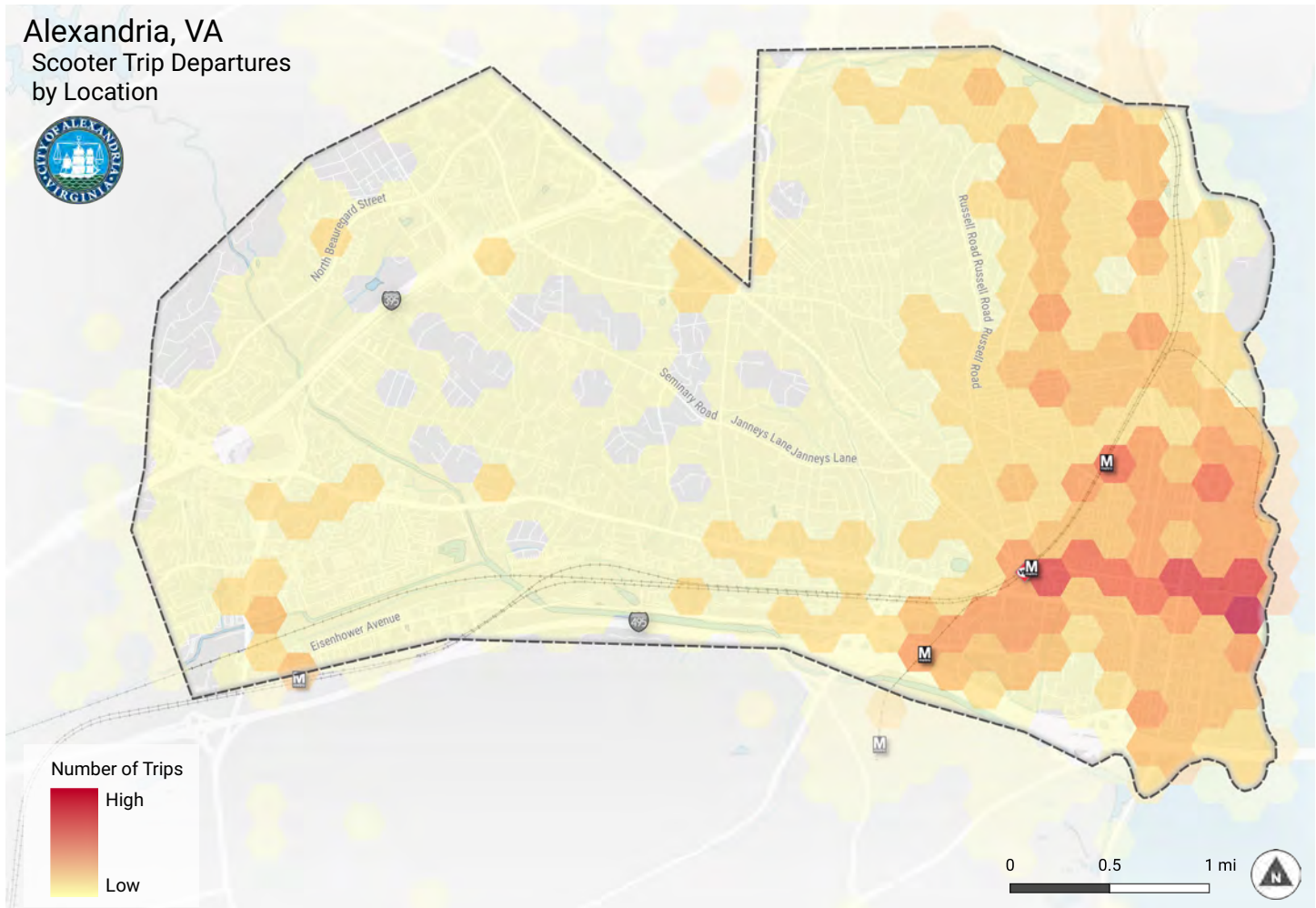
Approximately **2/3** of trips were taken on **weekdays**.

Total Shared Mobility Trips



Weekday Scooter Trips by Hour





Trip Origins and Destinations

Approximately, **60%** trips originated in the Old Town, **11%** in Potomac Yard, **8%** in Del Ray, and **7.5%** in Eisenhower East.

Trip destinations closely mirrored origins.

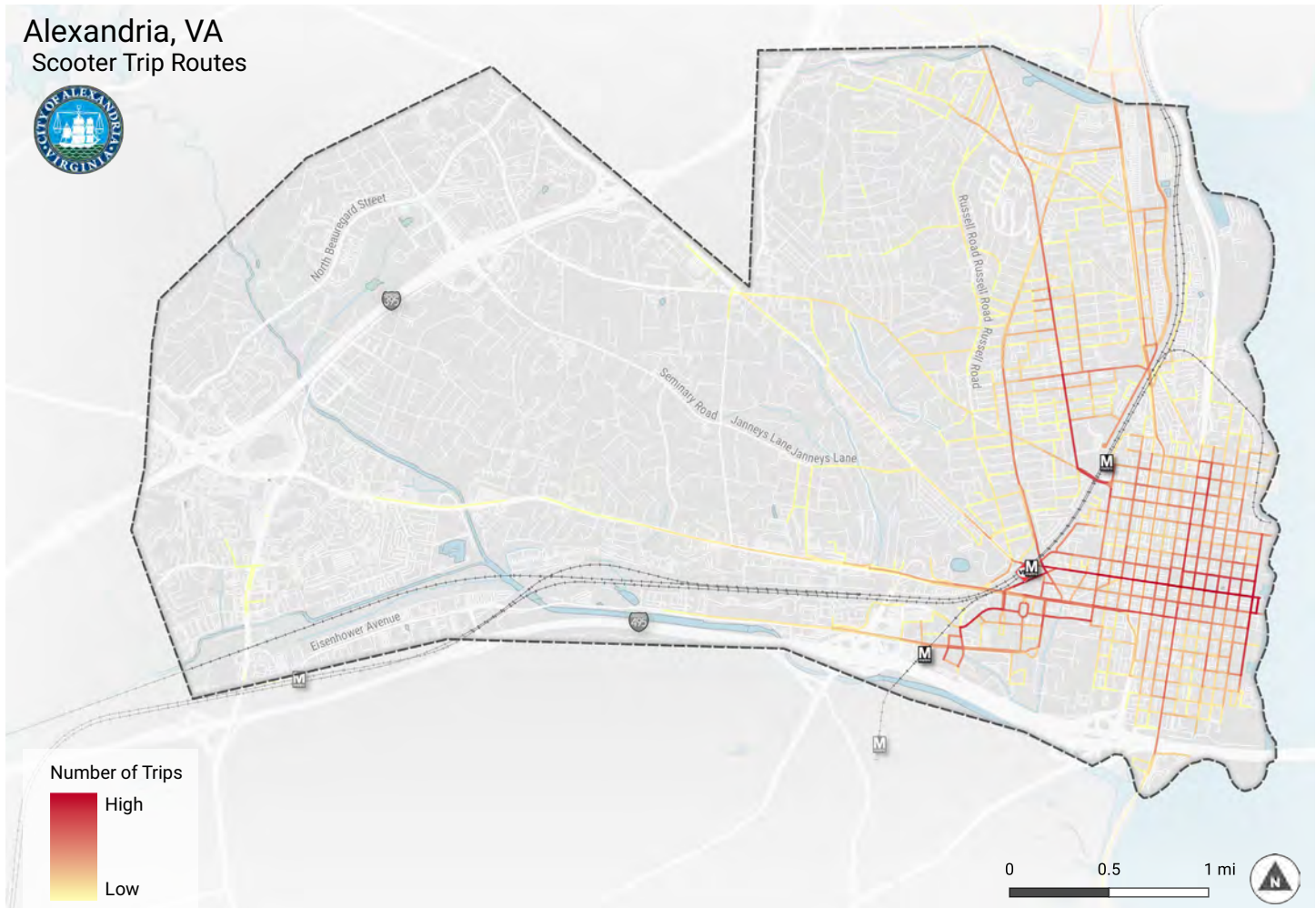
Scooters provided access to transit and many replaced automobile trips. Approximately **20%-25%** of trips started at King Street, Braddock Road, Eisenhower Avenue, and Van Dorn Metro Stations prior to the beginning of the 2019 Metro Platform Improvement Project on May 25.

Approximately **40%** of scooter trips originated or ended in areas with high volumes of transit ridership.

Trip Routes

Approximately **8%** of trips occur on King Street.

Union Street, Mount Vernon Avenue, and the route between the Eisenhower Avenue and King Street metro stations also saw higher trip densities.



According to the Pilot Program Assessment Feedback Form...

When asked **“If there were no scooters in the City, how would you have taken most of these trips?”**, almost 70% of users (980) responded that they would have either used a personal vehicle, used a rideshare app (such as Uber or Lyft), or taken a taxi as one of their top two choices.

67% of users (626) indicated that using scooters has decreased their need for parking.

When asked if “scooters increased your access to public transportation in Alexandria”, **60%** of users (564) agreed.



WHAT PEOPLE SAID...

“My bus (AT7) only runs every 30 minutes, I take a scooter when I miss it.”

“[I use the program for trips] that are too far to walk but impractical to drive/Uber.”

“[I use the program] to avoid driving and reach a further distance than just walking.”



KEY FINDING: SCOOTERS ARE A NEW FORM OF MOBILITY AND SAFE RIDING IS A CONCERN.

ALEXANDRIA SHOULD CONSIDER

Adding new regulations including:

- Consider areas in which scooter sidewalk riding would be banned.
- Speed limits: 15 mph on streets.
- Limiting one rider per device.
- Requiring operators to provide in-app safety messaging, rules of the road and sidewalk riding.

Outreach and Evaluation:

- Evaluating additional “No-ride” and “Slow-ride” zones and sidewalk bans.
- Hosting outreach & education events with operators throughout spring and summer.

Scooter Crashes¹



15 crashes were reported involving scooter users during the pilot period based on APD data, by operators, and by citizens via the City’s Dockless Mobility Inbox. These included **five collisions** where a motor vehicle driver was involved.



18 minor injuries and **three suspected serious injuries** were reported, based on APD data and citizen reporting to the City’s Dockless Mobility Inbox.



Data from the Alexandria Health Department identified **10 cases** treated at hospitals or urgent care facilities where any kind of scooter was identified as possibly involved. See Appendix D for the full Alexandria Health Department report.



During the same months in 2018, motor vehicles were involved in **approximately 675 crashes** in Alexandria, of which **356 caused injuries**, including **26 suspected serious injuries**, and **2 fatalities**.

Based on this contextual data, it is estimated that scooters were involved **<2%** of all crashes in Alexandria during the pilot period.

ADA Accessibility



Feedback from a stakeholder meeting with the National Federation for the Blind indicated concerns that scooters operate nearly silently. There is not yet a federal standard for a minimum decibel level for operation, so people with vision disabilities are not able to recognize when they are approaching.

¹ Based on the reporting system limitations, it is possible that some reported cases did not involve scooters that were part of the pilot program, and it is also possible that additional cases occurred that were not captured.

SUPPORTING DATA & COMMUNITY INPUT

APD Educational Efforts



Alexandria Police Department has conducted focused rider **education** efforts on weekends and in high-use areas.



APD stopped a total of **154 scooter users** during the pilot period to issue warnings and provide education about safe riding.

49% of complaints (275) received in the Dockless Mobility Inbox referenced concerns about safety.

67% of Pilot Program Feedback Form respondents (1689) also indicated that speeding or unsafe user behavior was a concern.



KEY FINDING: IMPROPER SCOOTER PARKING CAN DISRUPT THE PEDESTRIAN RIGHT OF WAY AND IMPEDE ADA ACCESS.

ALEXANDRIA SHOULD CONSIDER

- Requiring operators to stage in a parking corral if one exists nearby.
- Installing additional parking corral locations.
- Developing a streamlined “reporting” process.
- Additional “No-park” zones in areas with high pedestrian activity.
- Working with operators as technology develops for stricter parking requirements.
- Requiring braille, embossed lettering, QR codes, etc. on scooters to enable those with vision disabilities to report improper parking.

What changes should the City consider to better manage scooter parking?

- Supported banning scooters from parking in certain places. This strategy has been tested with the pilot’s geofencing requirements.
- Supported establishing more dedicated space for parking scooters off sidewalks
- Said a need to continue encouraging more responsible parking of scooters.
- Supported establishing more dedicated scooter parking space specifically in areas with high usage. T&ES has also implemented this strategy during the pilot by creating in-street parking corrals for dockless mobility devices, especially in high-demand locations.

SUPPORTING DATA AND COMMUNITY INPUT



Approximately **25%** of **scooters were deployed** in or near a corral following corral installation.



City staff **impounded 31 scooters** that were improperly parked.



The City’s Street Team **straightened 230 improperly parked scooters.**

ADA Accessibility



The National Federation for the Blind stakeholder meeting reinforced concerns about improper parking of devices creating a potential tripping hazard, and that improperly parked devices may impede an accessible pedestrian route by blocking curb ramps.



WHAT PEOPLE SAID...

“Scooters block sidewalks and ramps and impede persons that are handicapped or have mobility issues.”

“I’ve had to move scooters out of the way.”

“[There is] Not enough designated scooter parking.”

What are the biggest issues with scooters in the City?

66% of complaints received via the Pilot Program Feedback Form were parking-related. According to the Pilot Program Feedback Form, **75%** of all respondents (1891 of 2537) noted that incorrectly parked scooters were a top concern.



KEY FINDING: SCOOTERS COULD IMPROVE TRANSPORTATION EQUITY BUT NEW POLICY IS NEEDED.

ALEXANDRIA SHOULD CONSIDER

- Requiring operators to deploy and rebalance scooters in neighborhoods throughout the City.
- Identifying areas that are historically underserved or have greater unmet transportation needs and require rebalancing to these areas.
- Requiring alternative rental mechanisms besides smartphones (e.g. call or text-to-rent) and cash payment options.
- Developing an income-based discount program and requiring all operators to participate.
- Encouraging operators to use local workforce development in their staffing plans.

SUPPORTING DATA AND COMMUNITY INPUT

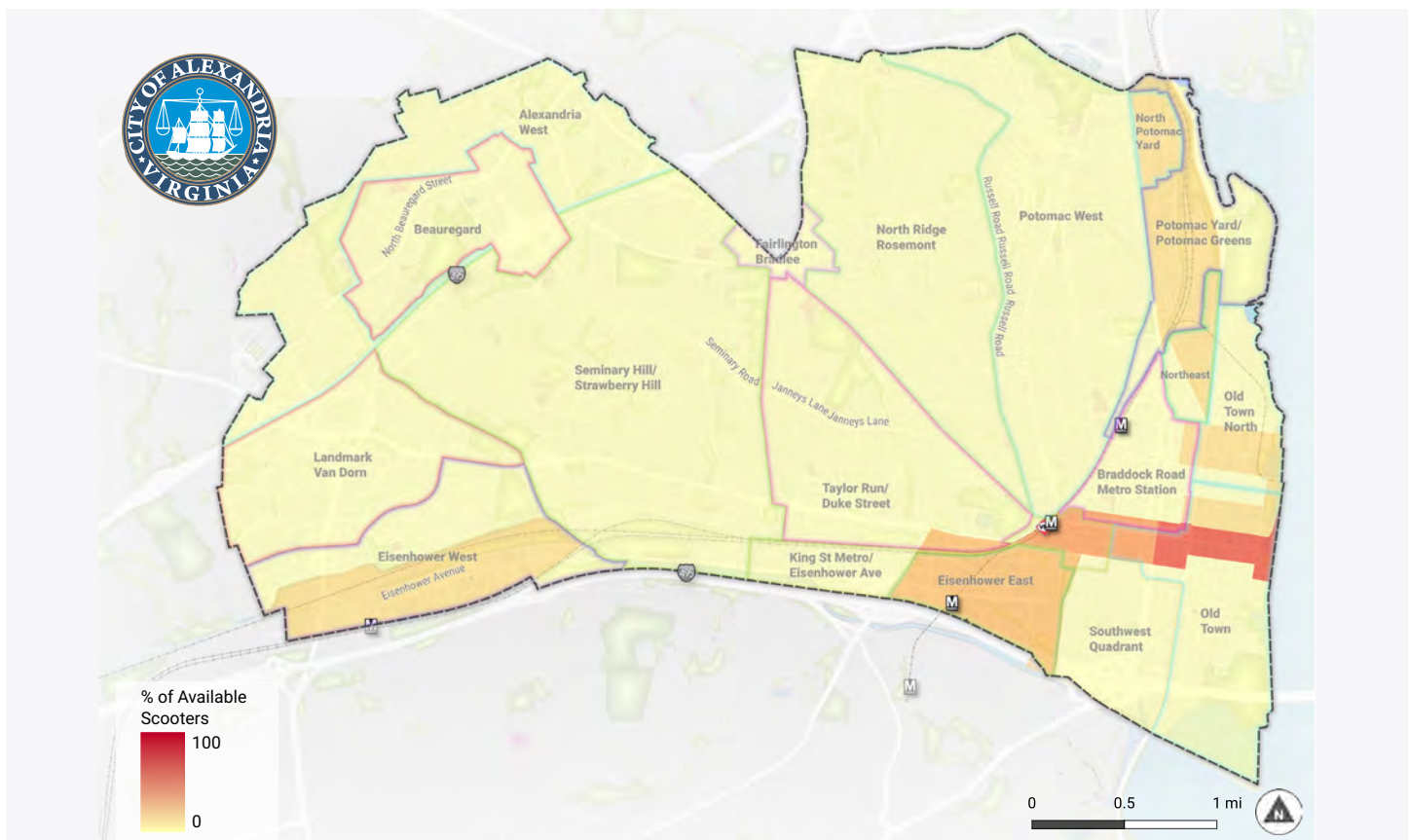


The Alexandria Transportation Master Plan identifies the goal of providing all citizens, including those without a personal motor vehicle, accessibility and mobility.

