

Transportation Report to  
SPC on Transportation and Transit  
2019 December 18

ISC: UNRESTRICTED  
TT2019-1374

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

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### **EXECUTIVE SUMMARY**

The shared e-Bike and e-Scooter pilot has been popular among Calgarians and tourists with over 915,000 trips being recorded by over 150,000 unique users since the program started in October 2018. The pilot has attracted two companies to operate in Calgary.

While the pilot has been popular, there have also been concerns and complaints predominately surrounding where the devices are ridden, how they are parked, the behaviour of some riders and injuries involving the devices.

Administration has been able to collect location data regarding where the devices are being ridden and parked, and Calgarians' opinions on the pilot via 311s and surveys. The City has also collaborated with the University of Calgary's Cumming School of Medicine through the Urban Alliance to conduct one of Canada's first injury studies on shared e-Scooters.

From this data analysis, Administration is making a number of changes to the shared e-Scooter and e-Bike program including:

- Implementing low speed zones in high pedestrian areas
- Implementing designated parking zones in high demand parking areas
- Adopting bylaws to allow for better enforcement and address operational concerns
- Additional enforcement of rules and bylaws at strategic locations
- Offering education at key locations

All activities are funded through the fees collected from the shared mobility companies.

As directed in C2018-0934, Administration will report back in Q4 2020 with a final report on the pilot and further recommendations.

### **ADMINISTRATION RECOMMENDATION:**

That the Standing Policy Committee on Transportation and Transit recommend that Council give three readings to the proposed bylaw to amend the Calgary Traffic Bylaw 26M96 (Attachment 3)

### **PREVIOUS COUNCIL DIRECTION / POLICY**

See Attachment 1.

### **BACKGROUND**

The shared e-Bike and e-Scooter pilot started in October 2018 with the company Lime deploying 500 e-Bikes in Calgary. There have been 165,000-recorded e-Bike trips from October 2018 to October 2019. In July 2019, shared e-Scooters were introduced to Calgary with the company Lime deploying 1,000 and the company Bird deploying 500. There have been 750,000-recorded e-Scooter trips from July 2019 to October 2019.

The pilot is a private sector venture and its operation is cost recovered via fees collected from the private shared mobility companies. Administration issues the permit for companies operating shared e-Bikes and e-Scooters in Calgary and can set a number of conditions to make the program better for all Calgarians. The following rules are currently in place for the pilot:

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*Where the devices are allowed to operate:*

- e-Bikes follow current provincial operating conditions. Under the Traffic Safety Act, they are allowed to operate on roadways and in bike lanes. Under the Parks and Pathways Bylaw, they are allowed to operate on pathways.
- Lime and Bird were given an exemption by The Province of Alberta under the Alberta Traffic Safety Act, and are allowed to operate e-Scooters where The City designates. Shared e-Scooters from permitted companies can operate on sidewalks, bike lanes and on pathways. Personal e-Scooters can operate on pathways and private property.
- The City has not regulated the operational area of any of the devices. Any changes to a company's operating area has been solely the decision of the shared mobility company.

*How fast the devices can go:* The e-Scooters have a governor that controls the speed. They also have a geolocation tool that can change the speed of the device given its location. For example, a vehicle can slow down to 15 km/h if entering a busy pedestrian zone. e-Scooters are currently governed at a top speed of 20 km/h and e-Bikes are governed at a top speed of 23 km/h.

*Where the devices can be parked:* e-Bikes and e-Scooters may be parked in a secure, upright position in areas such as furniture zones of sidewalks, public bike racks and marked parking zones. On sidewalks without furniture zones, users are asked to give at least two metres of clearance for accessibility.

*How many devices can be operated:* Under the Notice of Motion, 10,000 devices may operate in Calgary. An operator may only provide up to 1,000 e-Scooters and 1,500 e-Bikes. In the summer of 2019, there were 500 shared e-Bikes and 1,500 shared e-Scooters approved to operate in Calgary.

## **INVESTIGATION: ALTERNATIVES AND ANALYSIS**

Using a variety of data sources along with information from other jurisdictions, Administration conducted a data-led decision-making process to address concerns about the pilot. The data from the pilot can be found in Attachment 2.

*Public Engagement Survey:* The City conducted a shared e-Scooter and e-Bike survey from September 23<sup>rd</sup> to October 6<sup>th</sup>, 2019 to understand what citizens thought about the e-Bike and e-Scooter pilot. More than 9,200 Calgarians submitted their opinions on the pilot.

*311 Calls:* There were 281 311s logged regarding shared e-Scooters and e-Bikes from July 2019 to October 2019. The most common 311 concerns were:

- Sidewalk Riding (109) - 39%
- Bad/Inconsiderate Behavior (77) - 28%
- Parking concern (60) – 21%
- Other (35) – 12%

*e-Scooter Injuries:* Using the fees collected from the shared mobility companies, The City commissioned a study by the University of Calgary's Cumming School of Medicine looking at e-Scooter injuries that required an ambulance. The e-Scooter injuries arriving by ambulance group was studied because it provided a more detailed look into how, why, when and where people were being injured, as opposed to people self-reporting at the emergency department. The data

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

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shows that there were 33 e-Scooter injuries that required ambulances during the period of July 8<sup>th</sup> to October 1<sup>st</sup>, 2019.

Further information can be found in Attachment 2.

### ***Actions to mitigate issues***

To address concerns, predominately related to the operation of shared e-Scooters, Administration is taking the following steps for the next phase (Spring 2020 –Fall 2020) of the pilot:

#### ***1. Implementing low speed zones in high pedestrian areas***

Some areas see higher levels of e-Scooter volumes and 311s than others. These areas are primarily along busy retail corridors such as 4 Street SW in Mission and 17 Ave SW in the Beltline. Administration is working with the Business Improvement Areas (BIA's) and Business Revitalization Zones (BRZs) in those areas to establish lower speed zones in the corridors. The speeds will initially be dropped from 20 km/h to 15 km/h, with the ability to drop the speed of the device further if concerns persist. The zones will be implemented prior to the spring 2020 deployment of the e-Scooters.

#### ***2. Implementing designated parking zones in high demand parking areas***

Some areas have more 311 complaints and a higher demand for parking. To help encourage better parking behaviors, Administration will be implementing designated parking areas in specific locations. Administration is working with the BIAs and BRZs on the exact locations of the designated parking areas and will have the zones installed prior to the deployment of e-Scooters in spring 2020. The designated zones will be funded by the fees collected from the shared mobility companies. Designated parking areas will be marked on the sidewalk or in former curbside micro-stalls.

