Shared e-Bike and e-Scooter Mid-Pilot Report

Contents

Ridership

Information was collected from the shared mobility companies in the mobility data specification (MDS) format. The data provides information on where and when a trip starts, ends and the route it took to get there. From this data set, The City can answer questions relating to how many people are using the devices, where are they going and how are they getting there. Figure 1 the ridership and usage of the shared e-bikes and e-scooters during the pilot period.

Vehicle	Start Date	End Date (end of ridership count)	Fleet	Trips	Users	Distance Travelled (km)
e-Bike (Lime)	Oct. 31, 2018	Oct 31, 2019	Lime 500	168,000	40,000	210,000
e-Scooter (Lime and Bird)	July 12, 2019 (Lime) July 26, 2019 (Bird)	Oct 31, 2019	Lime 1,000 Bird 500	750,000	166,000	1,390,000
Total			2,000	918,000	206,000	1,600,000

Figure 1: e-bike and e-scooter ridership

Figure 2 shows the most common times for people to use an e-scooter or e-bike by day and time. The most common times to use the devices were between 4 p.m. and 7 p.m. on weekdays and between 1 p.m. and 7 p.m. on weekends.

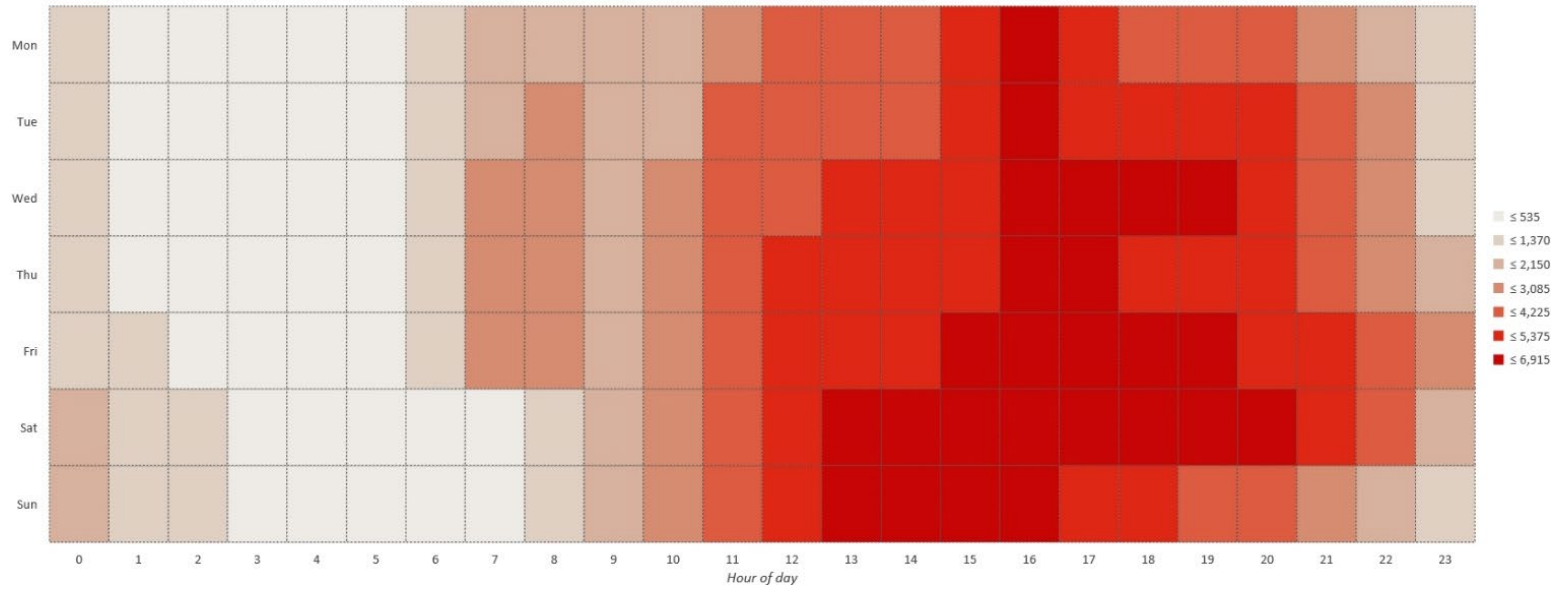


Figure 2: Days of the week and times of day people use e-bikes and e-scooters

Destinations

People are using e-scooters and e-bikes to travel to a variety of destinations in the inner city. The *E-Bicycle + E-Scooter, Trip End Locations map* on the next page displays these destinations. The most popular destinations include:

- Stephen Avenue
- Eau Claire
- Kensington
- East Village
- 17th Avenue SW
- 4th Street SW

Over 50% of shared e-scooter and e-bike destinations are within a BIA or BRZ.