Availability

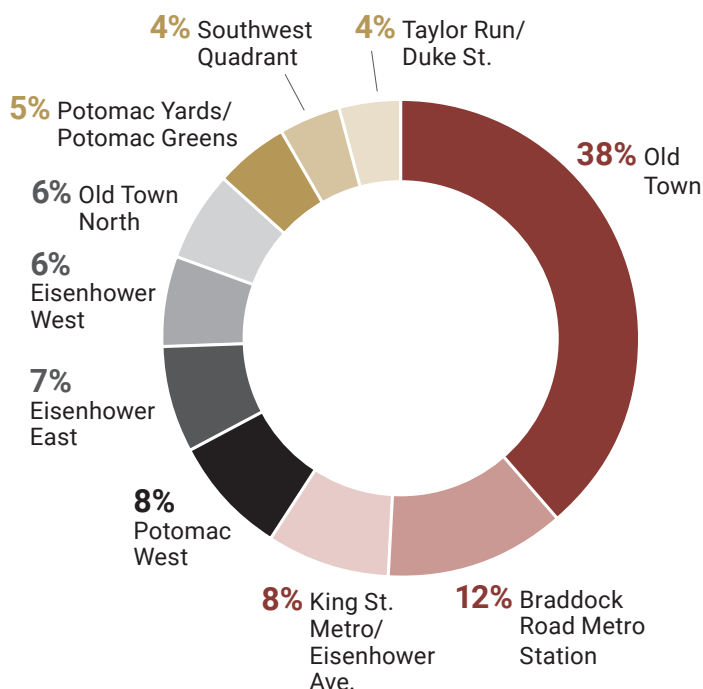


Scooter availability was most concentrated in Old Town in the King Street retail corridor, with **18-22%** of all available scooters in this area.



Where are scooters deployed?

Scooter deployment was highest in areas along or adjacent to the King Street downtown corridor.



Areas with 1% or less of scooters available:

- Landmark Van Dorn
- Northeast
- North Potomac Yard
- North Ridge Rosemont
- Beauregard
- Alexandria West
- Fairlington Bradlee
- Seminary Hill/Strawberry Hill



Parts of the city such as Alexandria West, Beauregard, and northern Potomac West, which have the greatest concentrations of households in poverty, households without access to a motor vehicle, and people of color in the city could benefit from increased scooter availability.

Existing Low-Income Customer Plans

Company	Low Income Discount	Non-Smartphone Access	Non-Credit Card Payment Option
BIRD	Unlimited 30-minute rides for \$5 / month	SMS text to unlock	Yes
BOLT	50% off all rides	SMS text to unlock	Yes
JUMP	Unlimited 30-minute rides for \$5 / month	Call to unlock	Yes
LIME	50% off all rides	SMS text to unlock	Yes
LYFT	Unlimited 30-minute rides for \$5 / month	SMS text or call to unlock	Yes
SKIP	50% off all rides	Call to unlock	Yes
SPIN	Up to 50% off all rides	SMS text to unlock	Yes



WHAT PEOPLE SAID...

“Sometimes [scooters] aren’t close enough to access to be relied on 100% of the time.”

“I had abdominal surgery and can no longer walk far without pain. Scootering allows me to do more near my home in Alexandria.”

“Do you have access to a motor vehicle that you or someone in your household owns?”

According to the Pilot Program Assessment Feedback Form...

46% of those without access to a motor vehicle (71 of 154) said they had used a scooter.









KEY FINDING: THE PROGRAM RECOUPED COSTS BUT MODIFICATIONS TO MANAGEMENT WILL MINIMIZE DEDICATION OF CITY FINANCIAL AND STAFF RESOURCES.

ALEXANDRIA SHOULD CONSIDER

- Requiring scooter companies to provide data via an MDS feed or a similarly detailed future data standard.
- Working with the City's third-party data aggregator to streamline data access.
- Establishing a City Manager appointed Ad-Hoc Scooter Task Force for the duration of the Phase II pilot.
- Developing a streamlined "reporting" process.

Program changes to improve efficiency in Phase II

Pilot	Phase II
 Compiling data from individual companies	 Require MDS data and working with a 3rd Party Data Aggregator.
 Attending multiple focus groups	 Establish and meet with Ad Hoc Group throughout Phase II pilot.
 Calls and tickets received through Call.Click. Connect staff	 Redirect directly to companies.

SUPPORTING DATA AND COMMUNITY INPUT

Future fees should cover the costs of the program.

2019 Scooter Financials

Permit fees	\$35,000
Permit extension (September through December, 2019)	\$35,000
Management, evaluation, and operations	(\$65,000)
TOTAL	\$5,000

Taxes Collected

Each of the scooter companies is subject to the City's Short Term Daily Rental Tax, which requires each company to pay a tax of 1% on the gross proceeds of their rentals. This tax is collected quarterly. Staff estimates the City will collect approximately \$13,000 annually. Additionally, if a company were located within Alexandria, they would be required to obtain a business license. However, at this time, none of the companies' offices are physically located within the City limits.





Conclusion and Recommendations

Alexandria's pilot program allowed the City to evaluate issues and opportunities related to scooter use and demonstrated that scooters provide a valuable transportation function.

A Phase II Pilot for 2020 and accompanying program modifications are recommended to address challenges experienced during the pilot program, to continue to evaluate the program, and to allow the City to determine the most appropriate long-term program structure.



Recommendations

Key Finding	Alexandria Should Consider
Scooters have provided increased access and mobility in Alexandria	<ul style="list-style-type: none"> Implement a Phase II Pilot Program through December 2020 with a modified MOU, application and permit fee structure.
Scooters are a new form of mobility and safe riding is a concern	<ul style="list-style-type: none"> Sidewalks: Consider areas in which scooter sidewalk riding would be banned. Speed limits: 15 mph on streets Limit one rider per device. Require operators to provide in-app safety messaging, rules of the road, and sidewalk riding information. Evaluate additional “No-ride” and “Slow-ride” zones and sidewalk bans. Host outreach & education events with operators throughout spring and summer. Coordinate with regional partners for consistency. Continue to implement Complete Streets and Vision Zero safety improvements to provide safe places to ride scooters and reduce conflicts on sidewalks.
Improper scooter parking can disrupt the pedestrian right of way and impede ADA access	<ul style="list-style-type: none"> Require operators to stage in a parking corral if one exists nearby. Install additional parking corral locations. Develop a streamlined “reporting” process. Consider other large areas with high pedestrian activity for “No-park” zones. Work with operators as technology develops for stricter parking requirements. Require braille, embossed lettering, QR codes, etc. to enable those with vision disabilities to report improper parking.
Scooters could improve transportation equity but new policy is needed	<ul style="list-style-type: none"> Require operators to deploy and rebalance scooters in neighborhoods throughout the City. Identify areas that are historically underserved or have greater unmet transportation needs and require rebalancing to these areas. Require alternative rental mechanisms besides smartphones (e.g. call- or text-to-rent) and cash payment options. Develop an income-based discount program and require all operators to participate. Encourage operators to incorporate local workforce development into their staffing plans.
The program structure recouped costs but modifications to management will minimize dedication of City financial and staff resources.	<ul style="list-style-type: none"> Require scooter companies to provide data via an MDS feed or a similarly detailed future data standard. Work with the city’s third-party data aggregator to streamline data access. Establish a City Manager appointed Ad-Hoc Scooter Task Force for the duration of the Phase II pilot. Develop a streamlined reporting process.

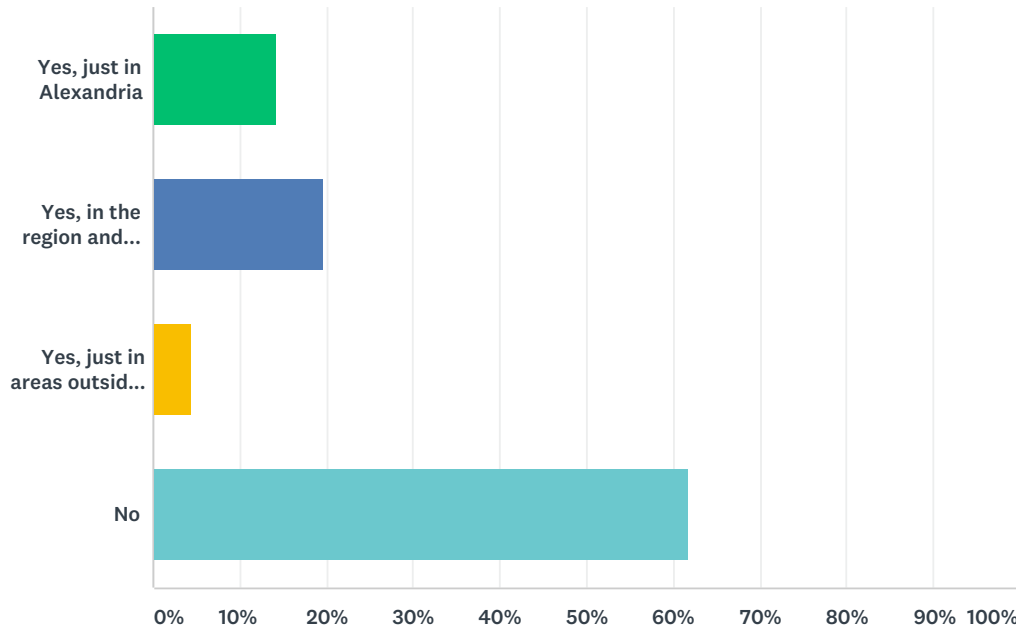


Appendix A

**Pilot Program
Assessment Feedback
Form Results**

Q1 Have you used e-scooters in Alexandria or in the region? (Arlington, DC, Montgomery County, etc.)

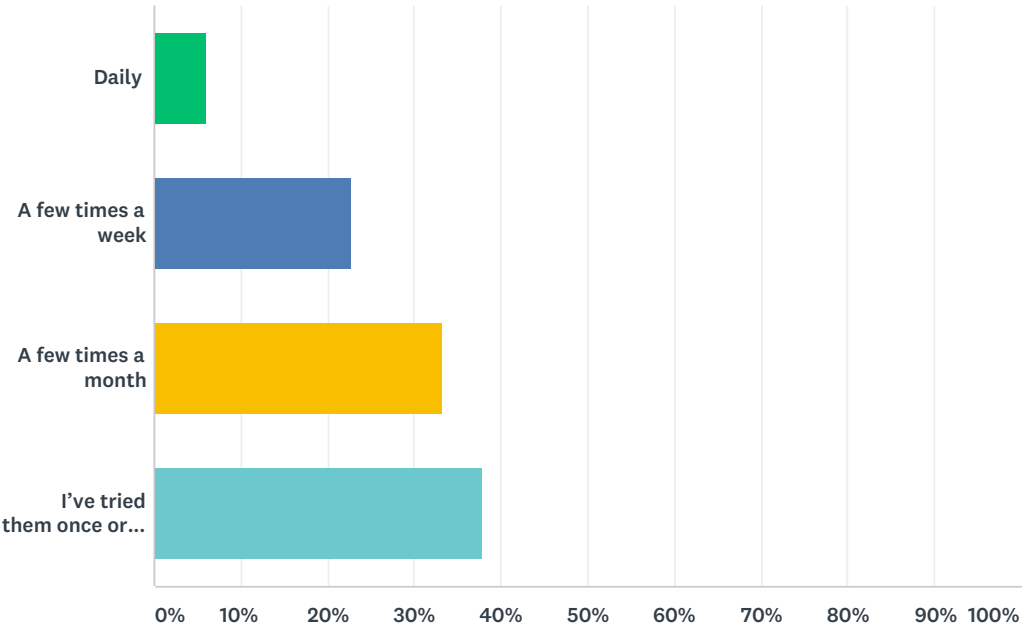
Answered: 2,914 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, just in Alexandria	14.28%	416
Yes, in the region and Alexandria	19.63%	572
Yes, just in areas outside of Alexandria	4.29%	125
No	61.81%	1,801
TOTAL		2,914

Q2 How often do you use e-scooters?

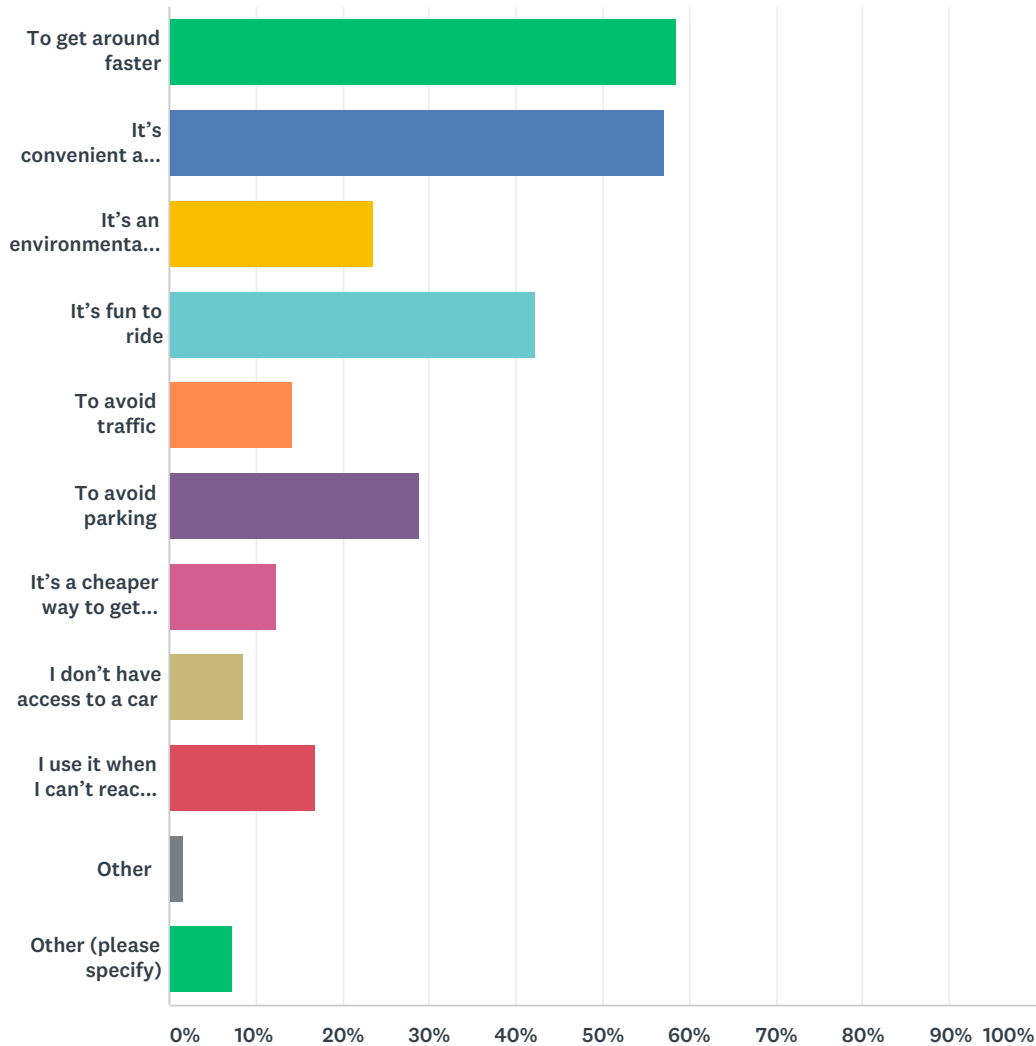
Answered: 982 Skipped: 1,932



ANSWER CHOICES	RESPONSES	
Daily	6.01%	59
A few times a week	22.81%	224
A few times a month	33.30%	327
I've tried them once or twice	37.88%	372
TOTAL		982

Q3 Why do you use e-scooters in Alexandria? Please select your TOP 3 reasons.

Answered: 982 Skipped: 1,932



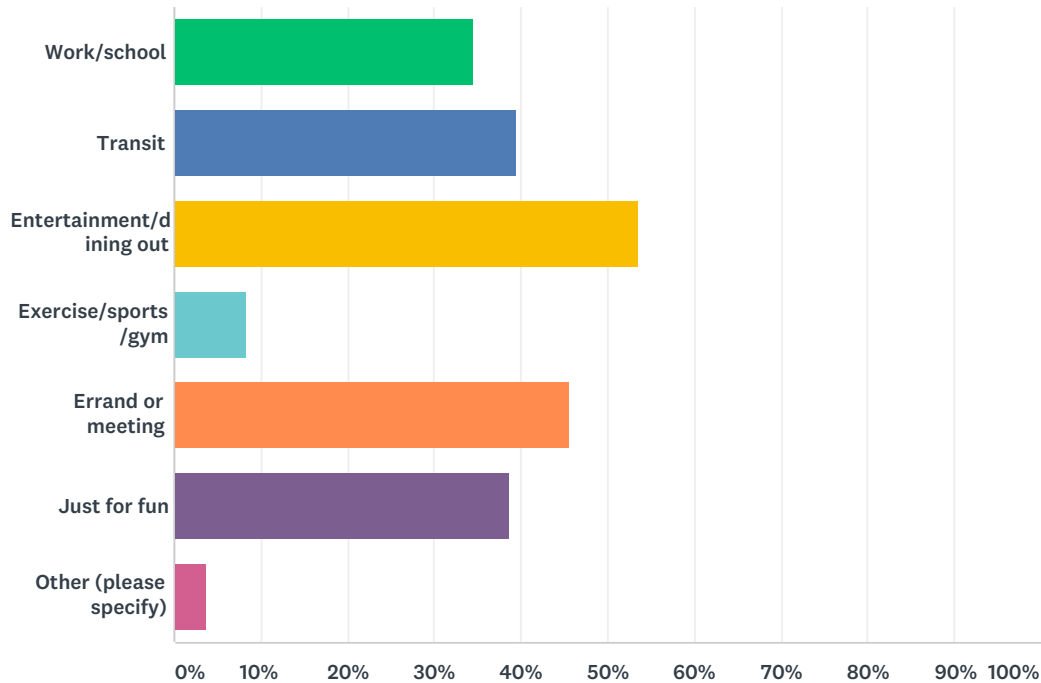
ANSWER CHOICES	RESPONSES	
To get around faster	58.66%	576
It's convenient and easy to access	57.13%	561
It's an environmentally friendly way to get around	23.63%	232
It's fun to ride	42.26%	415
To avoid traffic	14.26%	140
To avoid parking	28.92%	284
It's a cheaper way to get around	12.42%	122
I don't have access to a car	8.55%	84
I use it when I can't reach my destination by transit or because of the Metrorail station closures in Alexandria	17.01%	167

Dockless Mobility Pilot Program Survey

Other	1.63%	16
Other (please specify)	7.33%	72
Total Respondents: 982		

Q4 What kinds of trips do you take on e-scooters? (to or from the following). Please select UP TO 3 types of destinations.