#### ***3. Adopting Bylaws to allow for better enforcement and address operational concerns***

There is a lack of clarity when it comes to the enforcement e-Scooters. Since they are a new transportation technology, current laws and bylaws do not expressly identify and define e-Scooters and how to enforce them. In addition, a number of operational items within Calgary's Traffic Bylaw need to be addressed for e-Scooter operations to take place legally. The amendments to the Traffic Bylaw are in Attachment 3.

#### ***4. Enforcing rules and laws at key locations***

Some locations had higher 311 volumes regarding inappropriate e-Scooter behaviour. Bad behaviours included going too fast for the environment, swerving between pedestrians, and near misses of pedestrians. Administration will look to strategically enforce rules and laws at these locations.

#### ***5. Offering education at key locations***

From field visits and 311 data, Administration has identified a number of locations where educating e-Scooter users could be beneficial for safety and comfort of users and non-users. All signage and education efforts will be funded by the e-Scooter fees collected from the shared mobility companies.

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### ***Addressing sidewalk riding concerns***

While users and non-users prefer not to have e-scooters on the sidewalks or the roadway, the pathway network and cycling infrastructure is not robust enough to connect people to their destinations. Either roadways or sidewalks are required to make that connection. Given the greater weight and speed differential between e-Scooters and cars, compared with e-Scooters and pedestrians, and the speed and design of the roadways in the main areas of use (i.e. the downtown) it was preferred to have e-Scooters remain on sidewalks. The lowering of e-Scooter speeds, education and enforcement at strategic areas are meant to help mitigate pedestrian, e-Scooter conflicts.

### **Stakeholder Engagement, Research and Communication**

Stakeholder engagement was taken prior and throughout the pilot.

- The Government of Alberta was engaged in order to develop a process in which e-Scooters could be permitted on city infrastructure.
- Shared Mobility Companies were engaged to develop a successful pilot that worked for Calgarians and the companies.
- BIAs and BRZs were engaged to understand the issues and opportunities their areas saw with e-Bikes and e-Scooters.
- Researchers at the University of Calgary's Cumming School of Medicine were engaged to understand how, why, when and where e-Scooter injuries were occurring.
- Citizens of Calgary were engaged via survey to understand what they thought about the e-Scooter and e-Bike pilot, and how the users of the pilot were using the devices.
- Bylaw Services, Law and Calgary Police Services were engaged to understand the issues they are seeing and the actions required for better enforcement and education.
- City of Montreal and City of Edmonton were engaged to understand their e-Scooter programs and how people in their cities were responding.
- Administration presented and consulted with the Advisory Committee on Accessibility to understand the issues with the e-scooter and e-bikes as they relate to accessibility.

### **Strategic Alignment**

The e-Bike and e-Scooter pilot helps support the Council priorities of "A city that moves" and "A healthy and green city" by providing more mobility options for Calgarians and tourists, along with reducing the amount of car trips and tailpipe emissions. It also supports the Municipal Development Plan (MDP) - Key Direction #5: Increase mobility choices by creating a multi-modal transportation system and by increasing mobility choices for citizens.

### **Social, Environmental, Economic (External)**

**Social:** Increased transportation options expand citizens' ability to take part in a variety of economic and social activities. Shared mobility options allow both citizens and tourists in Calgary to sightsee, socialize with family and friends, and visit many local businesses and attractions.

**Environment:** The survey results show that 1/3 of e-Scooter trips were replacing a car trip. e-Scooters and e-Bikes are electrically powered and do not have tail pipe emissions.

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Economic: Over 50% of e-Scooter and e-Bike trips ended in a BIA or BRZ, showing that people are using the devices to largely access local business, which supports the local economy. The shared mobility companies hire full time, part time and contracted local staff to support their operations in Calgary.

### **Financial Capacity**

#### ***Current and Future Operating Budget:***

The operating cost for the shared mobility pilot is fully funded by each permitted operator. No additional funding is being requested with this update report.

#### ***Current and Future Capital Budget:***

The capital cost for the shared mobility pilot is recovered by permit fees paid by each permitted operator. As permitted operators expand fleets or new operators apply for a permit, The City will collect new fees to fund additional capital expenditures as it relates to the pilot, such as the designated parking zones. No additional funding is associated with this update report.

### **Risk Assessment**

Data from Alberta Health Services (AHS) shows that there has been a number of injuries associated with e-Scooter usage. The AHS data shows that serious e-Scooter injuries almost always occur to the rider and occur at a rate of 1 patient admitted to hospital per 100,000 rides. However, there are many more non-admitted e-Scooter injuries, at a rate of 1 per 1,500 rides. The City will continue to work with the U of C Cumming School of Medicine to monitor injury rates.

With Calgary having high e-Scooter ridership, it is expected that more e-Scooter companies will be attracted to Calgary and will deploy more e-Scooters in a similar geographic area. This increase in the number of e-Scooters could lead to an increase in the physical and visual clutter caused by the devices. The implementation of the designated parking zones should help mitigate some of the clutter. Administration has the ability to restrict how many devices are in a defined geographic area and can work with the shared mobility companies on strategically deploying the devices as to reduce their concentration.

<p><b>REASON(S) FOR RECOMMENDATION(S):</b> e-Scooters and e-Bikes provide mobility options for Calgarians. However, a number of safety and comfort concerns need to be addressed for those both using the devices, and for the other users in their environment. Using data and working with the mobility companies, Administration is able to make strategic decisions to address the issues that arose in the first half of the pilot. Administration will monitor the next half of the pilot to see what difference the changes made, and then make a recommendation for the future of shared mobility in Q4 2020.</p>
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### **ATTACHMENT(S)**

1. Attachment 1 – Previous Council Direction / Policy
2. Attachment 2 - Shared e-Bike and e-Scooter Data
3. Attachment 3 – Proposed Text of a Bylaw to amend Bylaw 26M96, the Calgary Traffic Bylaw

**Previous Council Direction / Policy**

ADOPT, Moved by Councillor Woolley, Seconded by Councillor Farrell, that Councillor Woolley's Motion, C2018-0934 be adopted as follows:

NOW THEREFORE BE IT RESOLVED, that Council direct Administration to initiate a two-year pilot for bike share by September 2018 that will include:

- An intake process for interested operators to participate
- Data sharing requirements with permitted operators
- A pilot consisting of up to 10,000 bicycles, scooters or other personal mobility devices
- A performance-based system for permitted operators to gradually increase their fleet size, within set pilot limits
- A permit and fee structure that covers administrative costs to regulate and manage the pilot program
- Any other permit conditions to be imposed on bike share operators to ensure that the safety and convenience of roadway and sidewalk users is not unduly impacted

And report back to Council through the Transportation and Transit Committee with an update on the pilot in Q4 2019 and a final report with potential further recommendations no later than Q4 2020.

AND FURTHER BE IT RESOLVED that Council direct Administration to review the existing bylaw rules governing mobility devices such as scooters, skateboards, roller skates and personal mobility devices with electric motors and to bring forward any necessary bylaw amendments to facilitate the use of such devices no later than Q1 2019.