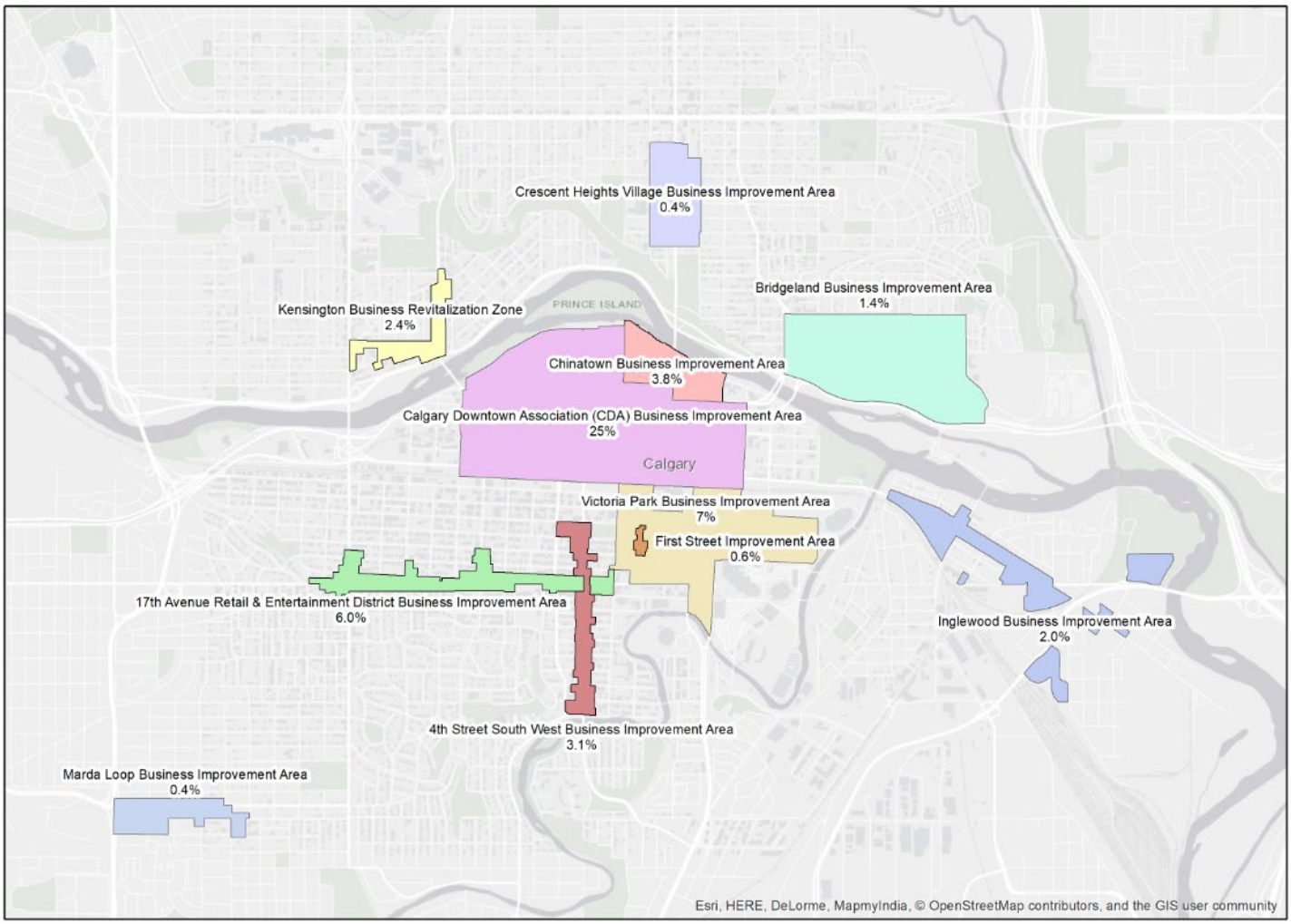
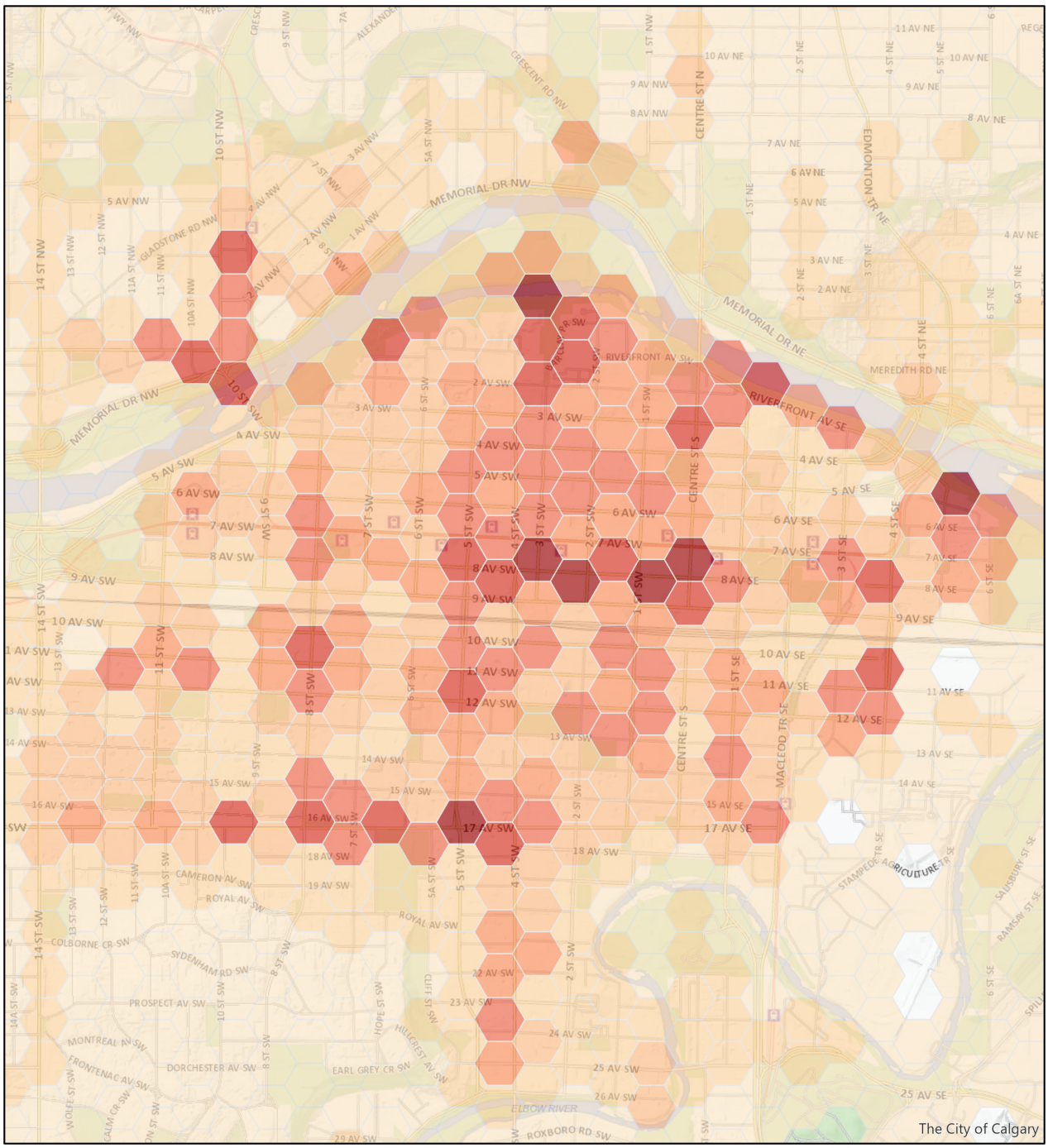