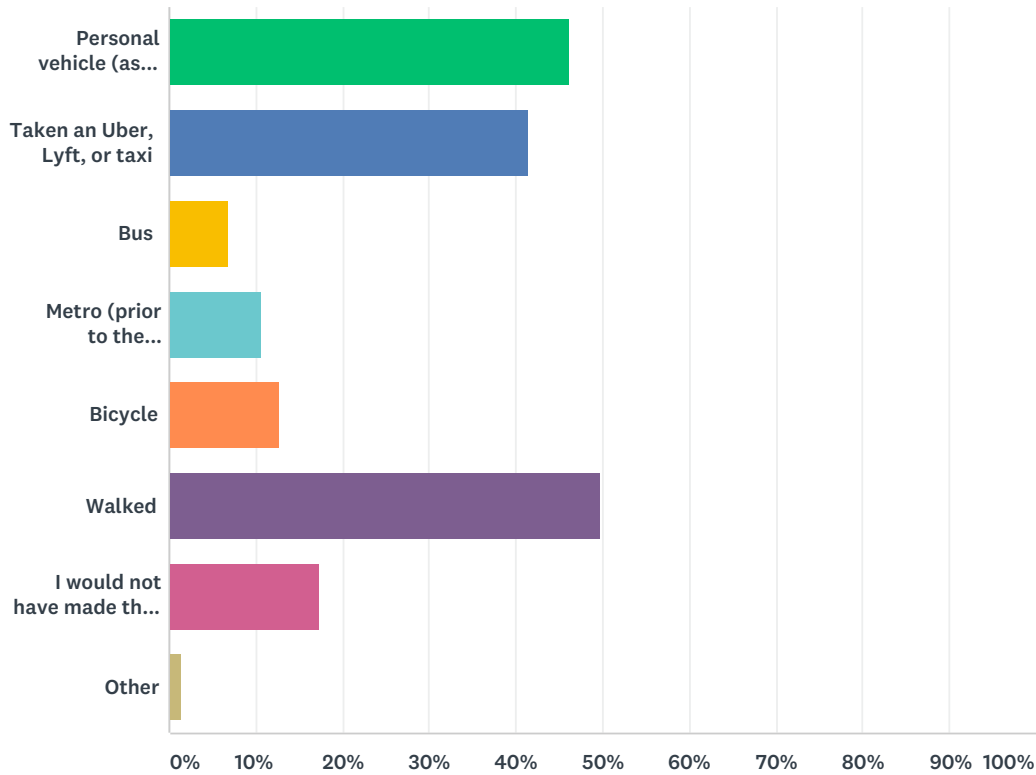
Answered: 982 Skipped: 1,932



ANSWER CHOICES	RESPONSES	
Work/school	34.42%	338
Transit	39.51%	388
Entertainment/dining out	53.46%	525
Exercise/sports/gym	8.45%	83
Errand or meeting	45.52%	447
Just for fun	38.70%	380
Other (please specify)	3.67%	36
Total Respondents: 982		

Q5 If there were no e-scooters in the City, how would you have taken most of these trips? Please select your TOP 2.

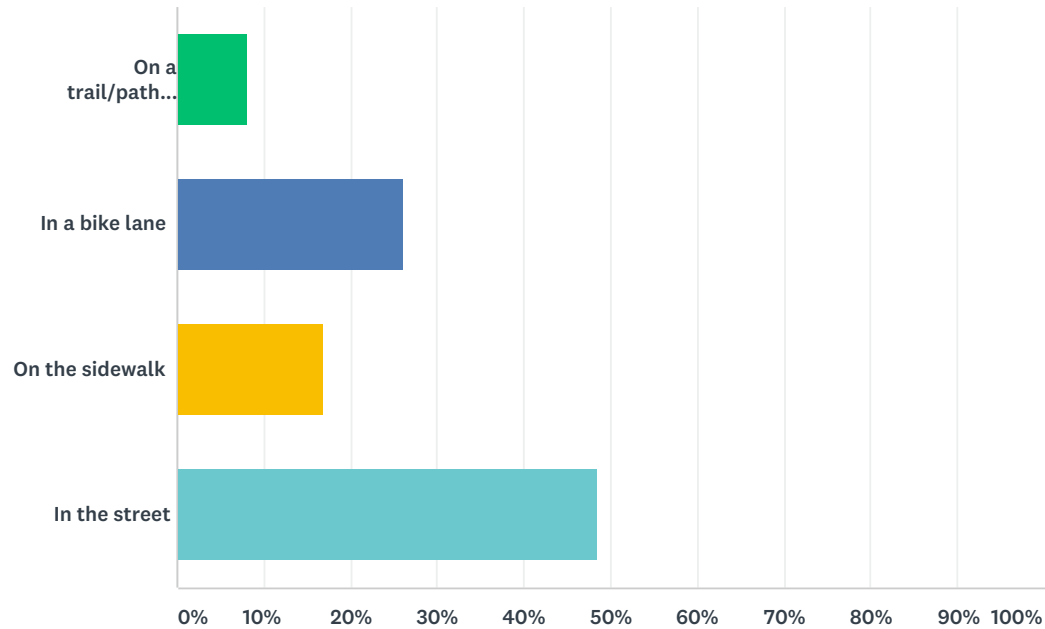
Answered: 982 Skipped: 1,932



ANSWER CHOICES	RESPONSES	
Personal vehicle (as driver or passenger)	46.23%	454
Taken an Uber, Lyft, or taxi	41.45%	407
Bus	6.82%	67
Metro (prior to the shutdown)	10.69%	105
Bicycle	12.73%	125
Walked	49.80%	489
I would not have made the trip	17.31%	170
Other	1.53%	15
Total Respondents: 982		

Q6 Where do you most frequently ride e-scooters in The City of Alexandria?

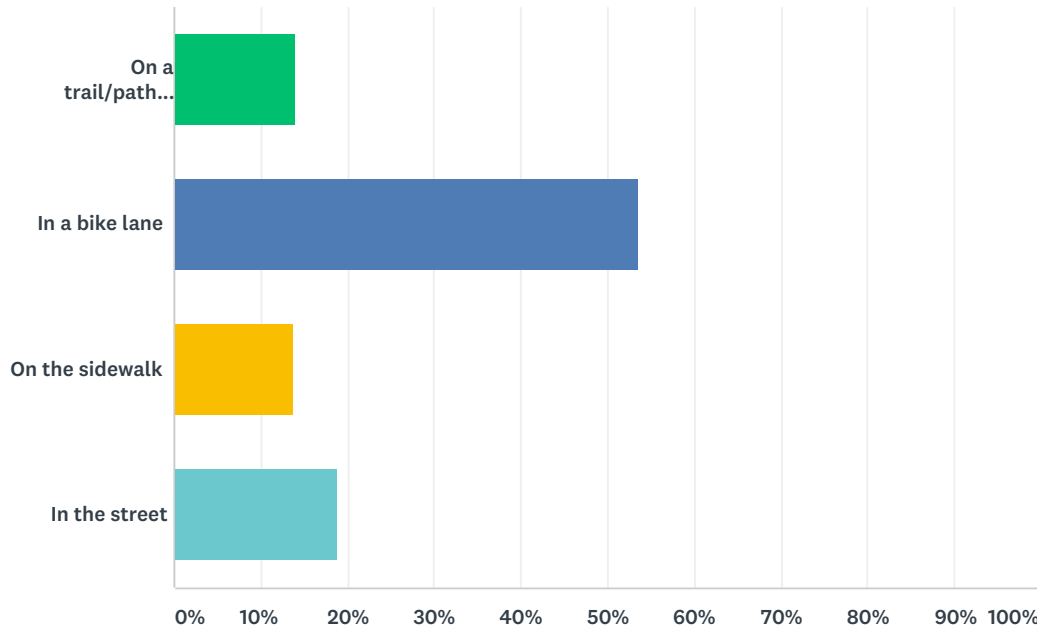
Answered: 982 Skipped: 1,932



ANSWER CHOICES	RESPONSES	
On a trail/path (e.g. Mt. Vernon Trail)	8.25%	81
In a bike lane	26.17%	257
On the sidewalk	17.01%	167
In the street	48.57%	477
TOTAL		982

Q7 Regardless of where you currently ride e-scooters, where would you most PREFER TO RIDE e-scooters in The City of Alexandria?

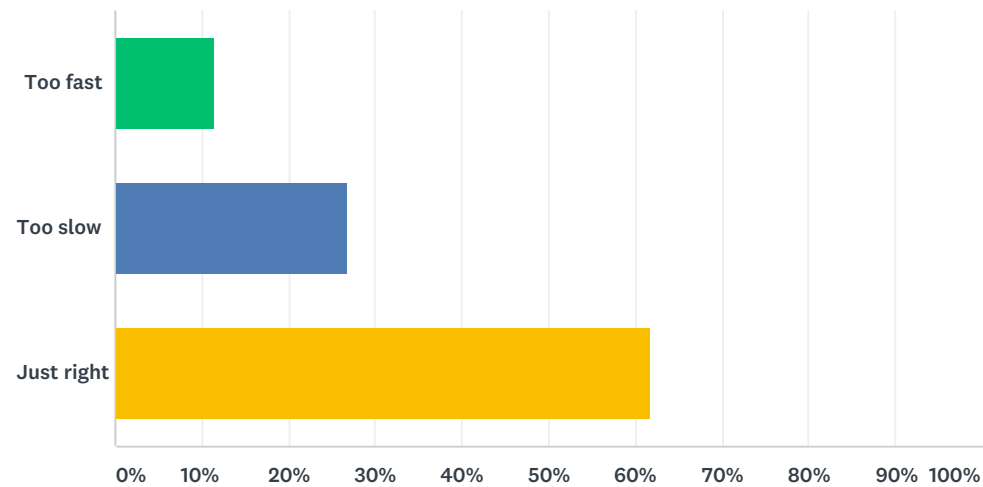
Answered: 982 Skipped: 1,932



ANSWER CHOICES	RESPONSES	
On a trail/path (e.g. Mt. Vernon Trail)	13.95%	137
In a bike lane	53.46%	525
On the sidewalk	13.75%	135
In the street	18.84%	185
TOTAL		982

Q8 How did you feel about the speed of e-scooters?

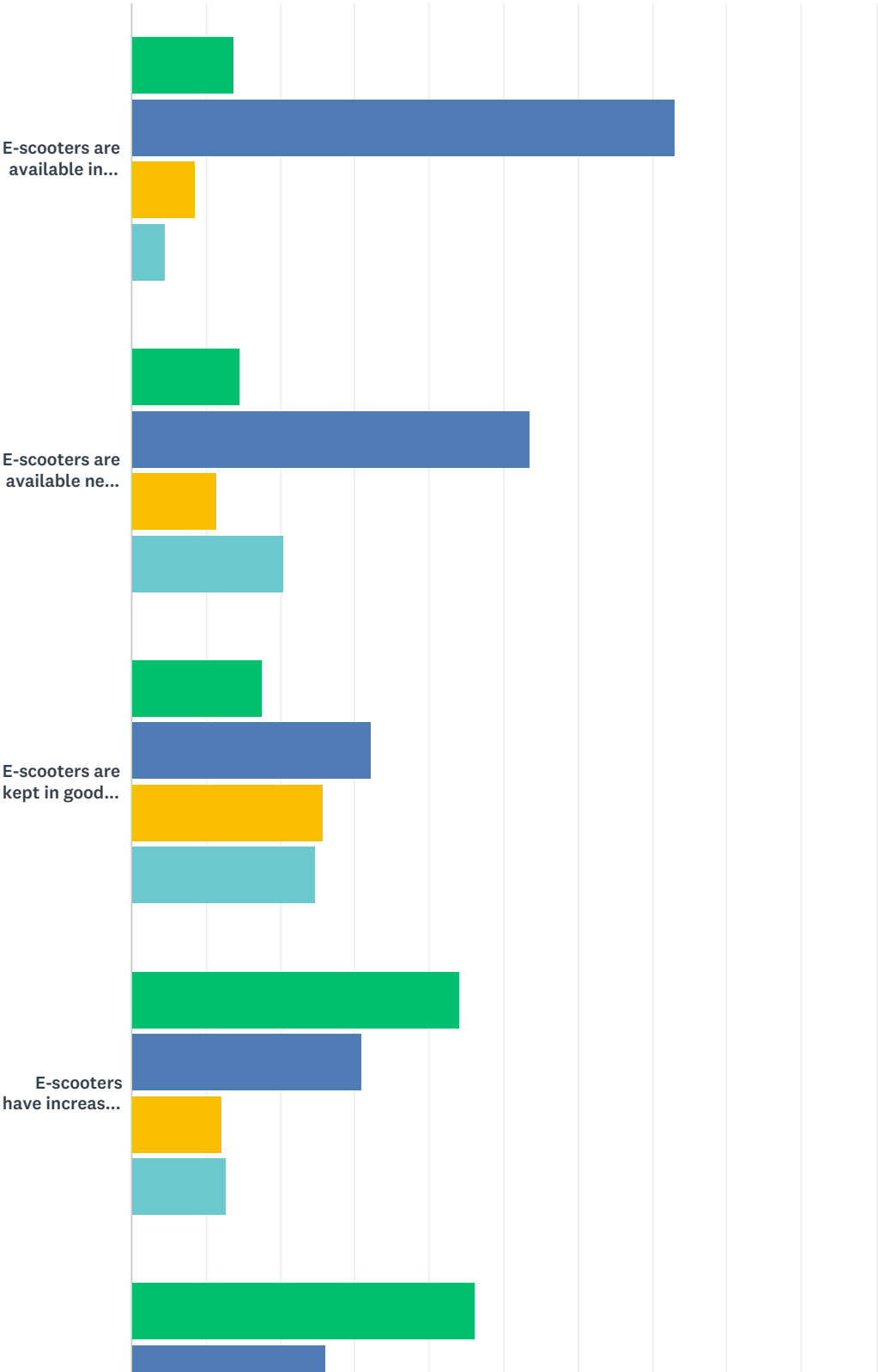
Answered: 982 Skipped: 1,932



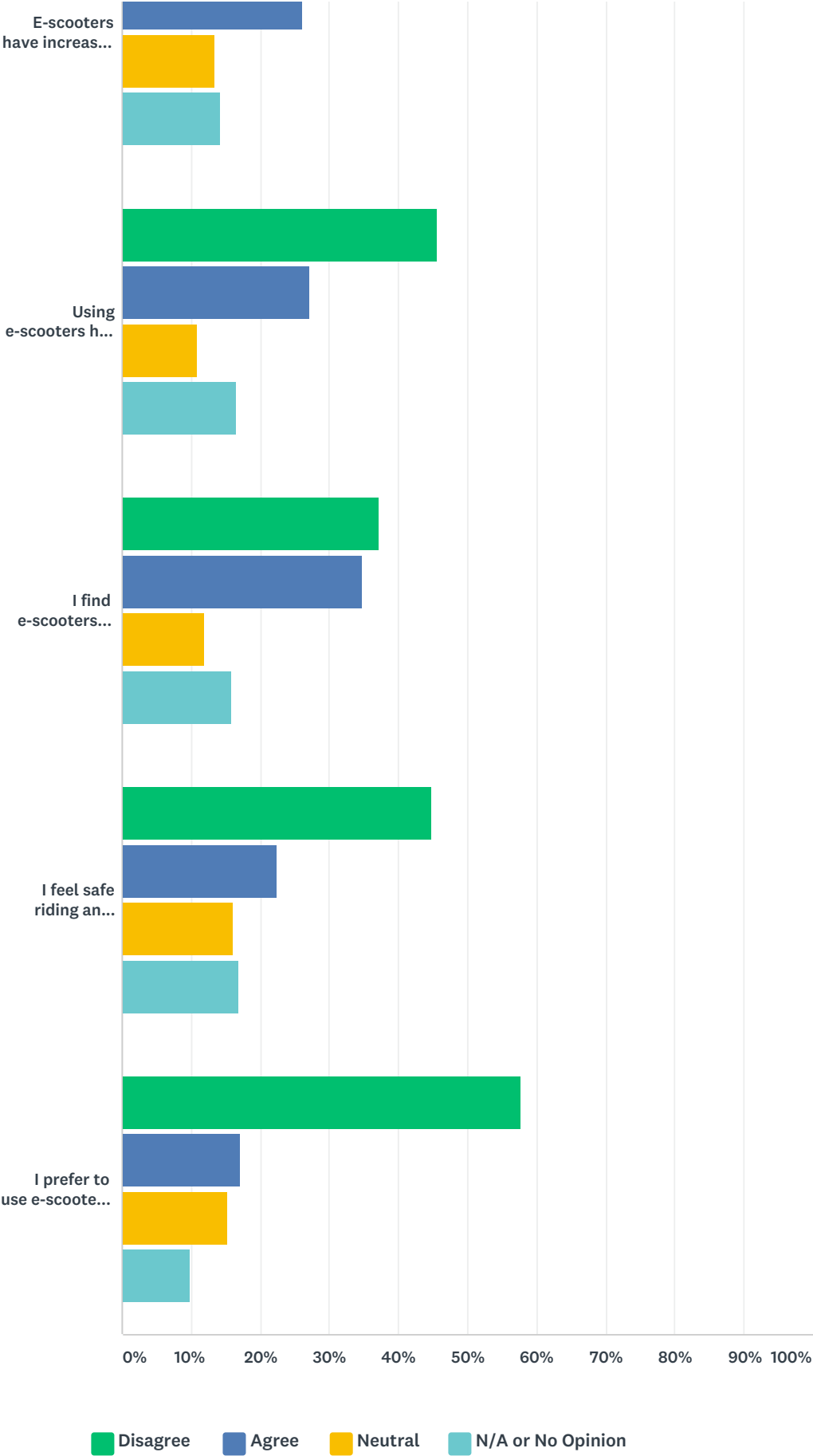
ANSWER CHOICES	RESPONSES	
Too fast	11.51%	113
Too slow	26.68%	262
Just right	61.81%	607
TOTAL		982

Q9 Please indicate your level of agreement or disagreement with the following statements about e-scooters in the City of Alexandria.
(Disagree, Neutral, Agree)