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

### Contents

Page	Topic	Content	Data source
2	Ridership	How many people are using e-Scooters and e-Bikes	Mobility Data Specification (MDS)
3	Destinations	Where are people going	Mobility Data Specification (MDS)
5	Routes	How are people getting to their destinations	Mobility Data Specification (MDS)
7	311 Calls and Correspondence with Citizens	What are the concerns	311s and Citizen Correspondence
9	Public Engagement Survey	Why and how people are using the devices, and opinions on the devices	Citizen Survey
12	e-Scooter Injuries	How many, why and when are people being injured on e-scooters	Alberta Health Services Data

### 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)
<b>e-Bike (Lime)</b>	Oct. 31, 2018	Oct 31, 2019	Lime 500	168,000	40,000	210,000
<b>e-Scooter (Lime and Bird)</b>	July 12, 2019 (Lime)	Oct 31, 2019	Lime 1,000	750,000	166,000	1,390,000
	July 26, 2019 (Bird)		Bird 500			
<b>Total</b>			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.

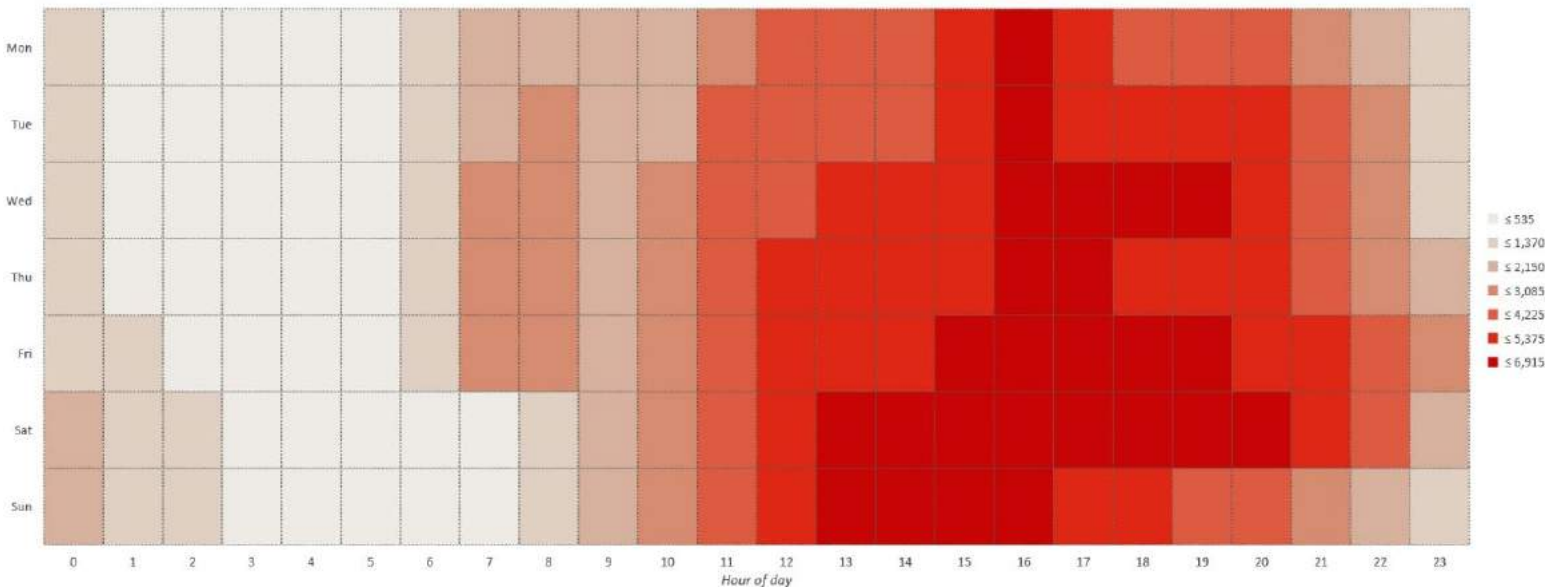


Figure 2: Days of the week and times of day people use e-bikes and e-scooters



### 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
- 17<sup>th</sup> Avenue SW
- 4<sup>th</sup> Street SW

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