Figure 3: Percent of overall trip destinations in the city that end in a BIA or BRZ



Trip End Count
- 1-125
- 126-475
- 476-970
- 971-1500
- 1501-2200
- 2201-3455
- 3456-5635

E-Bicycle + E-Scooter Trip End Locations
July, August, September 2019

0 0.5 1
Kilometres
Scale: 1:17,500

N

Geospatial Business Solutions
Date Generated: November 22, 2019

Routes

People are taking a variety of routes to get to their destinations. Approximately 60% of e-scooters and e-bikes are using the pathway network (30%) or cycling infrastructure (30%) to get to their destination. The rest of the volume of the trips (40%) is on sidewalks and or roadways with no cycling infrastructure. The most popular routes in the city are:

- The Bow River Pathway north of the downtown
- 8th Avenue SW between 7th Street SW and Macleod Trail SE
- 12th Avenue SW between 10th Street SW and 3rd Street SE
- 17th Avenue SW between 9th Street SW and 1st Street SW
- 5th Street SW between 17th Avenue and 9th Avenue SW

Figure 4 displays how the volume of e-Scooter and e-Bike east-west travel is distributed in the downtown and Beltline avenues. Avenues were measured between 11 Street SW and 2nd Street SE (Macleod Trail).

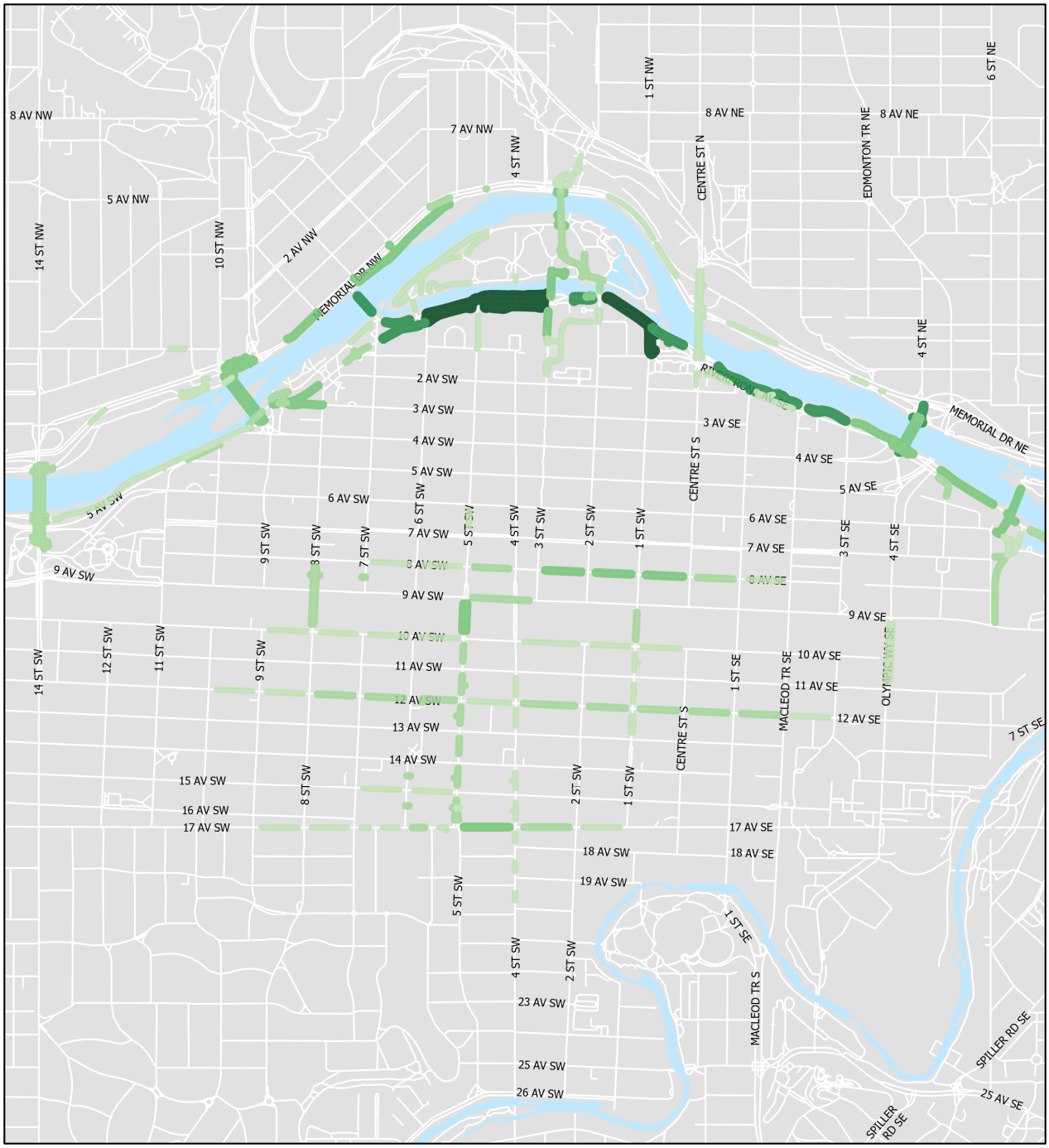
Avenue	Volume distribution of e-scooters and e-bikes on avenues
3 Ave S	5%
4 Ave S	3%
5 Ave S	4%
6 Ave S	5%
7 Ave S	4%
8 Ave S	14%
9 Ave S	5%
10 Ave S	9%
11 Ave S	6%
12 Ave S	15%
13 Ave S	4%
14 Ave S	6%
15 Ave S	8%
17 Ave S	13%
Total	100%