Answered: 2,563 Skipped: 351



Dockless Mobility Pilot Program Survey

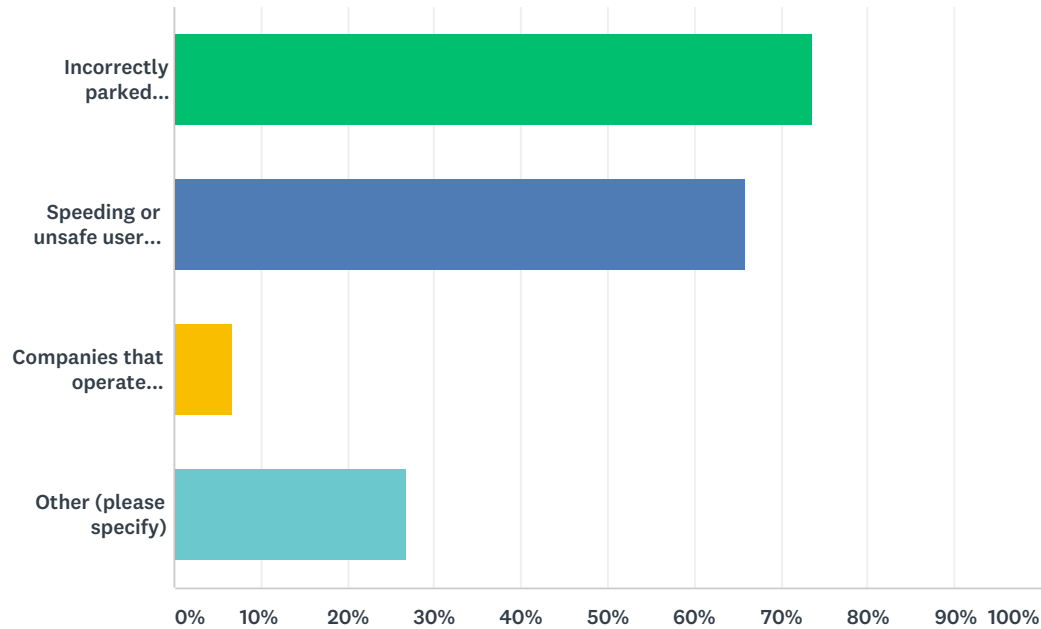


Dockless Mobility Pilot Program Survey

	DISAGREE	AGREE	NEUTRAL	N/A OR NO OPINION	TOTAL
E-scooters are available in my neighborhood.	13.83% 353	73.08% 1,865	8.50% 217	4.58% 117	2,552
E-scooters are available near my office/school.	14.55% 370	53.64% 1,364	11.40% 290	20.41% 519	2,543
E-scooters are kept in good working condition.	17.52% 444	32.12% 814	25.73% 652	24.63% 624	2,534
E-scooters have increased my ability to access destinations in and around Alexandria.	44.23% 1,126	31.03% 790	12.06% 307	12.69% 323	2,546
E-scooters have increased my access to public transportation in Alexandria.	46.22% 1,175	26.24% 667	13.30% 338	14.24% 362	2,542
Using e-scooters has decreased my need for parking.	45.53% 1,155	27.20% 690	10.80% 274	16.48% 418	2,537
I find e-scooters convenient, easy, and fun to ride.	37.29% 946	34.80% 883	11.90% 302	16.00% 406	2,537
I feel safe riding an e-scooter.	44.75% 1,134	22.34% 566	16.02% 406	16.89% 428	2,534
I prefer to use e-scooters over other transportation modes whenever possible.	57.72% 1,466	17.13% 435	15.24% 387	9.92% 252	2,540

Q10 What are the biggest issues with the e-scooters operating in the City? Please select your TOP 2.

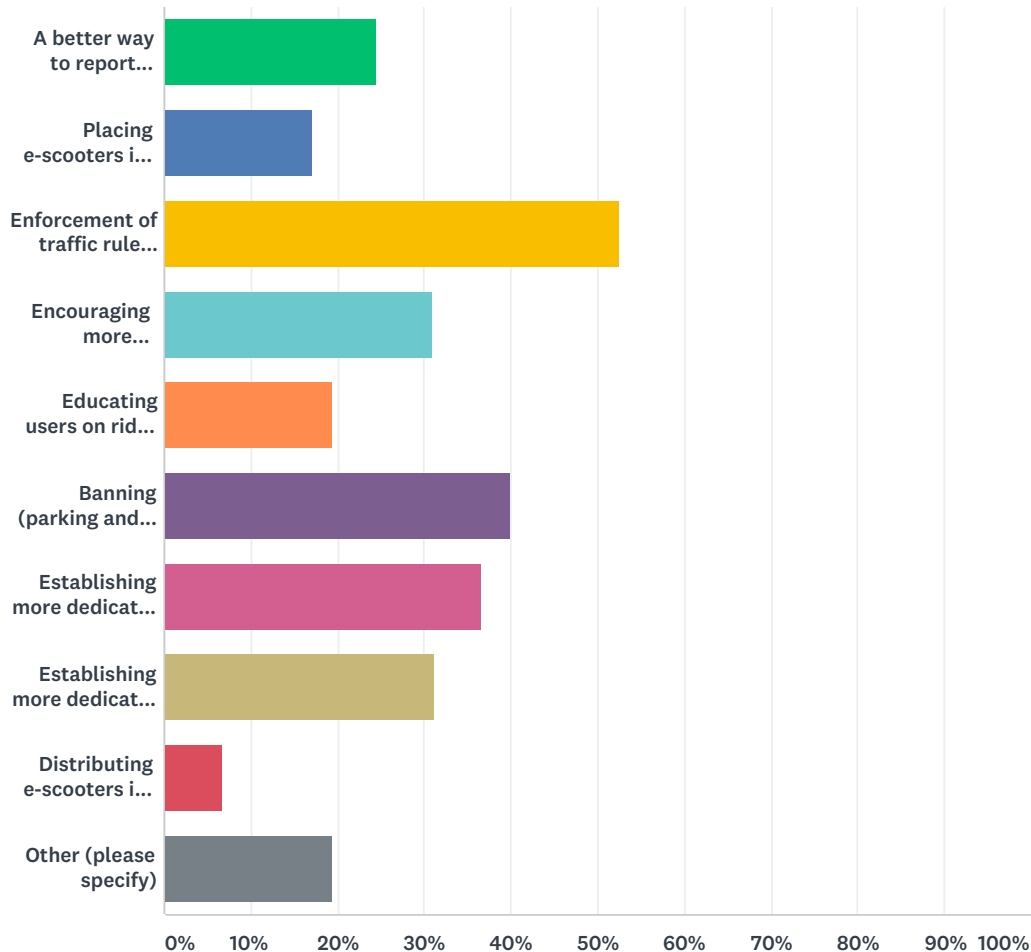
Answered: 2,563 Skipped: 351



ANSWER CHOICES	RESPONSES	
Incorrectly parked e-scooters	73.74%	1,890
Speeding or unsafe user behavior	65.86%	1,688
Companies that operate e-scooters don't respond quickly enough to customer requests	6.59%	169
Other (please specify)	26.80%	687
Total Respondents: 2,563		

Q11 What changes should the City consider to make the City's e-scooter management program more effective? Please select your TOP 3 choices.

Answered: 2,403 Skipped: 511

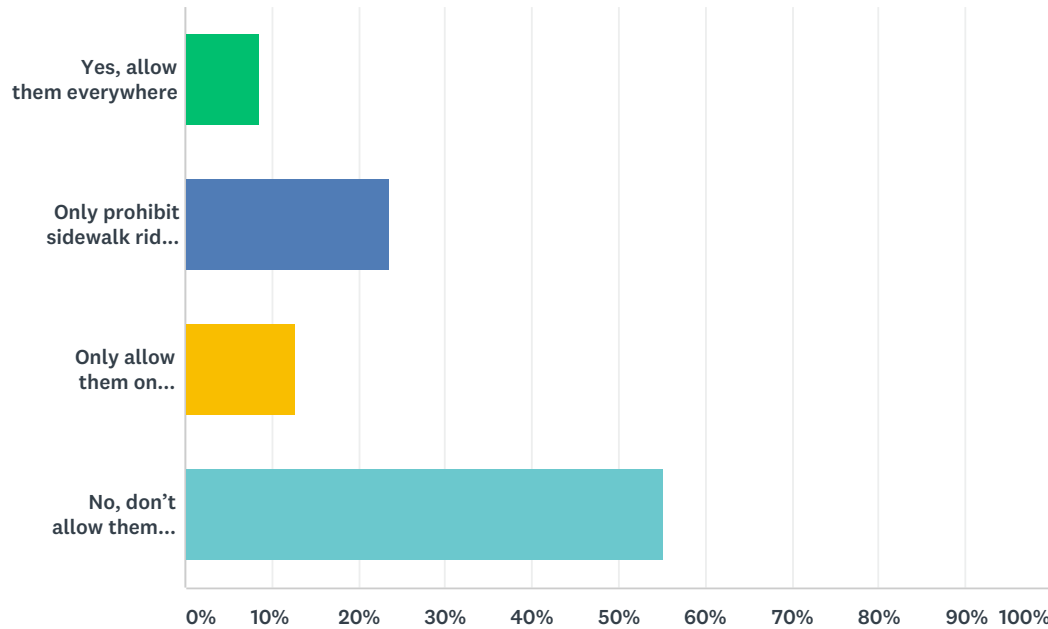


ANSWER CHOICES	RESPONSES	
A better way to report e-scooters left in inappropriate places	24.51%	589
Placing e-scooters in areas with limited transportation options	17.23%	414
Enforcement of traffic rules for e-scooter riders	52.43%	1,260
Encouraging more responsible parking of e-scooters	31.04%	746
Educating users on riding responsibly	19.56%	470
Banning (parking and riding) e-scooters in certain areas	39.95%	960
Establishing more dedicated space for parking e-scooters off of sidewalks	36.66%	881
Establishing more dedicated space for riding e-scooters off of sidewalks in areas with high usage	31.13%	748
Distributing e-scooters in lower-income areas	6.62%	159
Other (please specify)	19.39%	466

Total Respondents: 2,403

Q12 Do you think people should be allowed to ride e-scooters on the sidewalk?

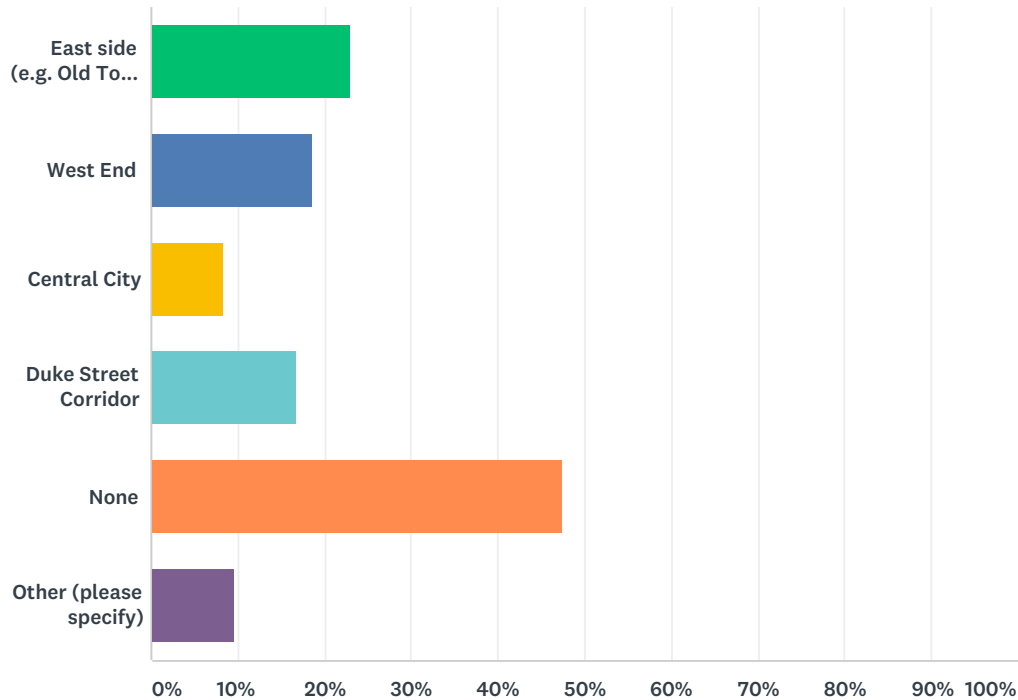
Answered: 2,403 Skipped: 511



ANSWER CHOICES	RESPONSES	
Yes, allow them everywhere	8.49%	204
Only prohibit sidewalk riding in certain areas with high pedestrian activity like Old Town and Del Ray	23.60%	567
Only allow them on sidewalks on streets with lots of vehicular traffic	12.78%	307
No, don't allow them anywhere on the sidewalk	55.14%	1,325
TOTAL		2,403

Q13 In general, where in the City do you wish more scooters were available? (Select all that apply)

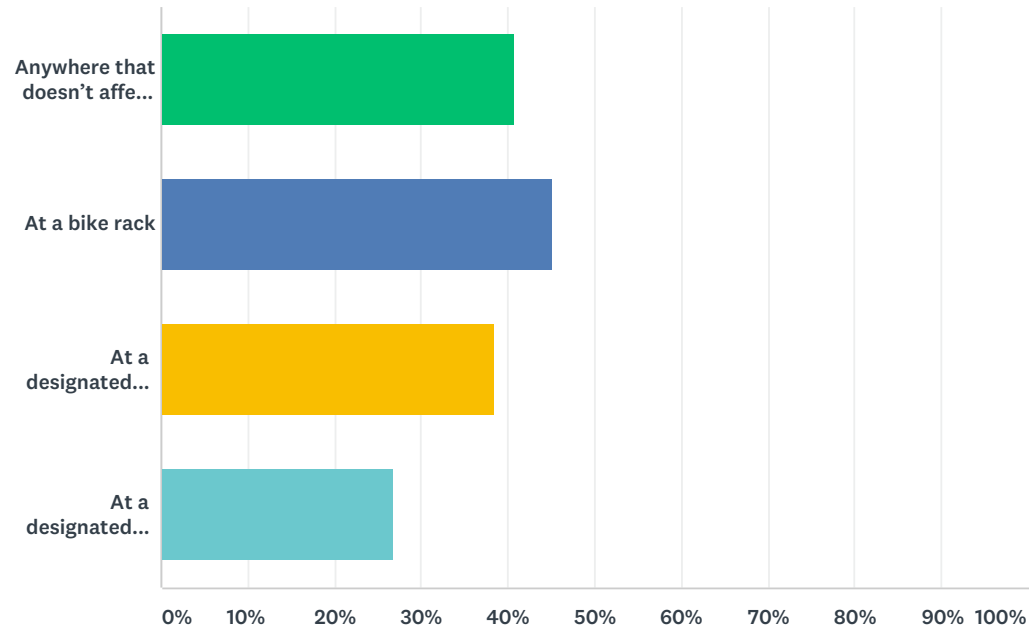
Answered: 2,403 Skipped: 511



ANSWER CHOICES	RESPONSES	
East side (e.g. Old Town, Del Ray, Potomac Yard)	23.10%	555
West End	18.60%	447
Central City	8.41%	202
Duke Street Corridor	16.77%	403
None	47.44%	1,140
Other (please specify)	9.57%	230
Total Respondents: 2,403		

Q14 Where do you think e-scooters should be parked? (Select all that apply)

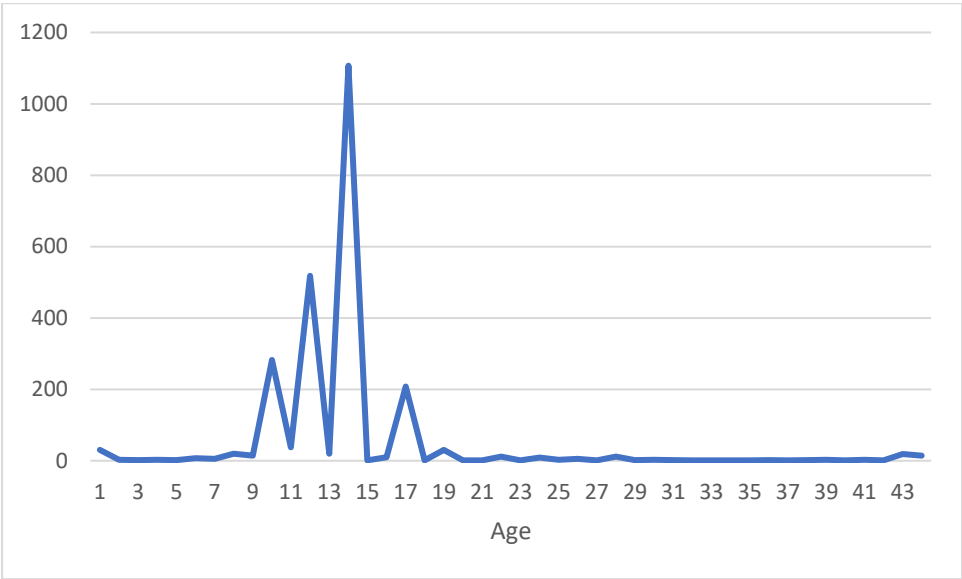
Answered: 2,403 Skipped: 511



ANSWER CHOICES	RESPONSES	
Anywhere that doesn't affect public safety	40.87%	982
At a bike rack	45.15%	1,085
At a designated space on the street	38.49%	925
At a designated space on the sidewalk	26.67%	641
Total Respondents: 2,403		

Q15 The current age limit to ride scooters is 14 years old. The age limit set by the scooter company user agreement is 18 years old. What do you think the age limit should be?