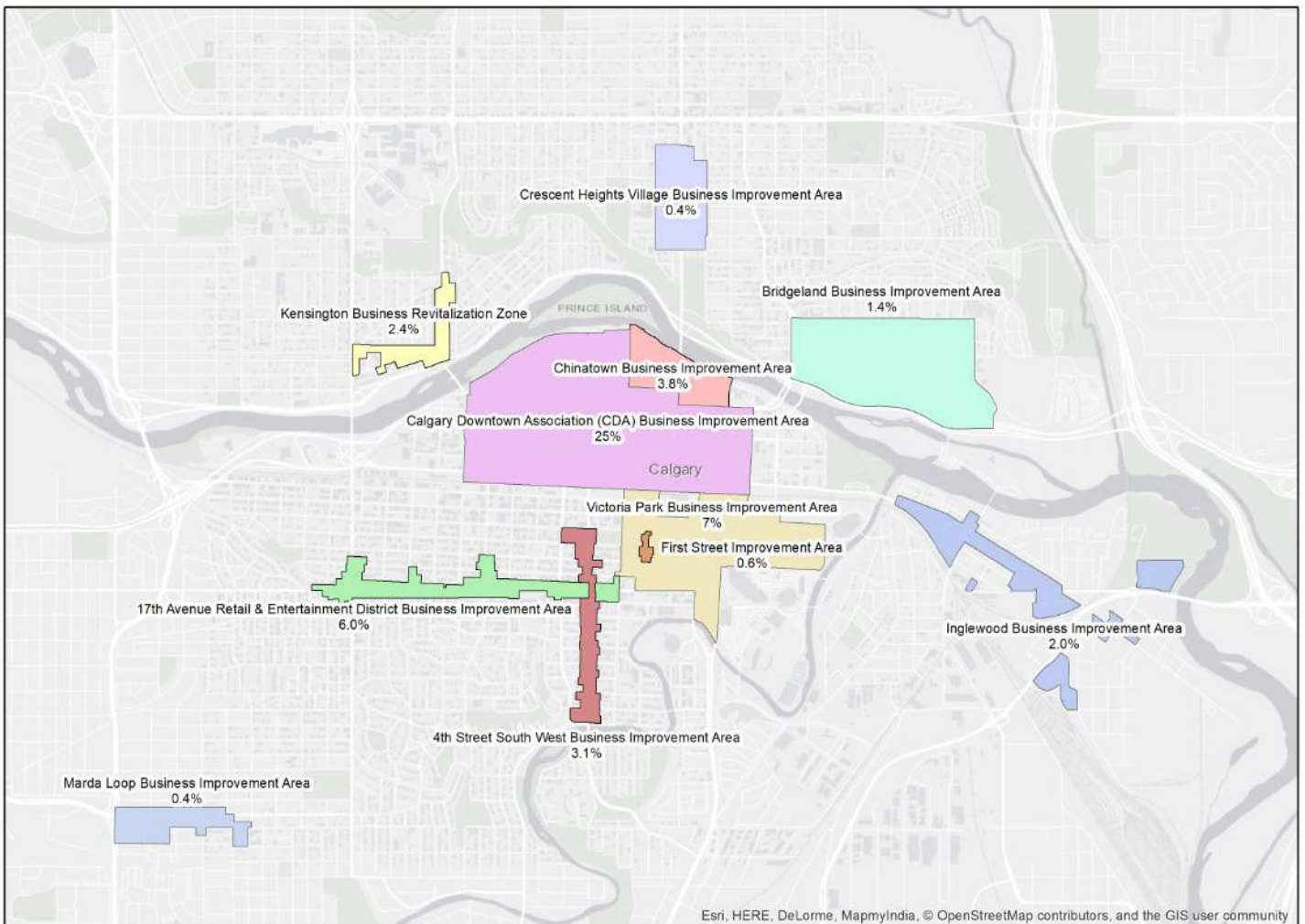
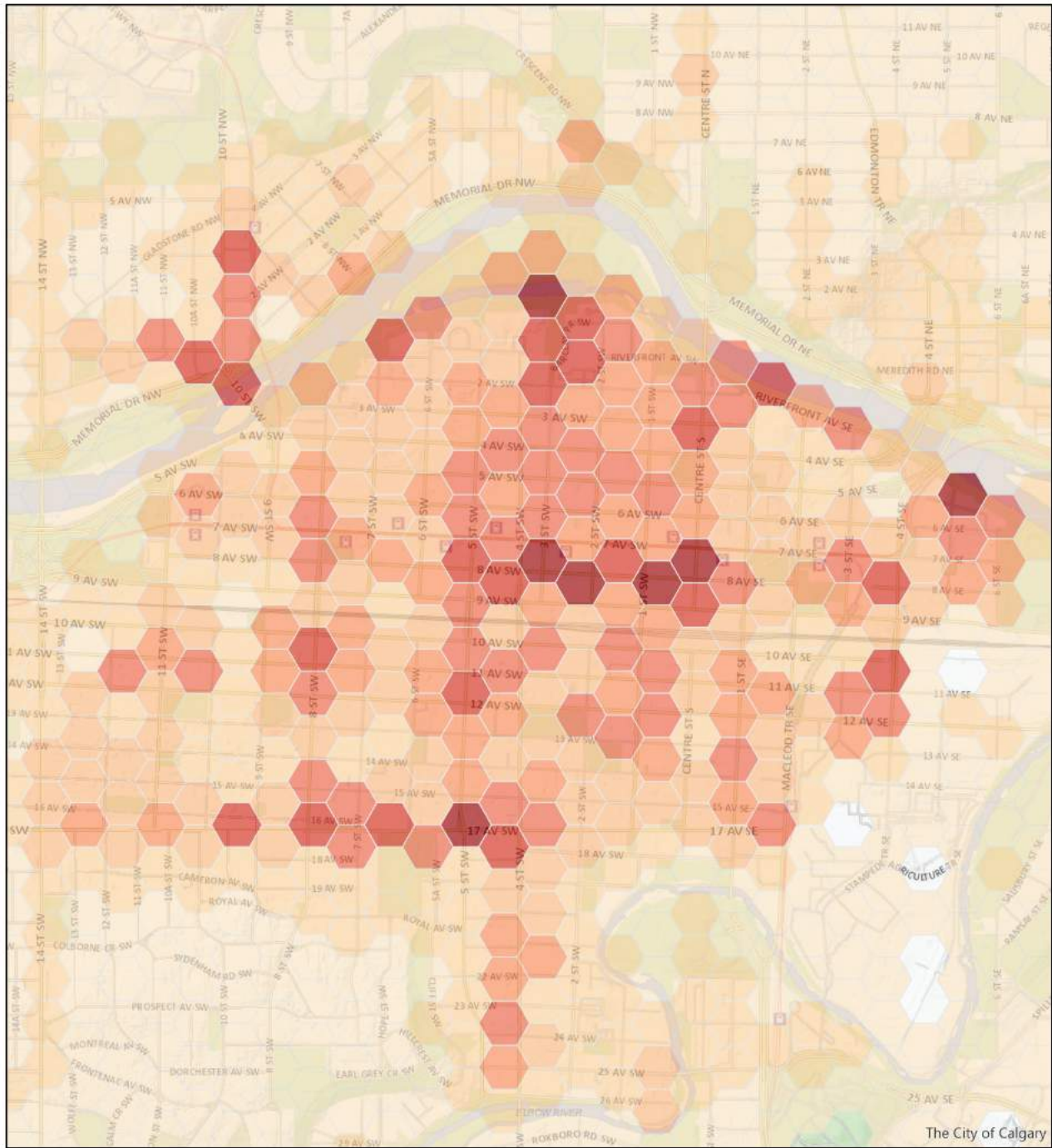


Figure 3: Percent of overall trip destinations in the city that end in a BIA or BRZ



**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

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 Geospatial Business Solutions  
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**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
- 8<sup>th</sup> Avenue SW between 7<sup>th</sup> Street SW and Macleod Trail SE
- 12<sup>th</sup> Avenue SW between 10<sup>th</sup> Street SW and 3<sup>rd</sup> Street SE
- 17<sup>th</sup> Avenue SW between 9<sup>th</sup> Street SW and 1<sup>st</sup> Street SW
- 5<sup>th</sup> Street SW between 17<sup>th</sup> Avenue and 9<sup>th</sup> 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 2<sup>nd</sup> 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%
<b>Total</b>	<b>100%</b>

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 3<sup>rd</sup> Avenue S. Only the streets that have a crossing between 9<sup>th</sup> and 10<sup>th</sup> 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%
<b>Total</b>	<b>100%</b>

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





### 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
<b>Total Number of 311's</b>	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.