Figure 4: Volume distribution of e-scooters and e-bikes on east west avenues in the downtown and beltline

Figure 5 displays how the volume of e-Scooter and e-Bike north south travel is distributed in the downtown and Beltline streets. Streets were measured between 17 Avenue S and 3rd Avenue S. Only the streets that have a crossing between 9th and 10th Avenue S are compared.

Street	Volume distribution of e-scooters and e-bikes on streets
8 Street SW	17%
5 Street SW	32%
4 Street SW	15%
1 Street SW	14%
1 Street SE	8%
Macleod Trail (2 Street SE)	6%
Olympic Way / 4 Street SE	7%
Total	100%

Figure 5: Volume distribution of e-scooters and e-bikes on north south streets in the downtown and beltline



Route Use Count
- 5000-7090
- 7091-10740
- 10741-16640
- 16641-23330
- 23331-34245

Popular E-Bicycle + E-Scooter Routes
July, August, September 2019

0 0.5 1
Kilometres
Scale: 1:17,500

N

Geospatial Business Solutions
Date Generated: November 22, 2019

311 Calls and Correspondence with Citizens

Since the e-scooter pilot launched in July 2019, there have been 70 direct emails and 281 service requests through 311 relating to shared e-scooters. In comparison, since the launch of the e-bikes there were 14, 311 calls between Oct 2018 and July 2019 regarding e-Bikes.

Four main themes emerged in the 311 data:

- **Parking** - improperly parked scooters, scooters on private property, abandoned scooters
- **Undesirable behavior** - double riding, unsafe practices, passing too close
- **Sidewalk riding** - complaints/dislike for sidewalk riding, not yielding to pedestrians
- **Other** - general inquiries, feedback about the pilot, rule clarification, enforcement

Theme	Parking	Undesirable Behaviour	Sidewalk Riding	Other	Total
Total Number of 311's	60 (21%)	77 (27%)	109 (39%)	35 (12%)	281 (100%)

Figure 6: Number of 311 calls relating to e-Scooters (July to October 2019)

Figure 7 depicts a week by week representation of feedback via 311 and direct email. Numbers indicate how many instances of 311 and/or direct email feedback were received in that week.