Answered: 2,403 Skipped: 511

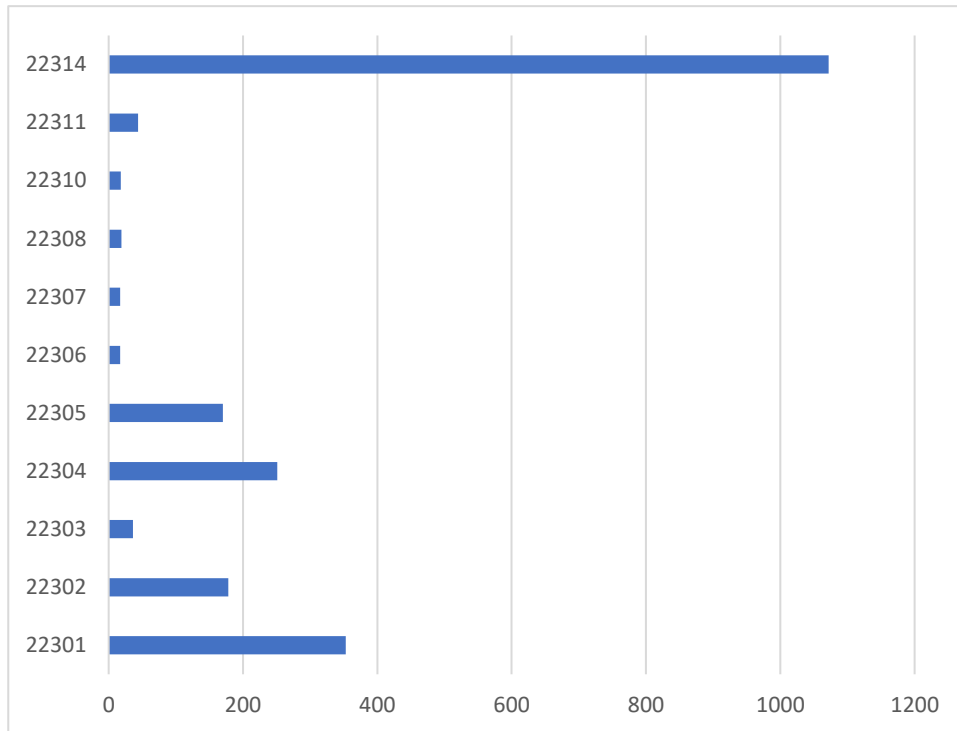


Dockless Mobility Pilot Program Survey

FREE ANSWERS	RESPONSES	
0	1.25%	30
1	0.12%	3
5	0.08%	2
6	0.12%	3
8	0.08%	2
10	0.29%	7
11	0.21%	5
12	0.83%	20
13	0.58%	14
14	11.74%	282
15	1.58%	38
16	21.56%	518
17	0.83%	20
18	46.07%	1107
19	0.04%	1
20	0.42%	10
21	8.66%	208
24	0.04%	1
25	1.25%	30
26	0.04%	1
28	0.04%	1
30	0.50%	12
33	0.04%	1
35	0.37%	9
40	0.12%	3
45	0.21%	5
48	0.04%	1
50	0.50%	12
55	0.08%	2
60	0.12%	3
65	0.08%	2
67	0.04%	1
69	0.04%	1
70	0.04%	1
75	0.04%	1
80	0.08%	2
83	0.04%	1
85	0.08%	2
90	0.12%	3
93	0.04%	1
95	0.12%	3
96	0.04%	1
99	0.79%	19
100	0.58%	14
Total Respondents: 2,403		

Q16 Home Zip Code

Answered: 2,333 Skipped: 581

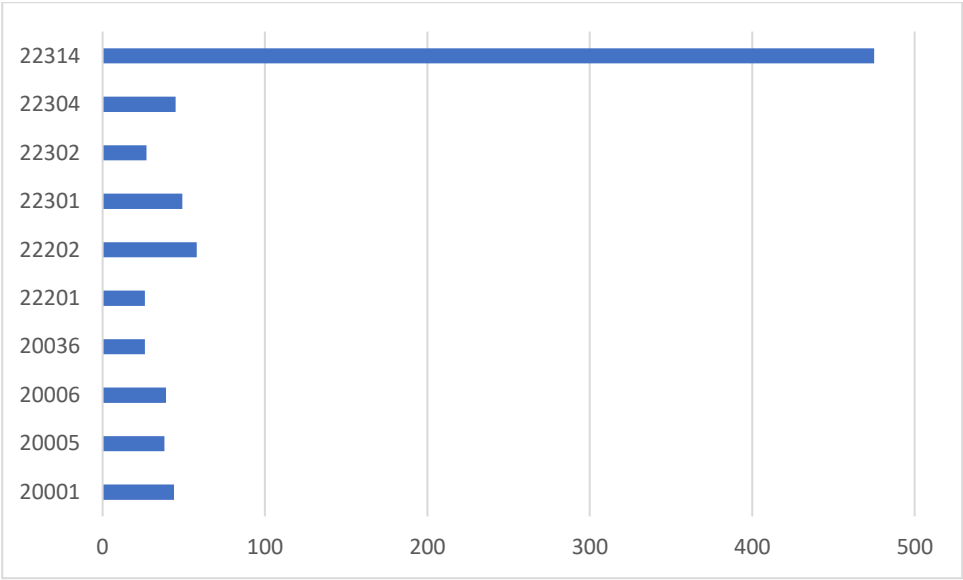


*Top ten responses.

FREE ANSWERS	RESPONSES	
22314	46.07%	1072
22301	15.17%	353
22304	10.79%	251
22302	7.65%	178
22305	7.31%	170
22311	1.89%	44
22303	1.55%	36
22308	0.82%	19
22310	0.77%	18
22306	0.73%	17
22307	0.73%	17
22312	0.69%	16
22309	0.43%	10
22202	0.34%	8
22315	0.26%	6
22204	0.17%	4
Other (Less than 5 respondents)	4.64%	108
Total Respondents: 2,327		

Q17 Work Zip Code or N/A

Answered: 2,333 Skipped: 581



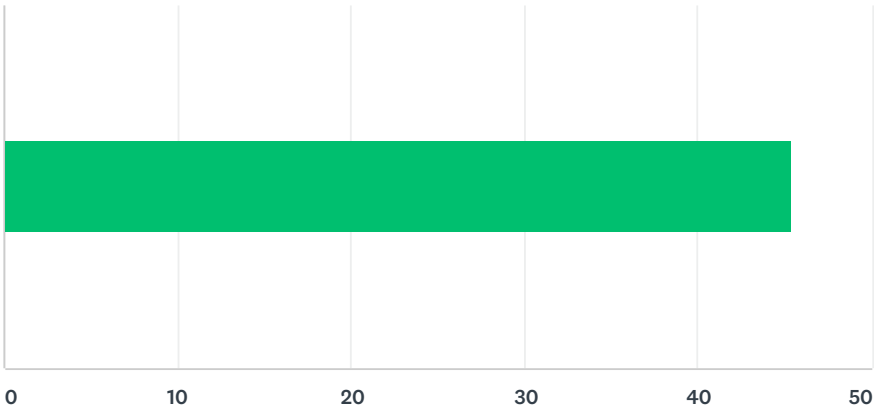
*Top ten responses.

Dockless Mobility Pilot Program Survey

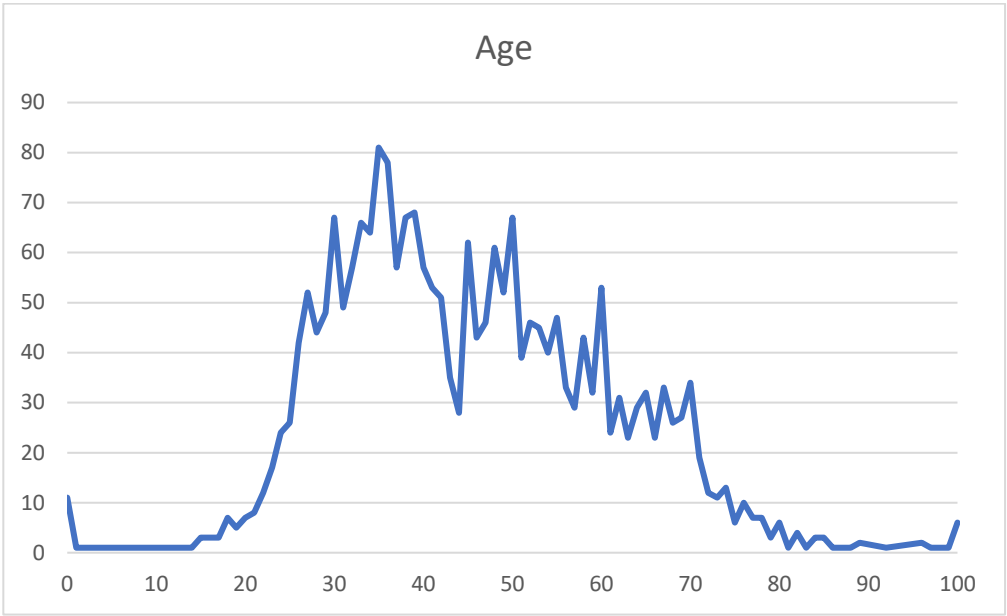
FREE ANSWERS	RESPONSES	
22314	35.93%	475
22202	4.39%	58
22301	3.71%	49
22304	3.40%	45
20001	3.33%	44
20006	2.95%	39
20005	2.87%	38
22302	2.04%	27
20036	1.97%	26
22201	1.97%	26
20002	1.44%	19
22209	1.44%	19
20004	1.29%	17
22203	1.29%	17
22305	1.29%	17
22311	1.29%	17
20003	1.13%	15
20007	0.98%	13
20024	0.83%	11
22102	0.83%	11
22060	0.76%	10
22030	0.68%	9
22315	0.68%	9
20037	0.61%	8
22204	0.61%	8
22310	0.53%	7
20585	0.45%	6
20590	0.45%	6
22041	0.45%	6
22182	0.45%	6
20375	0.38%	5
20510	0.38%	5
20515	0.38%	5
22042	0.38%	5
22206	0.38%	5
Other (Less than 5 respondents)	18.08%	239
Total Respondents: 1,322		

Q18 Age

Answered: 2,333 Skipped: 581



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	45	105,912	2,333
Total Respondents: 2,333			



Dockless Mobility Pilot Program Survey

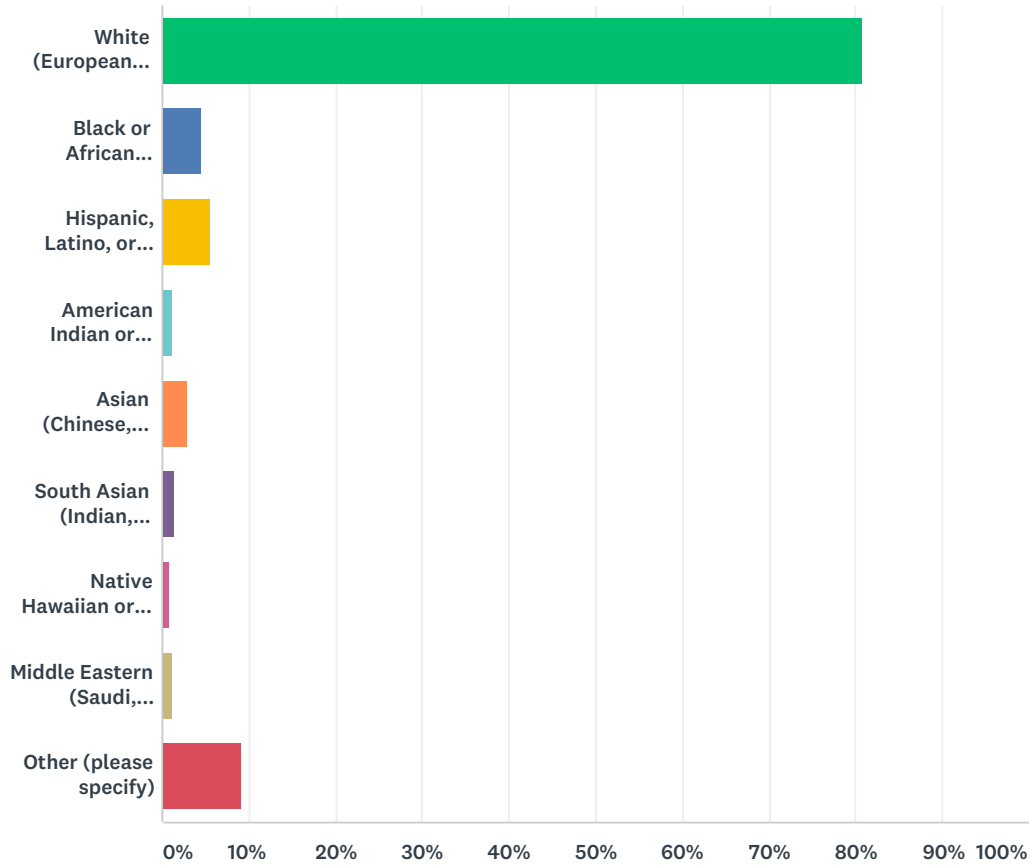
FREE ANSWER	RESPONSES	
0	0.47%	11
1	0.04%	1
2	0.04%	1
5	0.04%	1
13	0.04%	1
14	0.04%	1
15	0.13%	3
17	0.13%	3
18	0.30%	7
19	0.21%	5
20	0.30%	7
21	0.34%	8
22	0.51%	12
23	0.73%	17
24	1.03%	24
25	1.11%	26
26	1.80%	42
27	2.23%	52
28	1.89%	44
29	2.06%	48
30	2.87%	67
31	2.10%	49
32	2.44%	57
33	2.83%	66
34	2.74%	64
35	3.47%	81
36	3.34%	78
37	2.44%	57
38	2.87%	67
39	2.91%	68
40	2.44%	57
41	2.27%	53
42	2.19%	51
43	1.50%	35
44	1.20%	28
45	2.66%	62
46	1.84%	43
47	1.97%	46
48	2.61%	61
49	2.23%	52
50	2.87%	67
51	1.67%	39

Dockless Mobility Pilot Program Survey

52	1.97%	46
53	1.93%	45
54	1.71%	40
55	2.01%	47
56	1.41%	33
57	1.24%	29
58	1.84%	43
59	1.37%	32
60	2.27%	53
61	1.03%	24
62	1.33%	31
63	0.99%	23
64	1.24%	29
65	1.37%	32
66	0.99%	23
67	1.41%	33
68	1.11%	26
69	1.16%	27
70	1.46%	34
71	0.81%	19
72	0.51%	12
73	0.47%	11
74	0.56%	13
75	0.26%	6
76	0.43%	10
77	0.30%	7
78	0.30%	7
79	0.13%	3
80	0.26%	6
81	0.04%	1
82	0.17%	4
83	0.04%	1
84	0.13%	3
85	0.13%	3
86	0.04%	1
88	0.04%	1
89	0.09%	2
92	0.04%	1
96	0.09%	2
97	0.04%	1
99	0.04%	1
100	0.26%	6
Total Respondents: 2,333		

Q19 Please identify your race/origin by selecting all that apply.

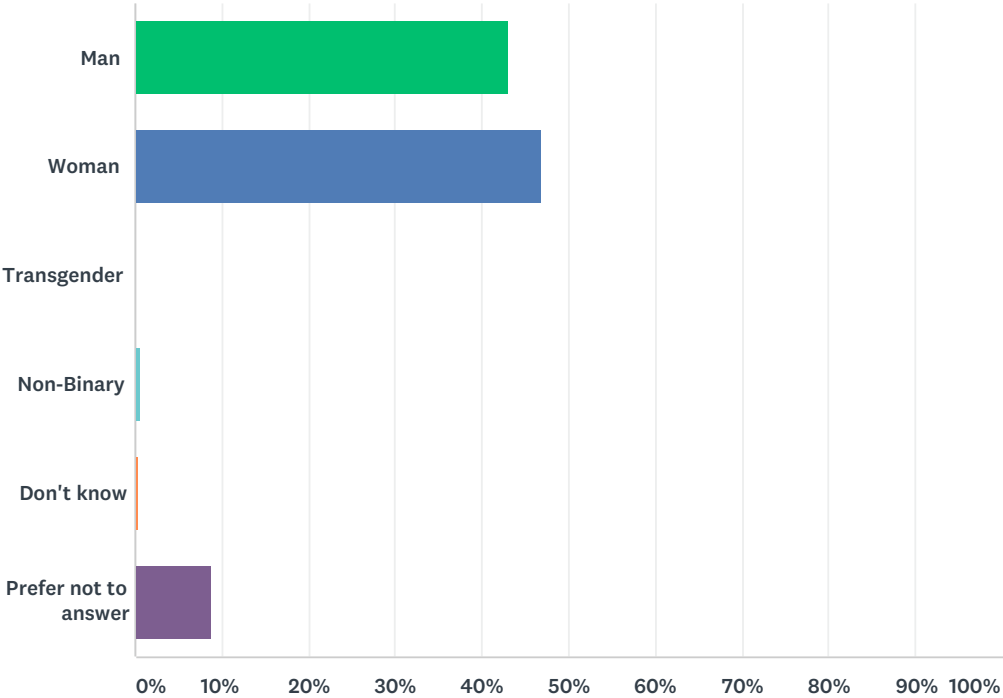
Answered: 2,333 Skipped: 581



ANSWER CHOICES	RESPONSES	
White (European origin)	80.84%	1,886
Black or African American (African, Caribbean, etc.)	4.50%	105
Hispanic, Latino, or Spanish origin	5.62%	131
American Indian or Alaska Native	1.33%	31
Asian (Chinese, Japanese, Korean, Vietnamese, Thai, Mongolian, etc.)	2.91%	68
South Asian (Indian, Pakistani, Nepalese, Afghani, etc.)	1.41%	33
Native Hawaiian or Pacific Islander	0.81%	19
Middle Eastern (Saudi, Lebanese, Moroccan, Iranian, Turkish etc.)	1.29%	30
Other (please specify)	9.30%	217
Total Respondents: 2,333		

Q20 With what gender do you most closely identify?

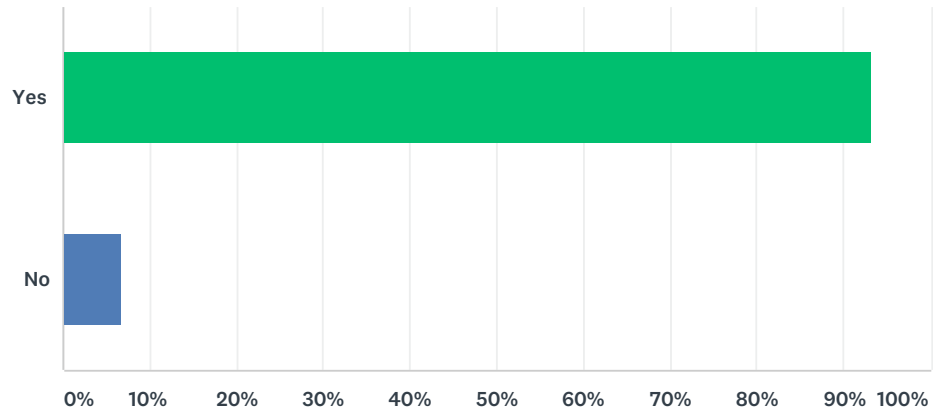
Answered: 2,333 Skipped: 581



ANSWER CHOICES	RESPONSES	
Man	42.99%	1,003
Woman	46.89%	1,094
Transgender	0.26%	6
Non-Binary	0.60%	14
Don't know	0.47%	11
Prefer not to answer	8.79%	205
TOTAL		2,333

Q21 Do you have access to a motor vehicle that you or someone in your household owns?