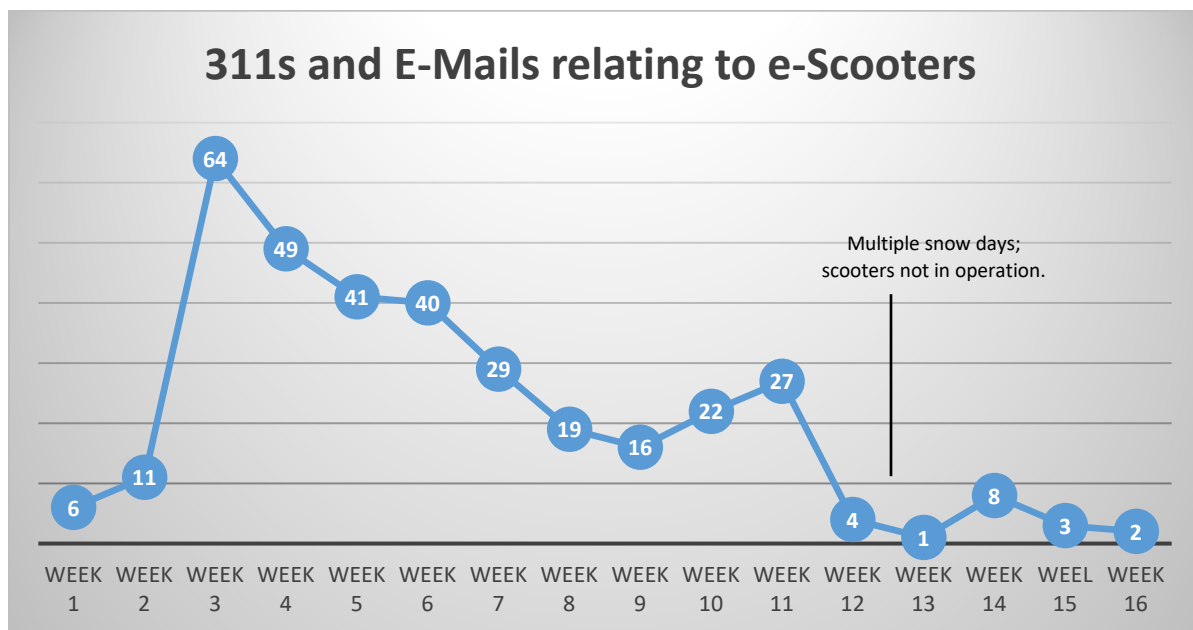
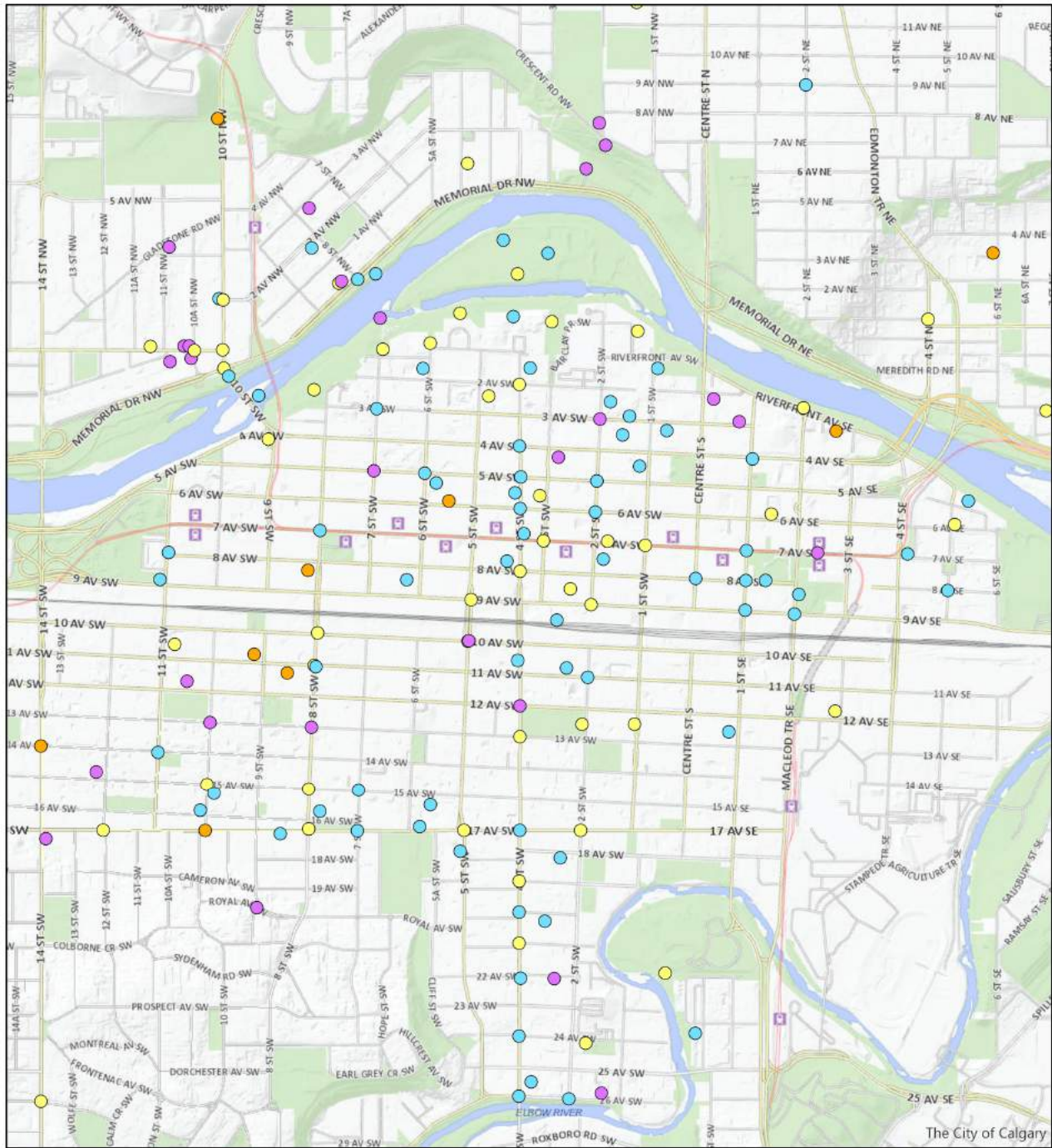


Figure 7: 311s and Emails relating to e-Scooters (July to October 2019)

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	311 Calls Concerning E-Scooters
<span style="color: blue;">●</span> Sidewalk Riding - 96	<p>COPYRIGHT © 2019 The City of Calgary            All rights reserved. No parts of this map may be reproduced in any form or by any means without the written consent of The City of Calgary and appropriate licence agreement.            The City of Calgary provides this information in good faith, but provides no warranty nor accepts any liability arising from incorrect, incomplete or misleading information or its improper use.            This information is maintained on a regular basis.            Geospatial Business Solutions            Date Generated: November 22, 2019</p>
<span style="color: yellow;">●</span> Bad Behaviour - 62	
<span style="color: purple;">●</span> Parking - 35	
<span style="color: orange;">●</span> Other - 21	



### 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”

4. Have you used a shared scooter that is a part of Calgary's Shared Electric Scooter pilot? (n=9,935)

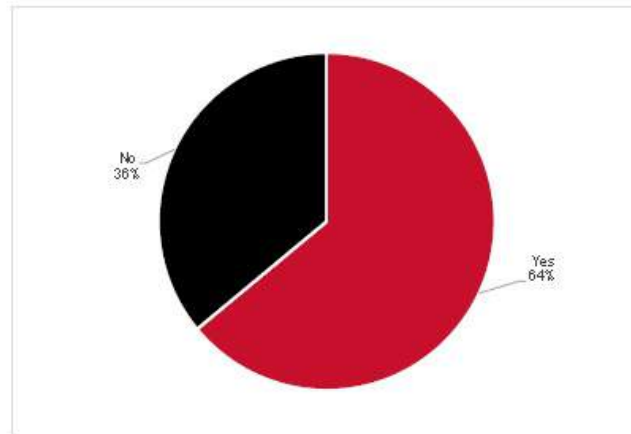


Figure 8: Number of survey participants who have used the e-Scooters

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.