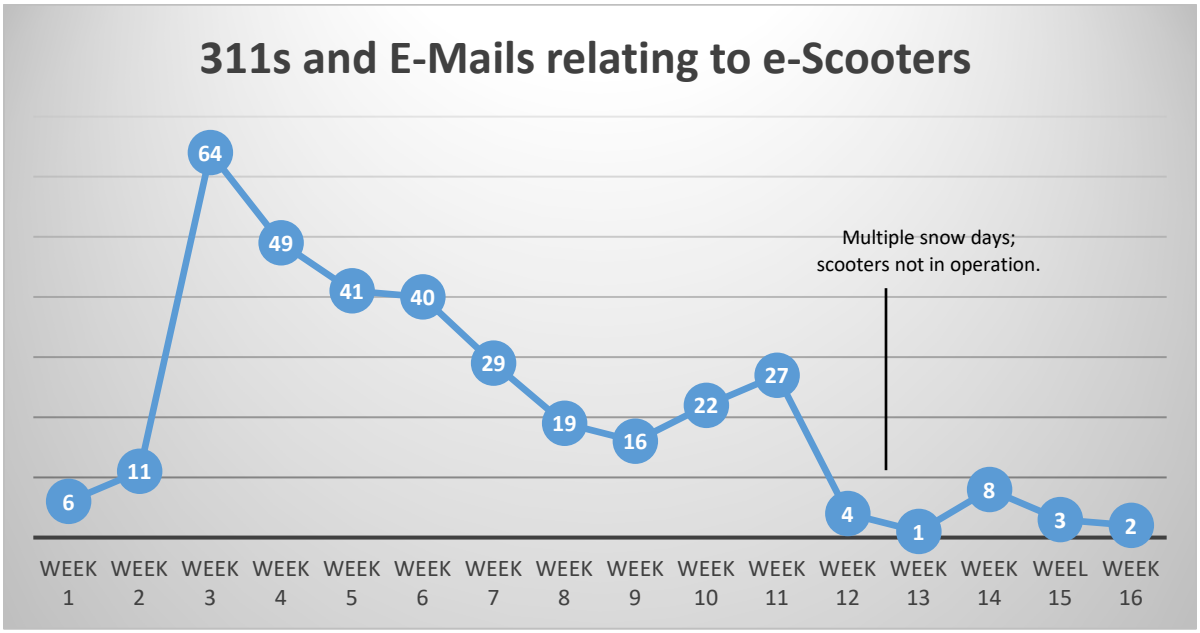
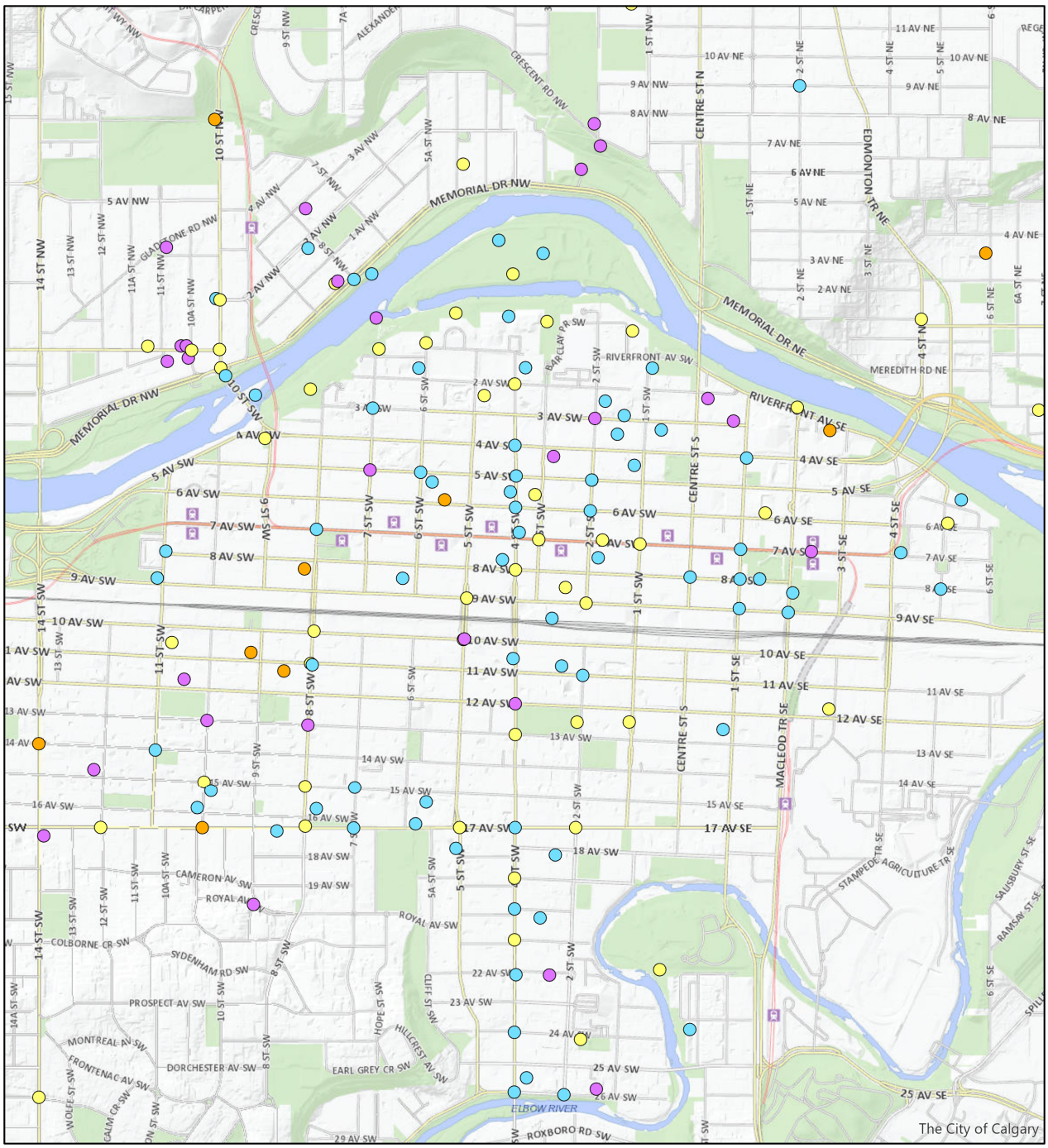


Figure 7: 311s and Emails relating to e-Scooters (July to October 2019)

Of the 281 311 inquiries, 214 were location specific. The location specific 311s are mapped on page 8. The *311 Calls Concerning e-Scooters* map indicates that concerns over sidewalk riding trend towards areas of higher pedestrian traffic, with narrower sidewalks that are lacking in dedicated infrastructure such as 4 Street SW and 17 Avenue SW. Bad behavior concerns are also found in areas with high pedestrian traffic, such as along the Bow River Pathway.



311 Call Reason
- Sidewalk Riding - 96
- Bad Behaviour - 62
- Parking - 35
- Other - 21

311 Calls Concerning E-Scooters

0 0.5 1
Kilometres
Scale: 1:17,500

N

Geospatial Business Solutions
Date Generated: November 22, 2019

Public Engagement Survey

The City conducted a shared e-Scooter and e-Bike survey from September 23rd to October 6th, 2019 to understand what citizens thought about the e-Bike and e-Scooter pilot. Over 9,000 people responded to the survey. The full Stakeholder Report can be found *online*.

About two thirds of the survey participants have tried the e-Scooters. Those who have used it have tended to use it for five to fifteen trips. 86% of people using a shared device preferred to use e-Scooters over e-Bikes; the main reason people had this preference was that e-Scooters were “more fun”