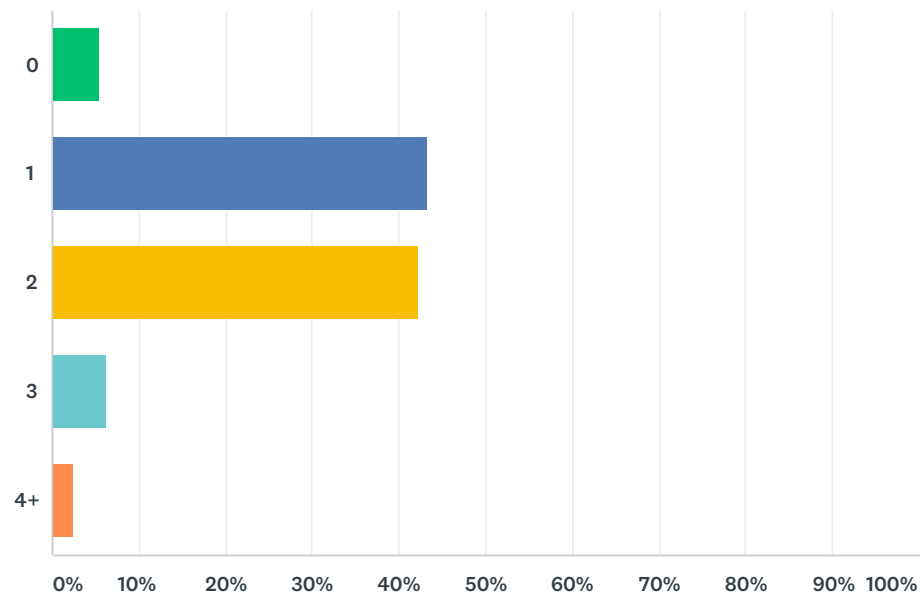
Answered: 2,333 Skipped: 581



ANSWER CHOICES	RESPONSES	
Yes	93.36%	2,178
No	6.64%	155
TOTAL		2,333

Q22 How many motor vehicles are owned by your household?

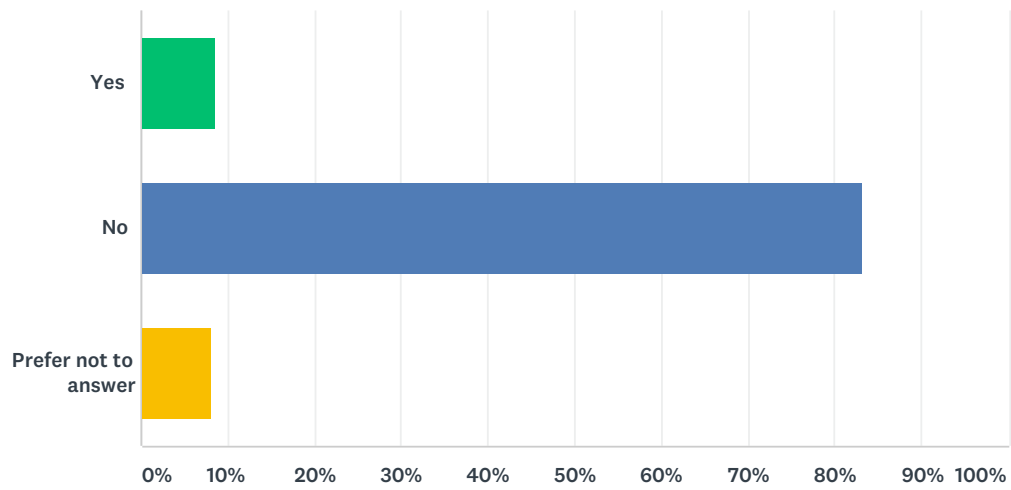
Answered: 2,333 Skipped: 581



ANSWER CHOICES	RESPONSES	
0	5.53%	129
1	43.33%	1,011
2	42.35%	988
3	6.30%	147
4+	2.49%	58
TOTAL		2,333

Q23 Do you identify with having or living with a disability?

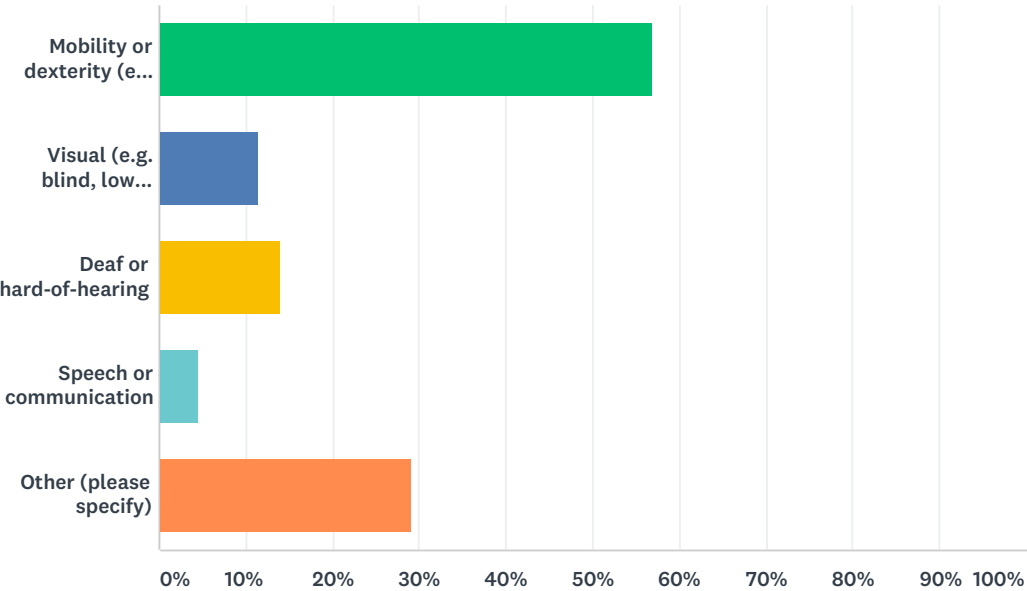
Answered: 2,333 Skipped: 581



ANSWER CHOICES	RESPONSES	
Yes	8.49%	198
No	83.33%	1,944
Prefer not to answer	8.19%	191
TOTAL		2,333

Q24 Please describe the nature of your disability. Select all that apply:

Answered: 200 Skipped: 2,714



ANSWER CHOICES	RESPONSES	
Mobility or dexterity (e.g. walking, climbing stairs)	57.00%	114
Visual (e.g. blind, low vision)	11.50%	23
Deaf or hard-of-hearing	14.00%	28
Speech or communication	4.50%	9
Other (please specify)	29.00%	58
Total Respondents: 200		

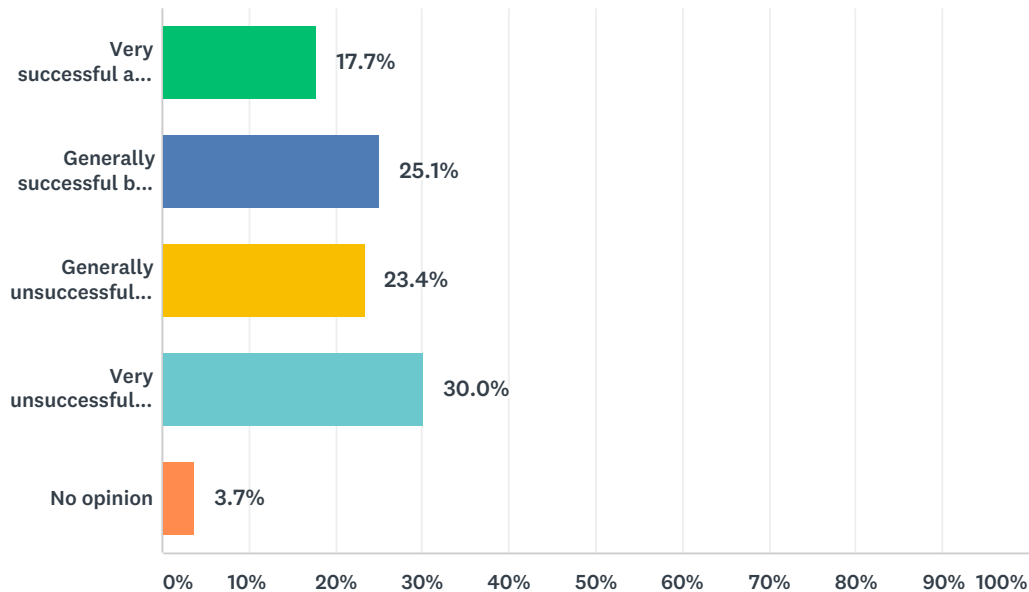


Appendix B

**Draft Recommendations
Feedback Form Results**

Q1 The City launched a pilot program in January 2019 permitting scooter companies to operate in the City under certain guidelines including that they pay a fee, provide trip data and work with the City to address ongoing concerns. Do you consider the pilot program to be:

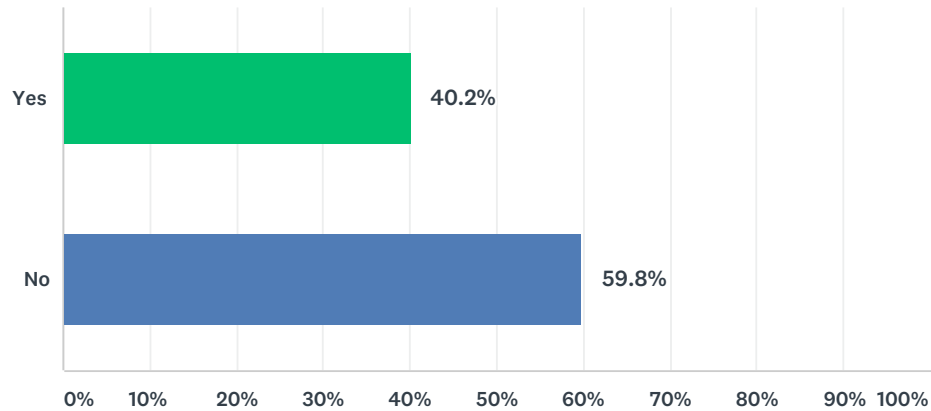
Answered: 829 Skipped: 0



ANSWER CHOICES	RESPONSES	
Very successful and it should continue	17.7%	147
Generally successful but needs some adjustments if it continues	25.1%	208
Generally unsuccessful & needs to be substantially improved if it continues	23.4%	194
Very unsuccessful & it should be discontinued	30.0%	249
No opinion	3.7%	31
TOTAL		829

Q2 Have you ridden a scooter?

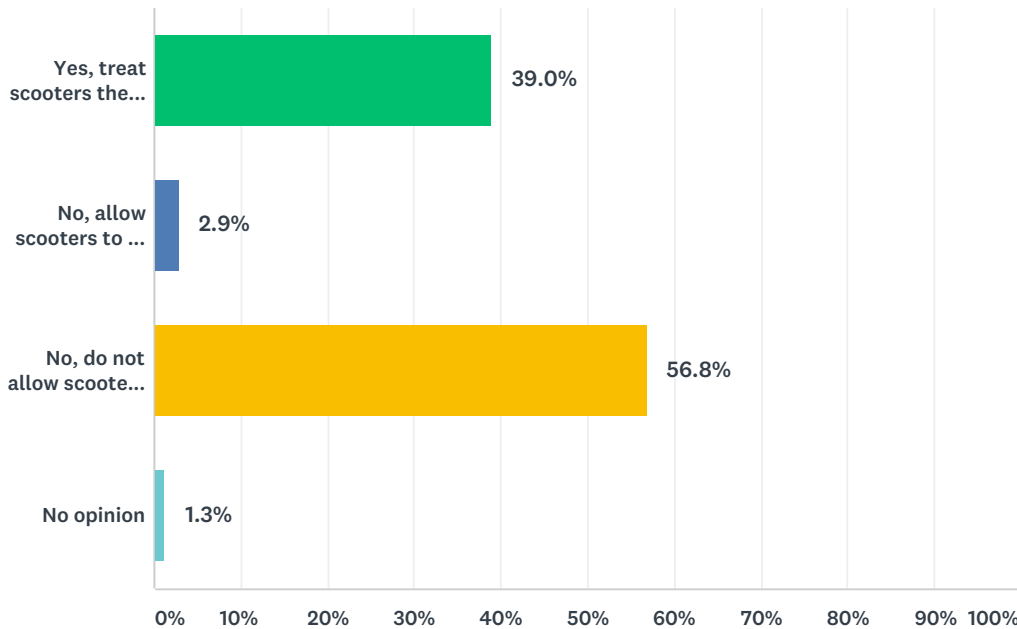
Answered: 829 Skipped: 0



ANSWER CHOICES		RESPONSES	
Yes		40.2%	333
No		59.8%	496
TOTAL			829

Q3 RIDING ON SIDEWALKS: Bicycles are currently allowed to ride on sidewalks except where they are specifically banned (such as King Street and Union Street). The Phase II proposal considers allowing scooters to be ridden on sidewalks in the same locations where bicycles are permitted to ride. Do you support this recommendation?

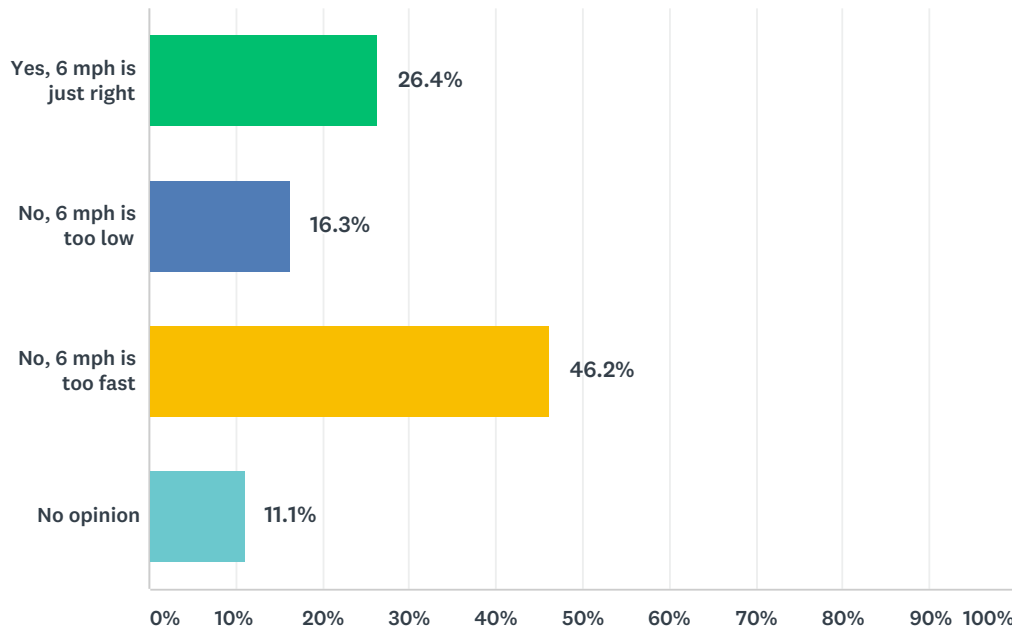
Answered: 829 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, treat scooters the same as bicycles	39.0%	323
No, allow scooters to be ridden on any sidewalk	2.9%	24
No, do not allow scooters to be ridden on any sidewalk	56.8%	471
No opinion	1.3%	11
TOTAL		829

Q4 SPEED LIMIT: The Phase II proposal considers allowing scooters to be ridden on sidewalks except where explicitly banned. If scooters are allowed, would you support implementing a speed limit of 6 mph for riding on sidewalks?

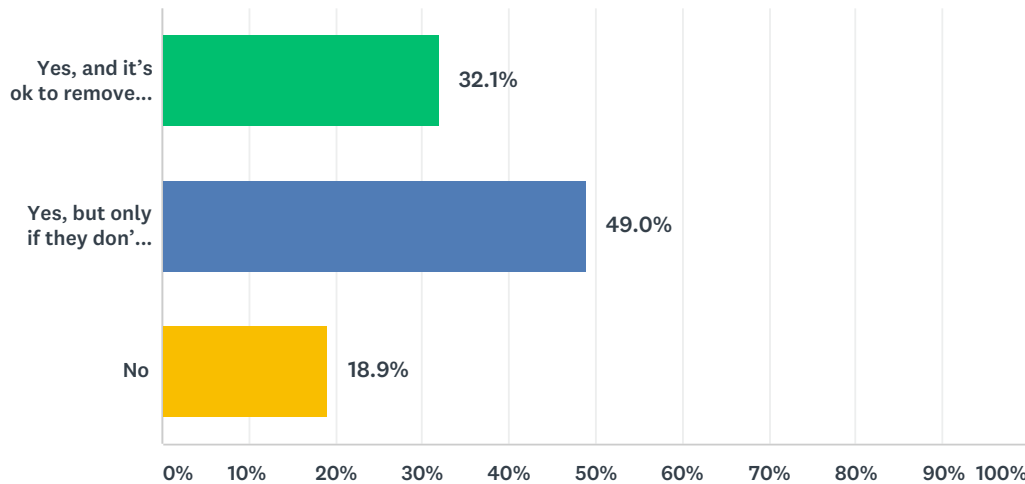
Answered: 829 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, 6 mph is just right	26.4%	219
No, 6 mph is too low	16.3%	135
No, 6 mph is too fast	46.2%	383
No opinion	11.1%	92
TOTAL		829

Q5 PARKING CORRALS: The City has installed on-street scooter parking corrals in high-use areas (no parking was removed) and is considering additional locations in Phase II. Would you support the installation of additional parking corrals?