7. From 1 to 5, 1 being the least comfortable and 5 being the most comfortable place to ride a scooter, please rate your comfort with the following:

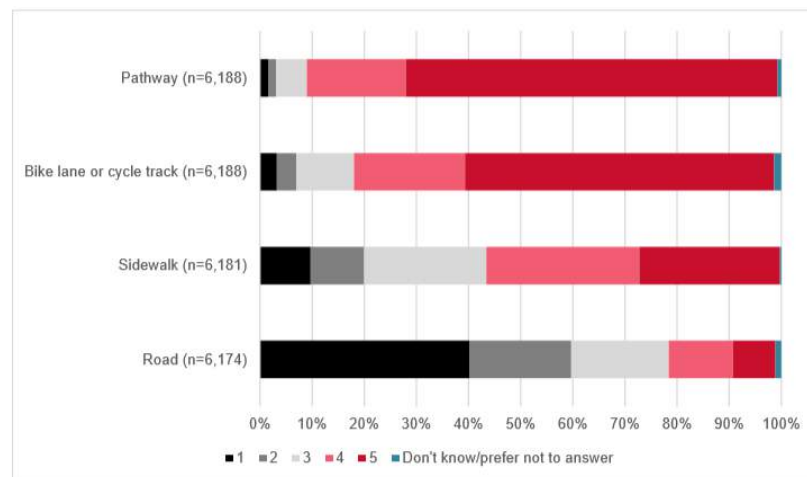


Figure 9: Where users feel most and least comfortable operating e-Scooters

## Shared e-Bike and e-Scooter Data

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)

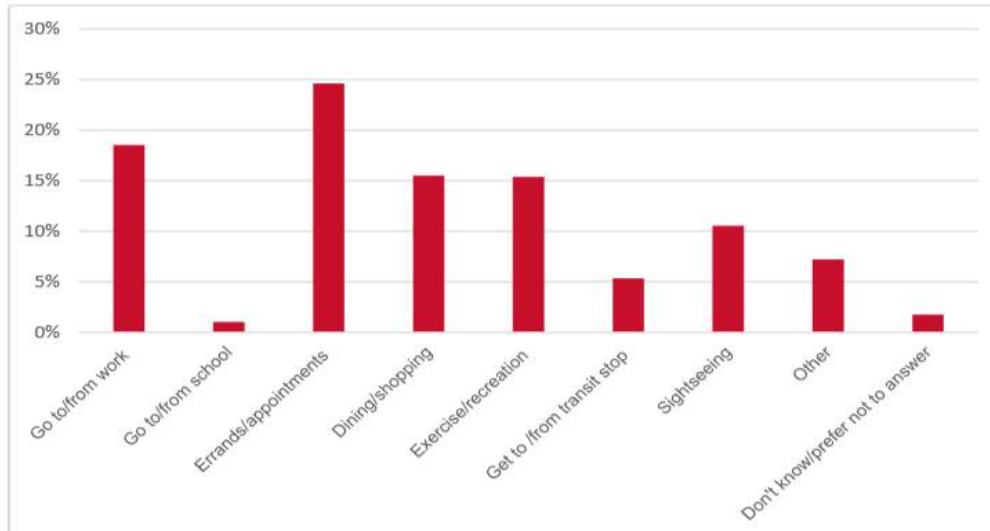


Figure 10: Survey results for trip purpose

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)

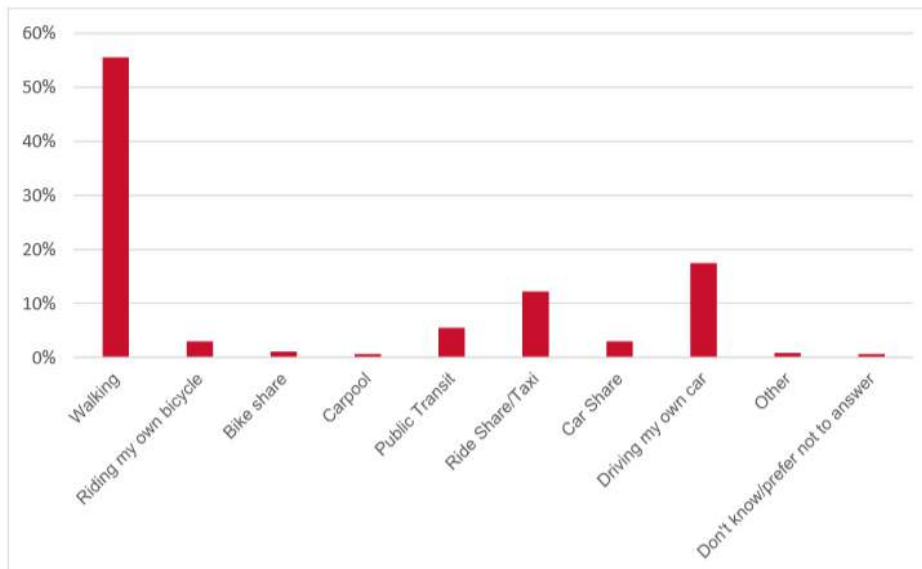


Figure 11: Types of trips e-Scooters are replacing



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)