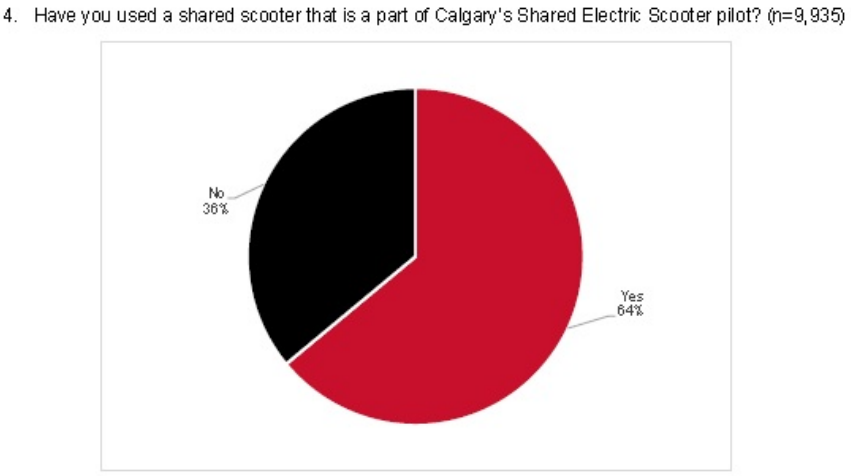


Figure 8: Number of survey participants who have used the e-Scooters

Of those e-Scooter users, 90% feel comfortable operating on a pathway; 81% feel comfortable operating on a bike lane or cycle track; 56% feel comfortable operating on a sidewalk; and 20% feel comfortable operating on a roadway.

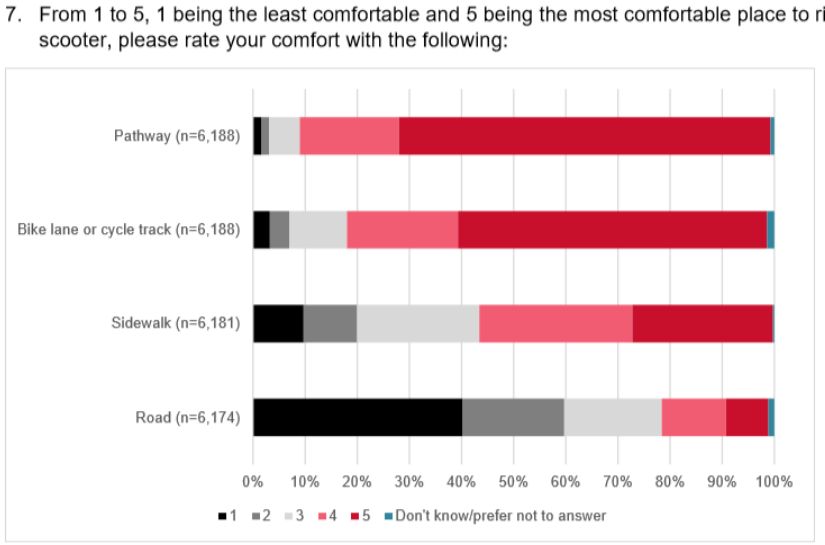


Figure 9: Where users feel most and least comfortable operating e-Scooters

The MDS data shows where people are going, but not why they are going there. The survey shows why users were making e-Scooter trips. The most common trip purpose was for running errands, to get to appointments, getting to and from work, dining or shopping trips, and exercise/recreation.

6. For what purpose do you usually use a shared scooter? (NOTE: "Other" responses have not yet been analysed so these results may change slightly) (n=6,185)

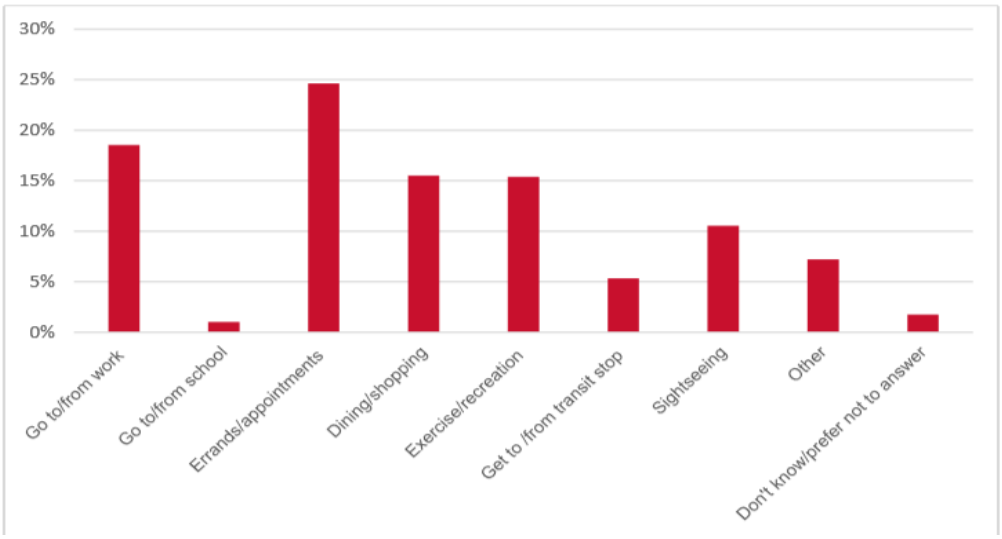


Figure 10: Survey results for trip purpose

Users identified which transportation method they would have used, had e-Scooters not been available. Approximately fifty-five percent of e-Scooter trips would have been made by walking and one third would have been made by driving.

2. Thinking about your most recent shared scooter trip, if you hadn't used a shared scooter, how would you have traveled instead? (NOTE: "Other" responses have not yet been analysed so these results may change slightly) (n=6,285)