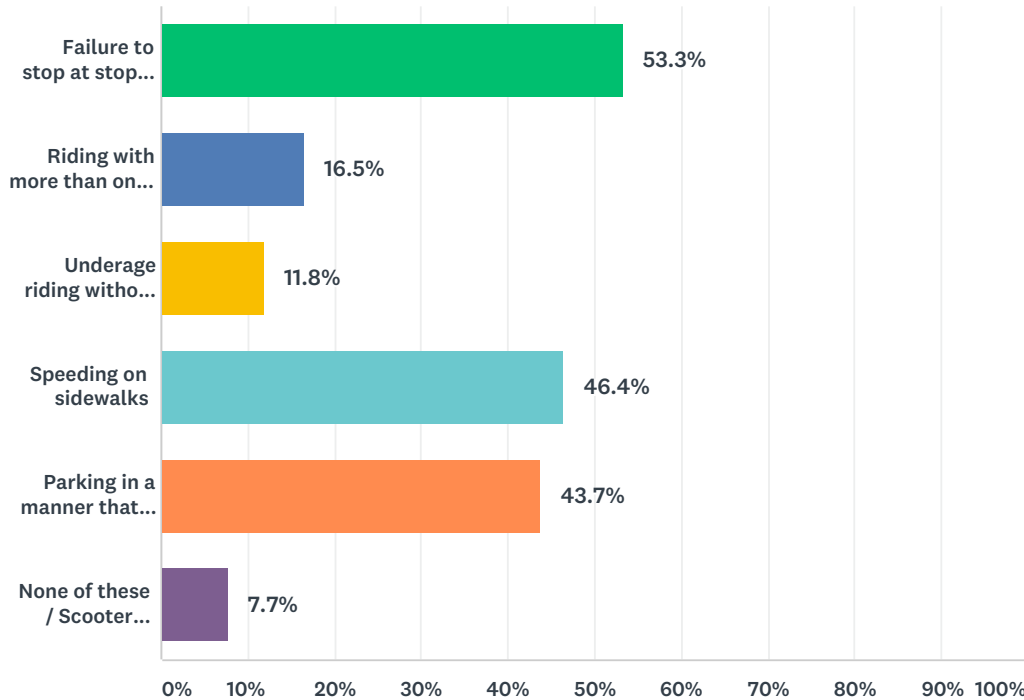
Answered: 829 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, and it's ok to remove some parking if it's a high demand area.	32.1%	266
Yes, but only if they don't remove existing parking.	49.0%	406
No	18.9%	157
TOTAL		829

Q6 ENFORCEMENT: Throughout the pilot, the community indicated that enforcement of scooter usage was a concern. Which of the following safety issues do you think should be the highest priority for enforcement?
(select up to 2)

Answered: 829 Skipped: 0



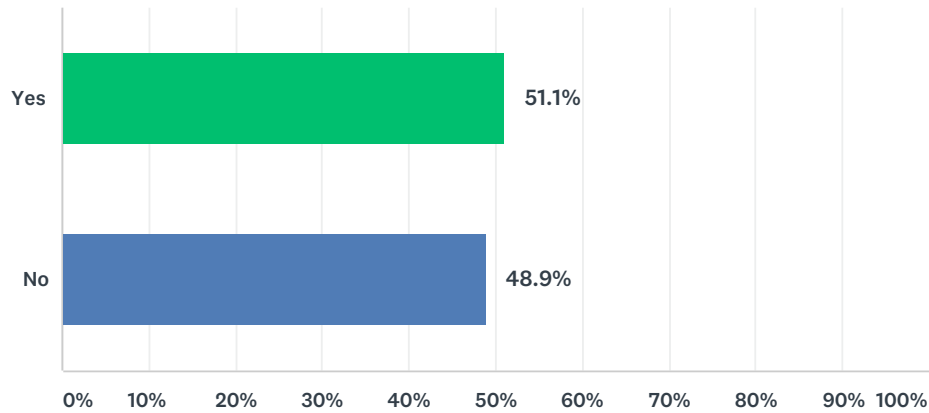
ANSWER CHOICES	RESPONSES	
Failure to stop at stop signs or red lights	53.3%	442
Riding with more than one person on a scooter	16.5%	137
Underage riding without a helmet	11.8%	98
Speeding on sidewalks	46.4%	385
Parking in a manner that impedes pedestrian traffic	43.7%	362
None of these / Scooter enforcement is not a high priority	7.7%	64
Total Respondents: 829		

Q7 As part of the Draft Recommendation, the City is also proposing to:
Convene an Ad-Hoc Scooter Task force
Require company participation in income-based discount programs
Host community education and outreach events
Evaluate a streamlined reporting process
Identify "equity zones"
Install additional parking corrals
Require a 15mph speed limit on devices
Install "no-ride zone" (such as the Waterfront)
Should anything else be considered as part of a Phase II pilot?

Answered: 451 Skipped: 378

Q8 RECOMMENDATION: If the City were to make changes to the existing program per the Draft Recommendation, would you support a Phase II Pilot in 2020?

Answered: 829 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	51.1%	424
No	48.9%	405
TOTAL		829

Q9 Home Zip Code

Answered: 765 Skipped: 64

Question 9: Home Zip Code	
Response	Count
22314	386
22301	144
22305	54
22302	52
22304	47
22303	9
22311	7
32304	4
20003	2
22150	2
22306	2
22307	2
22309	2
22324	2
22394	2
32301	2
32303	2
2231	1
2314	1
8889	1
10453	1
14618	1
20001	1
20007	1
20008	1
20010	1
20019	1
20032	1
20110	1
20147	1
20715	1
20744	1
22030	1
22032	1
22046	1
22079	1
22151	1
22181	1
22193	1
22201	1
22202	1

Response	Count
22310	1
22313	1
22315	1
22414	1
32305	1
32308	1
32310	1
33496	1
34110	1
34747	1
66502	1
98103	1
223022800	1
223141355	1
225531879	1
-	1
22311-1808	1
22314-2512	1
22314-4331	1
223-2	1
(blank)	
Total Responses	765

Q10 Work Zip Code or N/A

Answered: 709 Skipped: 120

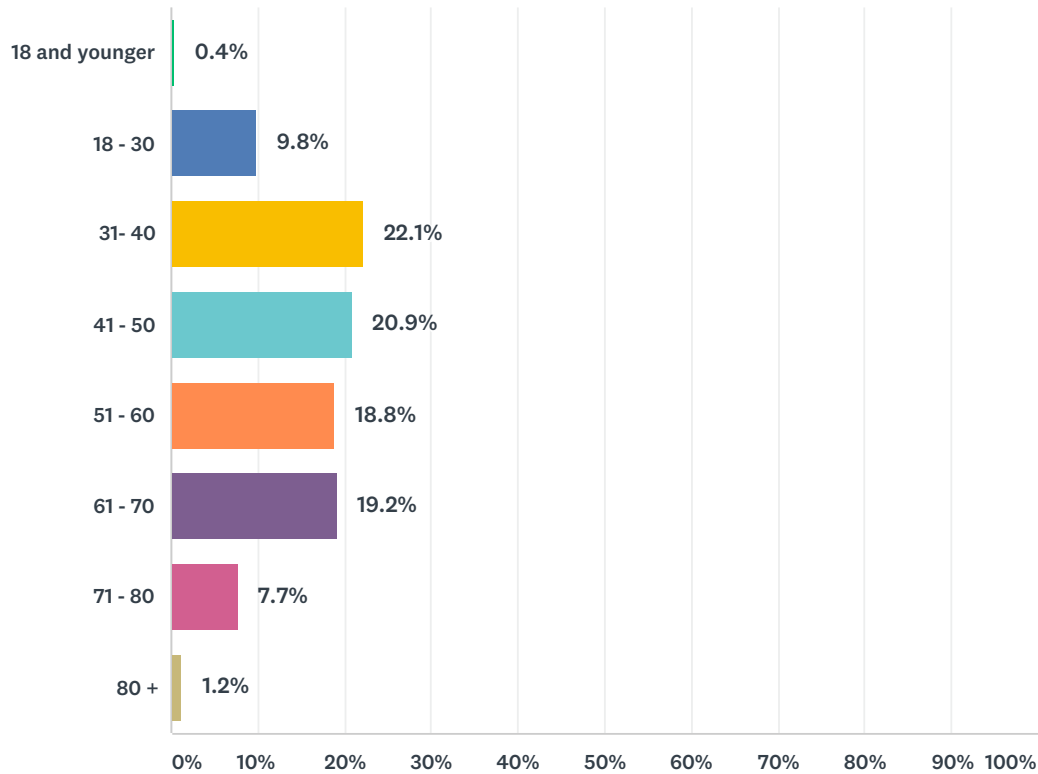
Question 10: Work Zip Code	
Response	Count
N/A	199
22314	196
22301	24
22302	19
20006	16
22202	16
20001	14
20005	13
22304	13
22305	13
20003	7
20004	7
20036	7
22201	6
22209	6
20002	5
20009	4
20024	4
20037	4
22311	4
20052	3
20585	3
22042	3
22134	3
22203	3
22312	3
20016	2
20301	2
20330	2
20374	2
20515	2
20530	2
20535	2
20548	2
20590	2
22031	2
22079	2
22102	2
22205	2
22310	2
22315	2
22324	2
32301	2

Question 10: Work Zip Code	
Response	Count
20740	1
20743	1
20814	1
20817	1
2005	1
2220	1
10453	1
14618	1
18974	1
20010	1
20014	1
20015	1
20022	1
20070	1
20163	1
20166	1
20175	1
20191	1
20201	1
20202	1
20219	1
20221	1
20250	1
20375	1
20390	1
20405	1
20407	1
20410	1
20433	1
20460	1
20510	1
20520	1
20523	1
20524	1
20540	1
20545	1
20560	1
20580	1
20581	1
20591	1
20594	1
20705	1
20715	1

Question 10: Work Zip Code	
Response	Count
20852	1
22001	1
22003	1
22025	1
22030	1
22032	1
22035	1
22041	1
22043	1
22124	1
22135	1
22141	1
22150	1
22152	1
22182	1
22204	1
22207	1
22303	1
22306	1
22309	1
22350	1
22520	1
22705	1
29375	1
32304	1
32310	1
32312	1
98103	1
234140	1
/a	1
22311-1808	1
22314-1355	1
22314-2512	1
23302&	1
32304 on	1
BS16 1FN	1
DC	1
(blank)	
Total Responses	709

Q11 Age

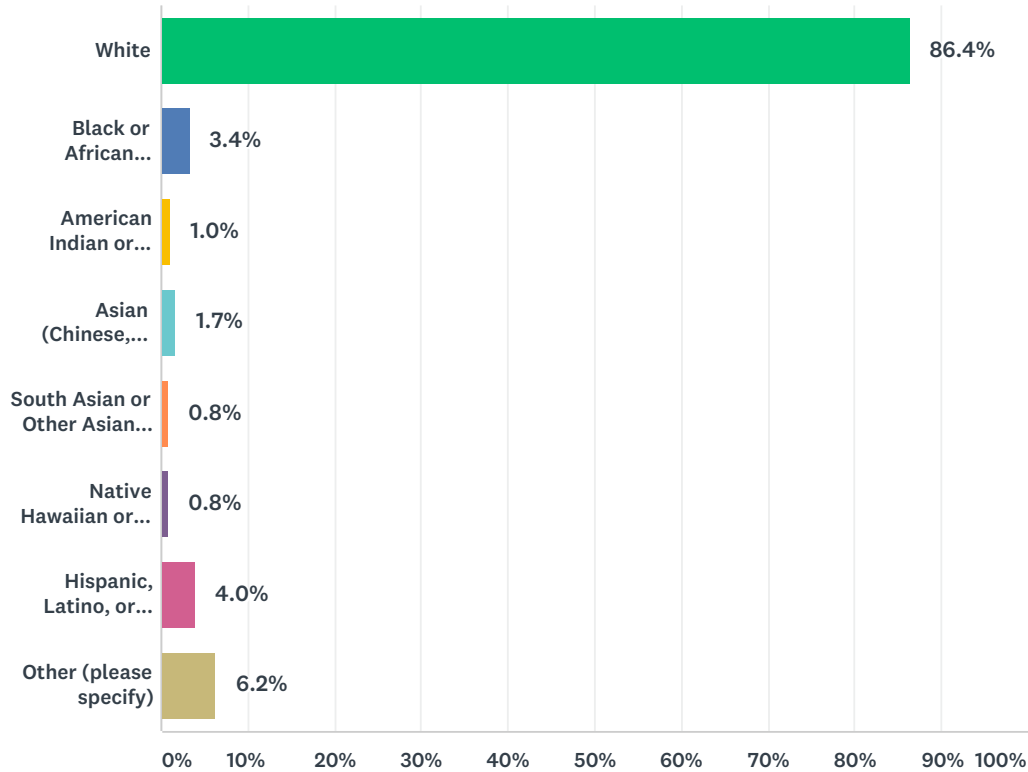
Answered: 756 Skipped: 73



ANSWER CHOICES	RESPONSES	
18 and younger	0.4%	3
18 - 30	9.8%	74
31 - 40	22.1%	167
41 - 50	20.9%	158
51 - 60	18.8%	142
61 - 70	19.2%	145
71 - 80	7.7%	58
80 +	1.2%	9
TOTAL		756

Q12 Please identify your race/origin by selecting all that apply.

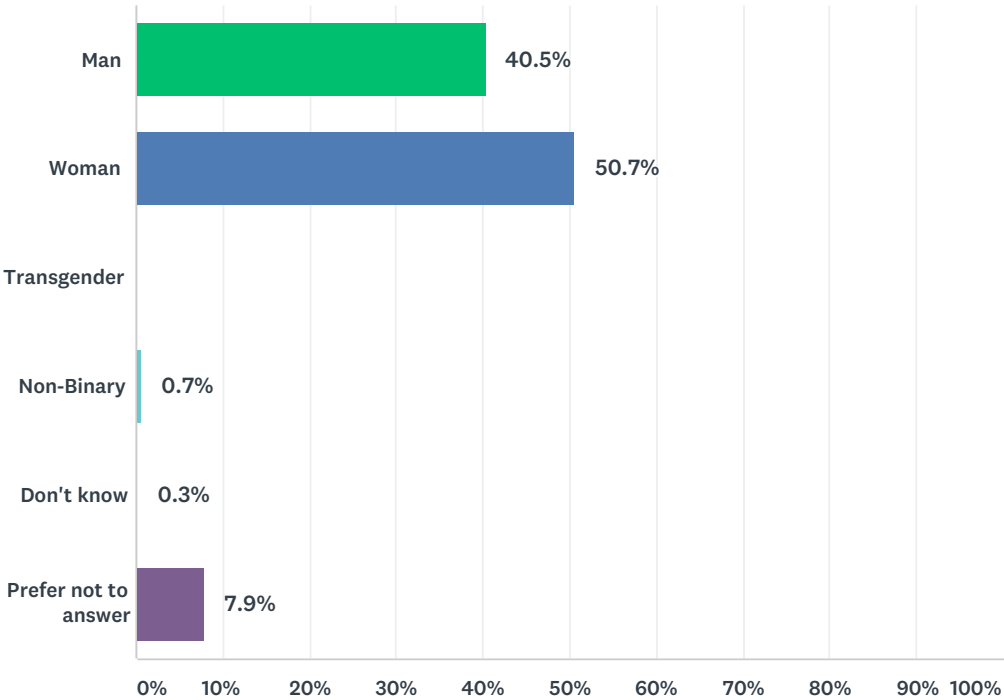
Answered: 706 Skipped: 123



ANSWER CHOICES	RESPONSES	
White	86.4%	610
Black or African American	3.4%	24
American Indian or Alaska Native	1.0%	7
Asian (Chinese, Japanese, Korean, Vietnamese, Thai, Mongolian, etc.)	1.7%	12
South Asian or Other Asian culture	0.8%	6
Native Hawaiian or Pacific Islander	0.8%	6
Hispanic, Latino, or Spanish origin	4.0%	28
Other (please specify)	6.2%	44
Total Respondents: 706		

Q13 With what gender do you most closely identify?

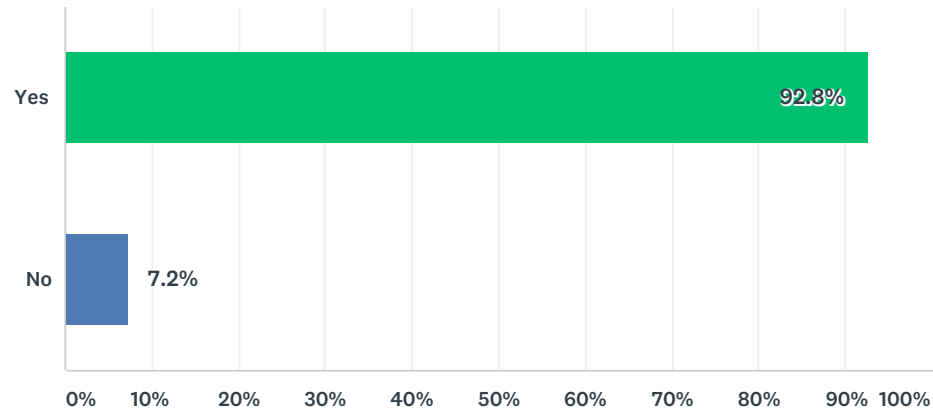
Answered: 744 Skipped: 85



ANSWER CHOICES	RESPONSES	
Man	40.5%	301
Woman	50.7%	377
Transgender	0.0%	0
Non-Binary	0.7%	5
Don't know	0.3%	2
Prefer not to answer	7.9%	59
TOTAL		744

Q14 Do you have access to a motor vehicle that you or someone in your household owns?

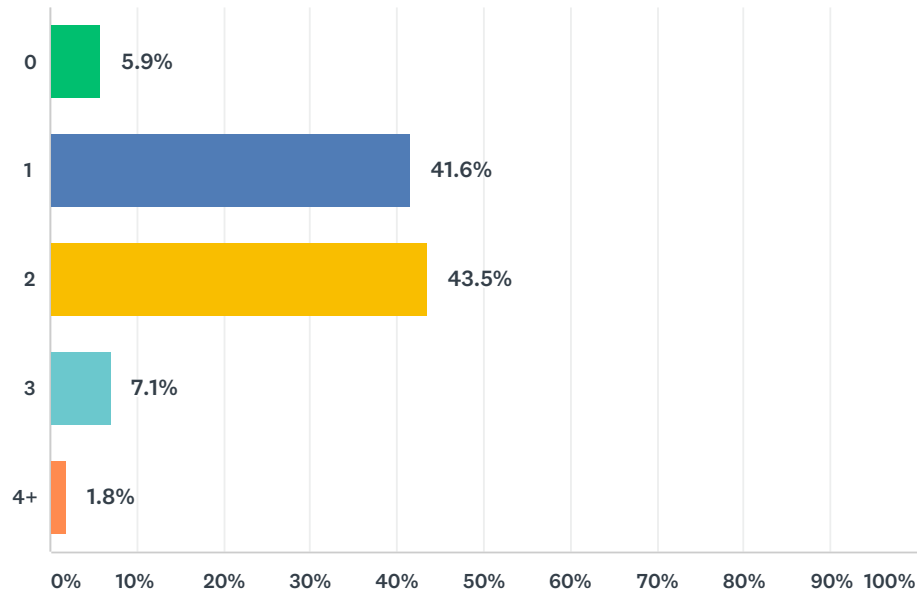
Answered: 762 Skipped: 67



ANSWER CHOICES		RESPONSES	
Yes		92.8%	707
No		7.2%	55
TOTAL			762

Q15 How many motor vehicles are owned by your household?