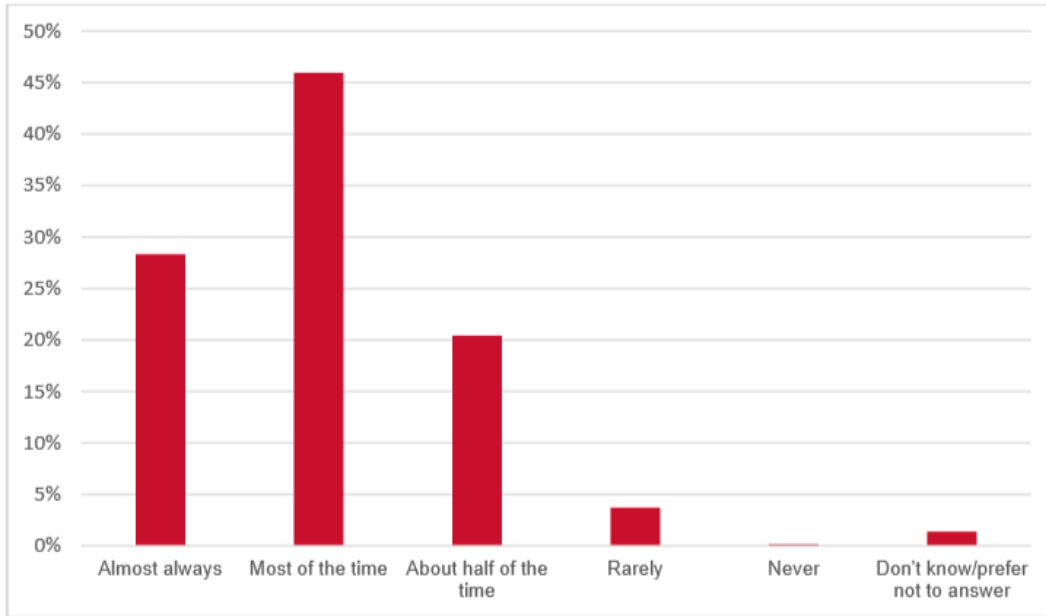


Figure 12: How often e-Scooter users could find an e-Scooter when they wanted one.

**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.

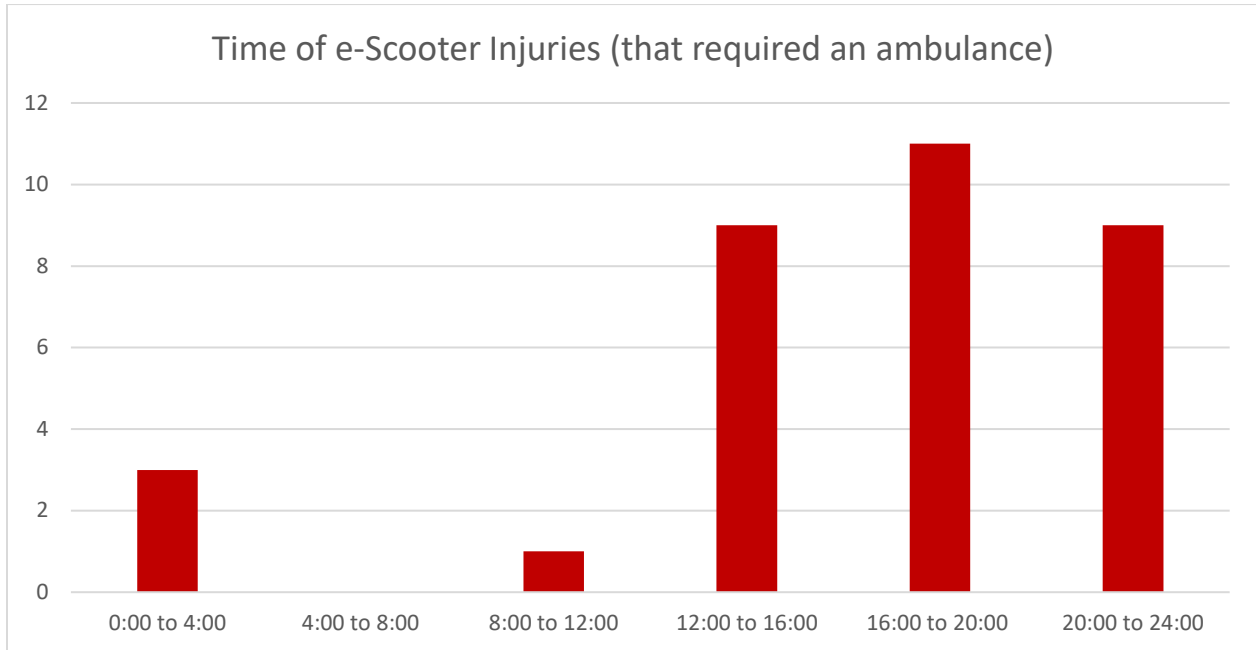


Figure 13: Time of Day when e-Scooter injuries occurred (July to September 2019)

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.

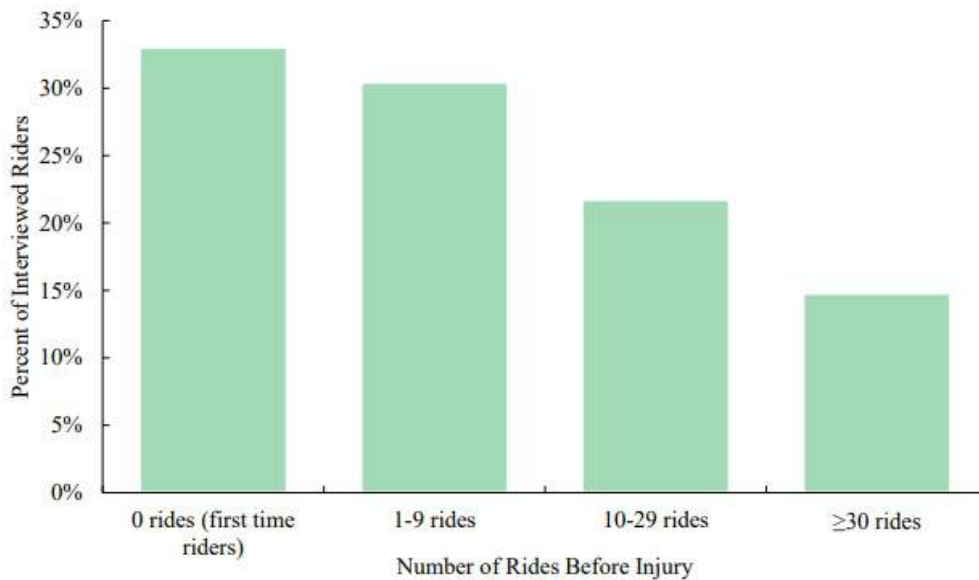


Figure 15: Percent of Interviewed Riders by Number of Scooter Rides before Injury (Dockless Electric Scooter-Related Injuries Study, 2018)

**Proposed Text of a Bylaw to amend Bylaw 26M96, the Calgary Traffic Bylaw**

1. Bylaw 26M96, the Calgary Traffic Bylaw, as amended, is hereby further amended.

2. In section 2:

(a) the following is added after subsection 2(1)(o.1) as subsection 2(1)(o.2):

“(o.2) “e-scooter” means an electric-powered vehicle:

- (i) that has been authorized or granted a permit to operate on the *street* by the Province of Alberta;
- (ii) consisting of a footboard mounted on two or three wheels and a long steering handle;
- (iii) is designed to be operated from a standing position; and
- (iv) while capable of being propelled by muscular power, may be propelled by one or more electric motors;”

(b) subsection 2(1)(ak.2) is deleted and replaced with the following:

“(ak.2) “scooter” means a vehicle:

- (i) consisting of a footboard mounted on two or three wheels and a long steering handle;
- (ii) propelled by resting one foot on the footboard and pushing the other against the ground; and
- (iii) is designed to operate from a standing position;”

3. In section 29:

(a) the following is added after subsection 29(5) as subsection 29(6):

“(6) A person must not park a vehicle on a sidewalk or boulevard except for bicycles or e-scooters.”