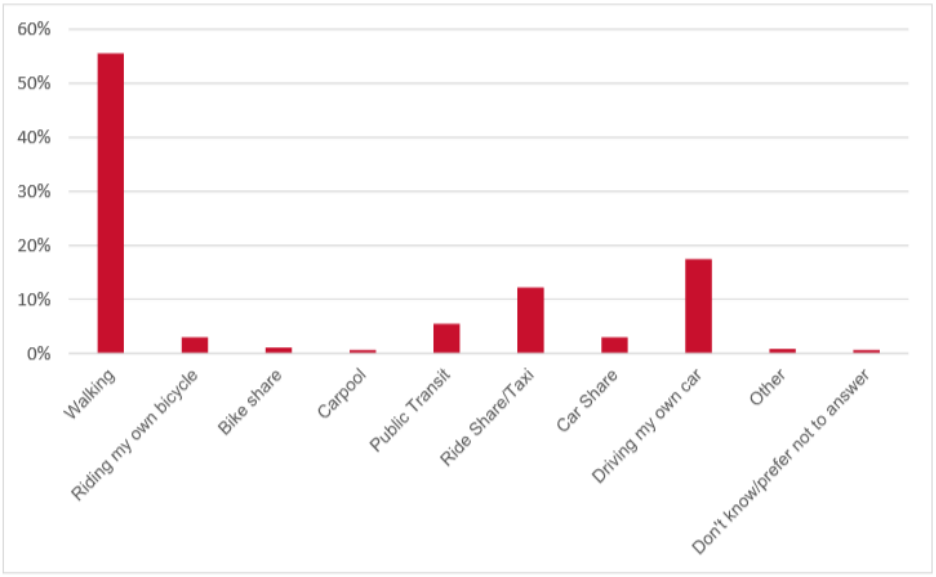


Figure 11: Types of trips e-Scooters are replacing

e-Scooter users reported they could find an e-Scooter most of the time (46%), almost always (28%) or half of the time (20%). Less than 1% could never find an e-Scooter.

8. How often could you find a shared scooter when you wanted one? (n=6,136)

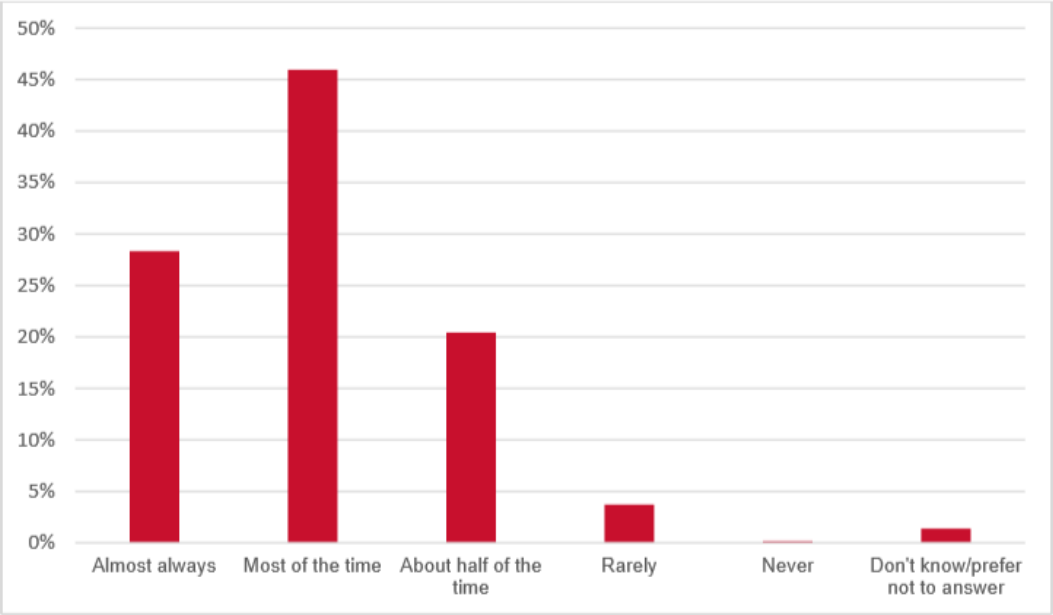


Figure 12: How often e-Scooter users could find an e-Scooter when they wanted one.

Qualitative Data

Participants were asked if there was other information they would like to convey to the project team. The most common themes from this general question were:

- Like the idea/option of having the scooters available
- Scooters shouldn't be allowed on the sidewalk
- Have seen people breaking the rules
- Scooters are useful/it's good to have alternative ways to get around
- Users are inconsiderate
- Scooters aren't parked in a considerate way/littered all over the place

e-Scooter Injuries

The City of Calgary commissioned an e-Scooter injury study with University of Calgary, Cumming School of Medicine using funds collected from the shared mobility companies. The study reviewed e-Scooter injuries that required ambulances in July, August and September 2019. There were a total of e-Scooter 33 injuries requiring an ambulance during this time period. The chart below indicates the time of day when these accidents occurred.