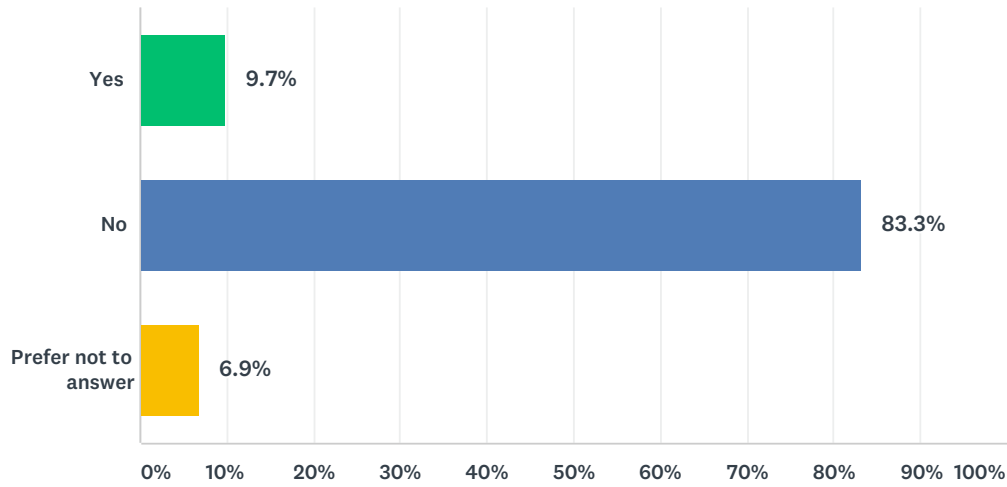
Answered: 758 Skipped: 71



ANSWER CHOICES	RESPONSES	
0	5.9%	45
1	41.6%	315
2	43.5%	330
3	7.1%	54
4+	1.8%	14
TOTAL		758

Q16 Do you identify with having or living with a disability?

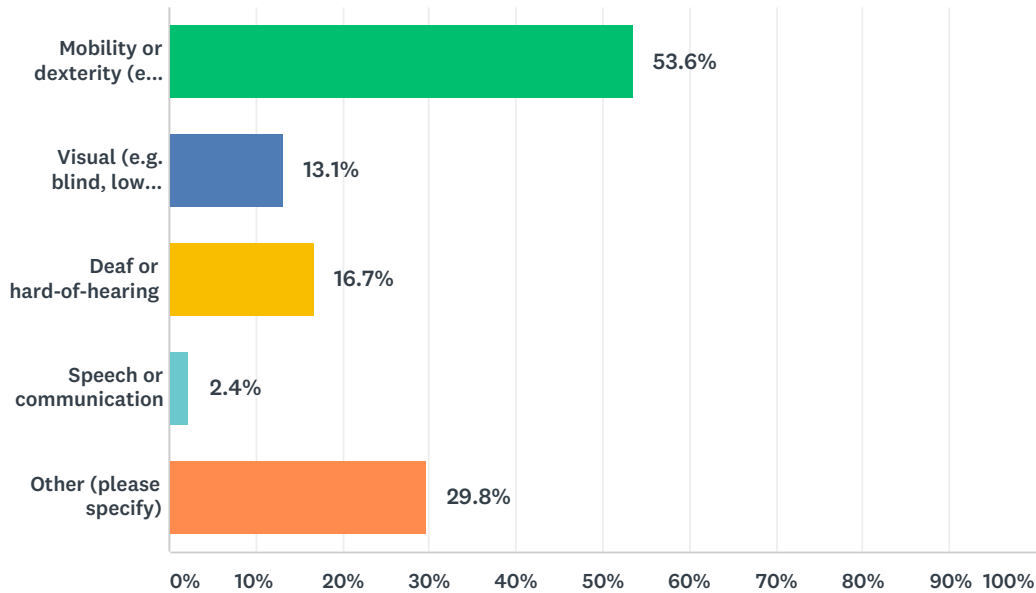
Answered: 749 Skipped: 80



ANSWER CHOICES	RESPONSES	
Yes	9.7%	73
No	83.3%	624
Prefer not to answer	6.9%	52
TOTAL		749

Q17 Please describe the nature of your disability. Check all that apply:

Answered: 84 Skipped: 745



ANSWER CHOICES	RESPONSES	
Mobility or dexterity (e.g. walking, climbing stairs)	53.6%	45
Visual (e.g. blind, low vision)	13.1%	11
Deaf or hard-of-hearing	16.7%	14
Speech or communication	2.4%	2
Other (please specify)	29.8%	25
Total Respondents: 84		



Appendix C

Data Analysis
Methodology

Trip Data for Graphs and Charts

Trip summary statistics (i.e. graphs, charts, totals, and percentages) were obtained from monthly summary reports from each operator provided to the City.

Trip Data for Ridership Maps

Trip data for ridership maps was received from operators as monthly spreadsheets and cleaned as follows:

- Values reported in a format other than the City's requirements were located and converted. For example, distances reported as yards were converted to miles, and date and time stamps were formatted as YYYY/MM/DD HH:MM:SS, using military time (24h). Various metrics related to time, for example weekday versus weekend trips, were also flagged.
- Received data were checked and flagged for unreported attributes.
- A final master table was created and additional metrics were calculated, including the distance between start and end GPS coordinates and trip speeds (miles per minute).
- For trips where the distance was not reported by operators, the distance between reported GPS start and end coordinates was calculated.
- The data was then cleaned to remove any unusual trips including:
 - » Trip durations under 30 seconds: these trips are very short in duration and are likely aborted trips that could have been terminated because of a mechanical issue, a decision not to take the trip, or another reason.
 - » Trips over 6 hours, as these were likely erroneous trips where the ride was not successfully ended electronically.
 - » Trips where both the origin-destination distance and the total reported traveled distance are under 150-feet: these are very short trips that are unlikely to have any utility. Trips where the distance between the origin and destination was small, but where the total distance travelled was over 150-feet were kept because some trips could have been round trips where the origin and the destination are the same general location. Some trips that were removed had very small reported total travel distances (<150 ft) despite occurring between origins and destinations separated by more than that distance. These may have been recording errors by the equipment.
 - » Trips 10 miles or longer in measured or reported distance.
 - » Trips that averaged 20 miles per hour or faster: these are unrealistic trip speeds and are likely when a dockless mobility device was being transported in a vehicle, bus, or train.

Out of 168,960 trips recorded by the seven providers, a total of 17,835 trips were cleaned (10.56%), resulting in a total of 151,125 trips taken during the pilot period.

For the remaining valid trips, the start and end point locations were assigned to a hexagonal grid. Assigning these trips to grids was useful as it allowed the project team more efficiently analyze these aggregated values rather than discrete points, and to protect user privacy.

Availability Data

Availability data were aggregated from operators that reported sufficient information (four of seven operators) from February through mid-September and aggregated to the census block group level. A privacy filter was applied to not show any block groups averaging less than three vehicles per day for each month

and less than two vehicles per day across the entire pilot period. Availability was reported for both morning deployments (8 am to 9 am) and in the evening (9 pm to 10 pm) to account for potential evening trips taken by shift workers.

Transit Access

Trips accessing high-capacity transit were defined as those within 350 ft of bus stops in the top 10% of ridership, or within 1000 feet of a metro stop.

Route Data

Trip route data was extracted for street segments from the week of August 1 to August 7 (a high-ridership week) and cross-referenced against availability data to ensure the deployment of dockless vehicles during this period closely mirrored the pilot-wide analysis.

Collision and Complaint Data

Collision and complaint data were aggregated from operator reports, the Dockless Mobility Feedback Form, the Dockless Mobility Inbox, Alexandria police reports, Alexandria Fire/EMS data, and an Alexandria Health Department report, as described in the main body of the scooter evaluation.



Appendix D

Alexandria Health Department E-Scooter Injury Report



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Alexandria Health Department E-Scooter Injuries – January to August, 2019 (Brief Report)

Background

Since January 1, 2019, the City of Alexandria has participated in a dockless electric scooter (e-scooter) program. On September 4, 2019 the Complete Streets Program of the City of Alexandria Transportation and Environmental Services Department contacted the Alexandria Health Department (AHD) to request information about injuries related to e-scooter use.

Nationally the use of e-scooters as a means of transportation has increased in the past few years, especially with growing availability of dockless e-scooter rentals. Few studies that characterize the incidence of injury and success of pilot programs have been published.^{1, 2, 3}

Summary

This report is a retrospective analysis of reported injuries related to e-scooters in the City of Alexandria from January 1 to August 30, 2019. Ten cases of e-scooter related injuries were identified using ESSENCE, a surveillance system used by the Virginia Department of Health (VDH). ESSENCE uses hospital and urgent care center data to analyze chief complaint and discharge diagnosis codes from participating facilities.

As stated in the following limitations section, these summary statistics are descriptive of these cases only. They do not represent risk factors for e-scooter injury, nor are they generalizable to all e-scooter riders or e-scooter riders who sustain injuries.

Limitations

1. These data do not represent the total number of e-scooter injuries that may have occurred in the City of Alexandria over the eight month period. This limitation exists because the data do not capture:
 - Individuals who were treated by a healthcare provider outside of a hospital or urgent care center
 - Individuals who were seen at a facility that does not report information to ESSENCE
 - Individuals who did not seek medical treatment
 - Individuals who are non-Alexandria residents who sought care for injuries outside of Alexandria

- Individuals whose provider did not include the word “scooter” in the chief complaint or discharge diagnosis (for instance if the injury was documented as “ankle sprain” rather than “scooter injury” or “ankle sprain from scooter injury”)
2. The type and severity of injuries may not be representative of typical injuries sustained by e-scooter riders who are injured because of a limited sample size that may not be representative of all e-scooter riders.
 3. These data cannot be used to calculate the risk of injury to e-scooter riders.
 - As stated above the total number of e-scooter injuries is not known.
 - Comparative data are not available to us about persons who rode an e-scooter but who did not sustain injury.
 - Data are not available to us about the time spent at risk of e-scooter injury, including the total time a person spent riding an e-scooter, the number of trips a person made, mileage of trips, or minutes spent on an e-scooter.
 - The surveillance was retrospective and relied on clinically documented data to classify cases and characterize injuries.
 4. When comparing data from year to year, month to month, time of day, or day of the week it is not possible to discern whether more injuries occur during a certain time period because there were more e-scooter rides taken in that time period, longer mileage e-scooter rides taken in that time period, or if the increase in injury in those months was due to another factor unique to that time period.
 5. These data cannot be used to compare risk of injuries from other modes of transportation such as biking, walking, or skateboarding.

Results

There were 10 total cases of e-scooter related injury that occurred in Alexandria City between January 1, 2019 and August 30, 2019 that were classified as either confirmed, probable, or suspect (Table 1). In contrast, there were two e-scooter related injuries that fit these criteria in 2018.

Table 1: Classification of e-scooter injuries reported to ESSENCE in Alexandria from January 1, 2019 to August 30, 2019.

Case Classification	Number of E-scooter cases
Confirmed	1
Probable	6
Suspect	3

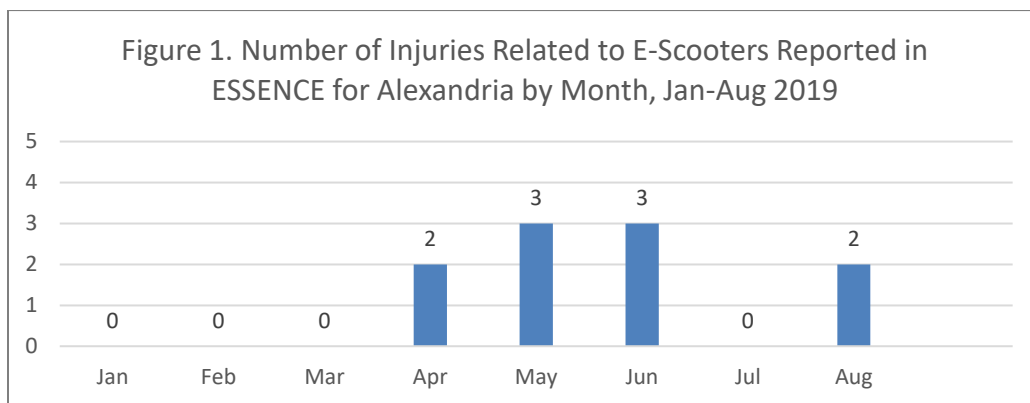
Confirmed: Injury related to a *rentable dockless e-scooter*

Probable: Injury related to an *e-scooter, not otherwise specified as rentable or dockless.*

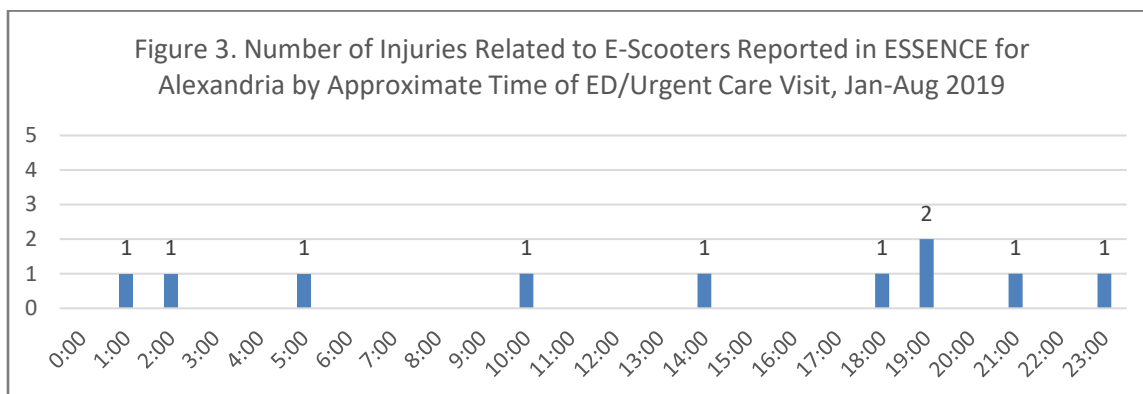
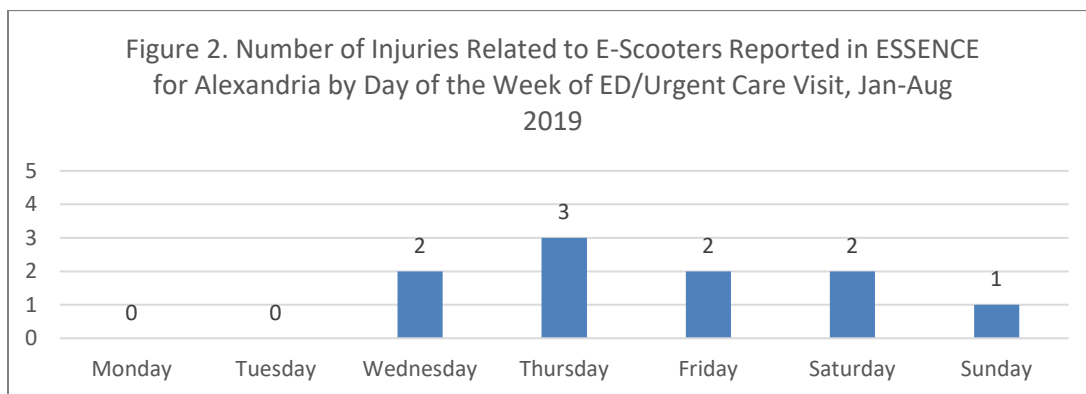
Suspect: Injury related to any *scooter, not specified as rentable or dockless, or electric.*

The median age among cases was 36 years with a range of 19 to 71 years. Six cases were male, four cases were female. Seven cases were Alexandria residents while three were non-Alexandria residents who were seen by a healthcare provider in Alexandria for their injuries.

The most common injury types were lacerations and abrasions. The most common injury locations were on the face and the arms or hands. Three cases sustained an injury to their head (in addition to other possible injuries). None of the cases had documentation of helmet use at the time of injury (three specifically documented no helmet, seven had no documentation). Three cases had documentation of substance use (i.e. drugs or alcohol) at the time of the injury. One case had injuries classified as “severe” based on NTSB criteria (criteria listed below in methods section). Three cases were transported via EMS. Most injuries occurred in May and June, with none identified from January to March, or July (Figure 1).



Most cases sought care for injury toward the end of the week (Wednesday through Sunday), with the most occurring on Thursday (Figure 2). Most cases sought care for injury during the afternoon/evening hours and early morning hours (Figure 3).



Methods

Surveillance data were compiled using an ESSENCE query developed by VDH that captures chief complaints and discharge diagnoses that include the word "scooter", and ICD-10 medical diagnostic codes relevant to motorized scooter injury (V00.14, V00.83, W05.1, and W05.2).

AHD epidemiologists examined electronic health records related to visits identified by the query, dating from January 1 to August 31, 2019. Demographic information and details of each visit were extracted from the medical record. Criteria used by AHD epidemiologists to classify visits reported in ESSENCE as confirmed, probable, or suspect cases included:

Confirmed: Injury related to a *rentable dockless electric scooter*.

Probable: Injury related to an *electric scooter, not otherwise specified as rentable or dockless*.

Suspect: Injury related to any *scooter, not specified as rentable or dockless, or electric*.

Injuries were further characterized by type, location, and severity. To determine whether injuries were "severe", we used the National Transportation Safety Boards (NTSB) definition of severe injury. NTSB defines severe injury as 1) requiring hospitalization for more than 48 hours within 7 days of injury, 2) resulting in fracture of any major bone (excludes fingers, toes, or nose); 3) causing severe hemorrhage, and nerve, muscle or tendon damage, 4) involving any internal organ; or 5) including second- or third-degree burns on more than 5% of the body.

A total of 15 reports were identified through ESSENCE. Five reports were excluded upon further investigation that involved non-motorized scooters, hover boards, skateboards, or moped-type scooters. These were classified as not a case. Descriptive summary statistics of confirmed, probable and suspect cases (N=10) were calculated and are presented here, along with limitations of the data.

¹ Trivedi TK, Liu C, Antonio ALM, et al. Injuries Associated With Standing Electric Scooter Use. JAMA Netw Open. Published online January 25, 2019;2(1):e187381.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2722574>

² Austin Public Health and CDC. Dockless Electric Scooter-Related Injuries Study in Austin, TX: September-November 2018. Published online April 2019.

<http://www.austintexas.gov/edims/pio/document.cfm?id=318777>

³ Portland Bureau of Transportation, 2018 E-Scooter Findings Report. Published online <https://www.portlandoregon.gov/transportation/article/709719>

Alexandria Dockless Mobility Pilot Evaluation

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November 2019