4. In section 36.2:

(a) subsection 36.2(3)(c) is deleted and replaced with the following:

“(c) a scooter or e-scooter;”

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(b) subsection 36.2(4.1) is deleted and replaced with the following:

“(4.1) A person operating a motor vehicle on a roadway must yield the right of way to a person riding or using a bicycle, skateboard, scooter, e-scooter, in-line skates or roller skates within an exclusive bicycle lane.”

5. In section 41.1:

(a) subsection 41.1(1) is deleted and replaced with the following:

“(1) The Traffic Engineer may designate crosswalks upon which a person may ride or operate a bicycle, skateboard, scooter, e-scooter, in-line skates or roller skates to cross the roadway.”

(b) subsection 41.1(3)(ii) is deleted and replaced with the following:

“(ii) a person riding or using a bicycle, skateboard, scooter, e-scooter, in-line skates or roller skates;”

(c) subsections 41.1(4)(ii) is deleted and replaced with the following:

“(ii) a person riding or using a bicycle, skateboard, scooter, e-scooter, in-line skates or roller skates.”

6. In section 42:

(a) subsections 42(6), (6.1) and (6.2) are deleted and replaced with the following:

“(6) Despite subsection (1), a person may use in-line skates, roller skates, a scooter, e-scooter, or a skateboard on a sidewalk.

(6.1) Despite subsection (6), a person must not use in-line skates, roller skates, a scooter, e-scooter, or a skateboard on a sidewalk if the Traffic Engineer has posted a traffic control device indicating that skateboarding, scooters, e-scooters, in-line skates or roller skates are not allowed on the sidewalk of the block in which the traffic control device is posted.

(6.2) A person using in-line skates, roller skates, a scooter, e-scooter, or a skateboard on a sidewalk must not use the in-line skates, roller skates, a scooter, e-scooter, or a skateboard that interferes with another user of the sidewalk.”

(b) the following is added after subsection 42(6.2) as subsections 42(6.3), (6.4), (6.5) and (6.6):

“(6.3) A person using in-line skates, roller skates, a scooter, e-scooter, or a skateboard on a sidewalk shall operate the vehicle as near as practicable to the edge of the roadway unless that person is in the process of crossing to an intersecting roadway, pathway or sidewalk.

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- (6.4) A person who is operating an e-scooter must not carry any passengers on the e-scooter.
- (6.5) A person who is operating an e-scooter must ensure that they do so in a manner to avoid collision with another user of the sidewalk or street.
- (6.6) A person must not operate an e-scooter in a reckless manner, having regard to the circumstances.”

(c) the following is added after subsection 42(7) as subsection 42(8):

- “(8) A person driving a vehicle that is about to enter:
  - (a) onto a roadway from an alley or driveway; or
  - (b) into an alley or driveway;shall yield the right of way to an e-scooter on the sidewalk or pathway.”

7. In section 44:

(a) subsection 44(3) is deleted and replaced with the following:

- “(3) Subject to subsection 36.2(3), a person must not operate or use a skateboard, scooter, e-scooter, in-line skates or roller skates on a roadway, except:
  - (a) while crossing such roadway on a crosswalk or multi-use crossing; or
  - (b) while crossing an intersection between exclusive bike lanes.”

(b) the following is added after subsection 44(3) as subsections 44(4) and (5):

- “(4) To cross a roadway at a crosswalk, a person using an e-scooter must either dismount and cross the roadway as a pedestrian, or must:
  - (a) stop and yield to any vehicle or pedestrian on the roadway or crosswalk before beginning to cross, and
  - (b) begin to cross where there is a pedestrian traffic control signal that shows the word or symbol indicating “WALK”, or
  - (c) begin to cross where there is no pedestrian traffic control signal and where there is a traffic control signal showing a green light alone.
- (5) A person riding an e-scooter that is about to enter onto a roadway from a pathway or a sidewalk must, unless otherwise indicated by a traffic control device, yield to any vehicle or pedestrian on the roadway.”

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8. In section 59:

(a) the following is added after section 59.2 as section 59.3:

“59.3 (1) In regards to an e-scooter, “owner” includes any person or corporation who has been issued a permit pursuant to this bylaw for e-scooter share operations.

(2) If an e-scooter is involved in an offence under the bylaw, the owner of that e-scooter, is guilty of that offence.

(3) Notwithstanding subsection (2), the operator of the e-scooter may be liable for any offences involving the operation of that e-scooter.

(4) Subsection (2) does not apply if the owner of the e-scooter satisfies the Court that the owner was not operating the e-scooter at the time of the offence, and that the person who was operating the e-scooter at the time of the offence did so without the owner’s express or implied consent.”

9. In Schedule “A”, under the headings indicated, the following is deleted:

SECTION	OFFENCE	EARLY PAYMENT AMOUNT 1 (if paid within 10 days after the date of the offence)	EARLY PAYMENT AMOUNT 2 (if paid 10 to 30 days after the date of the offence)	SPECIFIED PENALTY
“42(6.1)	Use skates, scooter or skateboard on sidewalk where prohibited			\$75.00
42(6.2)	Use skates, scooter or skateboard on sidewalk in a manner that interferes with a pedestrian			\$150.00”

and replaced with:

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<b>SECTION</b>	<b>OFFENCE</b>	<b>EARLY PAYMENT AMOUNT 1</b> (if paid within 10 days after the date of the offence)	<b>EARLY PAYMENT AMOUNT 2</b> (if paid 10 to 30 days after the date of the offence)	<b>SPECIFIED PENALTY</b>
42(6.1)	Use skates, scooter, e-scooter or skateboard on sidewalk where prohibited			\$75.00
42(6.2)	Use skates, scooter, e-scooter or skateboard on sidewalk in a manner that interferes with another user of the sidewalk			\$150.00
42(6.4)	Carrying passenger on an e-scooter			\$75.00
42(6.5)	Colliding with another user of the sidewalk or street			\$400.00
42(6.6)	Operating in a reckless manner, having regard to the circumstances			\$400.00"

10. This Bylaw comes into force on [date].