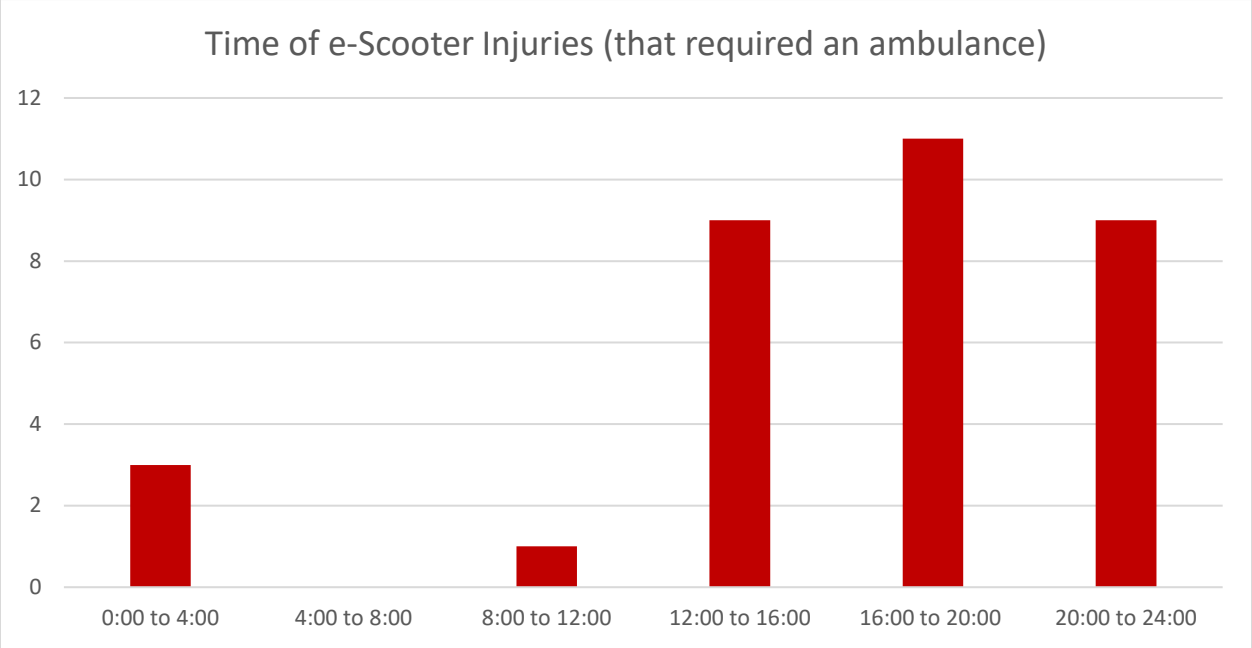


Figure 13: Time of Day when e-Scooter injuries occurred (July to September 2019)

The City commissioned the study to understand who, how, when and why people were being injured on e-Scooters. The key findings from the study were:

- 32 out of the 33 injured were riding on the e-Scooter, one incident involved a pedestrian
- Speed, losing control, hitting a pothole or stationary object (e.g. a pole) were the most common cause of injury.
- Ethanol level was measured in nine patients. Eight out of nine patients tested positive for alcohol in their system.
- 17 of those injured were females and 16 were males
- The average age of the injured person was 34
- Two incidents involved a motor vehicle
- One out of 33 users was wearing a helmet
- Seven of the 33 were admitted to hospital – all seven were riding an e-Scooter
- Nine of the incidents occurred on the sidewalk, seven on the road, five on a pathway, one in a bicycle lane, two occurred at other locations, nine were unknown locations.
- Five out of 33 were double riding
- Most injuries occurred between the hours of 6 p.m. and 10 p.m.
- Most injuries (19) occurred in August
- Mondays and Saturdays were the most common days for injuries

Comparative Analysis

A comparative analysis looked at injuries requiring an ambulance that involved bicycles and/or motor vehicles. It is important to note that these numbers do not factor in the rate of travel by mode. There are more bicycle trips and driving trips than there are e-Scooter trips. However, it is difficult to compare rates of injury directly as the number of e-Scooter trips can be estimated more precisely using the MDS data, while trip rates from other modes have to be estimated using different methods.

Transportation Injuries Requiring an Ambulance between July 8 and Oct. 1, 2019								
E-Scooters			**Bicycles**			**Motor Vehicles**		
Emergency	ICU	Fatality	Emergency	ICU	Fatality	Emergency	ICU	Fatality
33	0	0	197	4	1	463	10	1

Figure 14: AHS data on number of transportation injuries requiring an ambulance

It is estimated that the injury rate for e-Scooters in Calgary is:

- 1: 1,500 e-scooter trips results in an emergency room visit.
- 1: 100,000 e-scooter trips requires hospitalization (staying overnight at the hospital)

Medical studies in the USA

While the City of Calgary / University of Calgary study is the first Canadian municipal study to be undertaken on e-scooters, there have been a number of studies conducted in the United States. A 2018 study from the Austin Public Health Department and the Centres for Disease Control and Prevention (CDC) found that of the patients surveyed, 30% of total injuries occurred on a person's first ride.

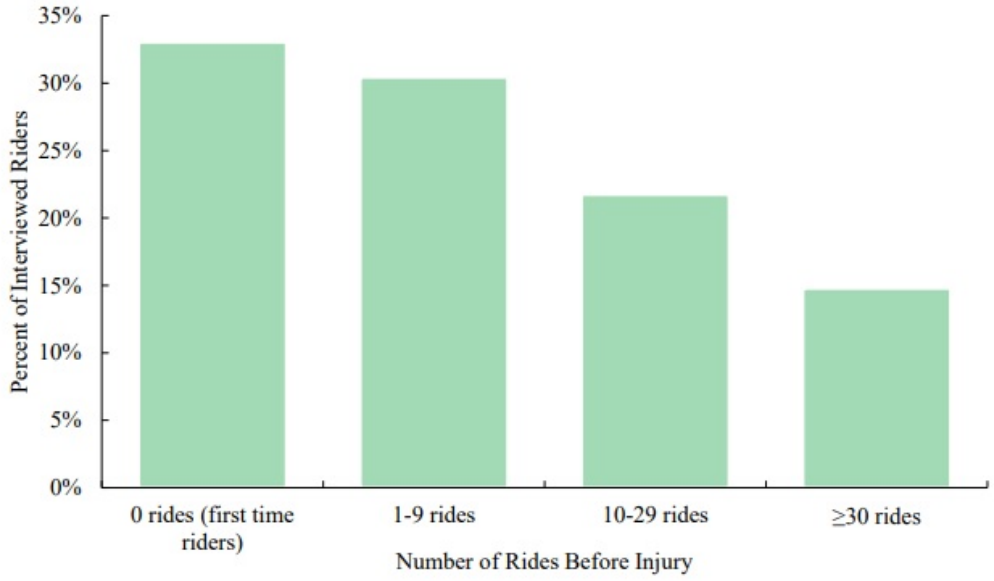


Figure 15: Percent of Interviewed Riders by Number of Scooter Rides before Injury (Dockless Electric Scooter-Related Injuries Study, 2018)