

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

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### RECOMMENDATION(S):

That the Standing Policy Committee on Transportation and Transit recommend that Council:

1. Allow private sector operation of shared micromobility services with the conditions that:
  - a) Operators must cover City administrative costs to regulate and manage the program; and
  - b) Obtain City permission and follow all requirements in order to operate
2. Give three readings to the proposed bylaw to amend the Calgary Traffic Bylaw 26M96 (Attachment 3)

### HIGHLIGHTS

- 1.9 million trips and over 200,000 unique users were recorded during the two-year shared e-Bike and e-Scooter pilot that ran from October 2018 to October 2020. The company Lime, which is currently in over 130 cities globally, found that during summertime months in 2019 and 2020, their e-Scooters recorded more trips per vehicle in Calgary than any other city in the world.
- The pilot was operated and funded by three shared micromobility companies. City Administration created the pilot regulations, provided oversight and evaluated the pilot.
- Micromobility services (e.g. shared e-Scooters and e-Bikes) funded by the private sector provide additional mobility options and recreation to Calgarians. Changes to the program are required to address Calgarians' concerns.
- *What does this mean to Calgarians?* Calgarians will have private sector micromobility options after the pilot.
- *Why does this matter?* Shared micromobility offers Calgarians and visitors a quick, convenient and easy private-sector mobility option.
- Throughout the pilot, The City consulted with stakeholders and applied best practices from other jurisdictions across North America. Information was collected such as health data from Canada's first injury study on shared e-Scooters and public engagement data from two citizen surveys with over 17,000 responses.
- Three issue themes emerged: user behaviour, parking, and safety. Changes were made during the pilot to address them. Further modifications are required including:
  - A visible numerical identification number on each shared e-Scooter
  - Allowing companies to be fined directly for improperly parked e-Scooters
  - Allowing e-Scooters to operate on lower-classification roadways
  - Limiting the amount of e-Scooters to 2019 levels
  - Dedicated company funding and incentives for e-Scooter parking
  - Requiring and evaluating companies' safety plans and strategies
- Strategic Alignment to Council's Citizen Priorities: A city that moves
- Background and Previous Council Direction is included as Attachment 1

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### **DISCUSSION**

Administration reviewed data to address concerns and develop recommendations on the future of shared e-Bikes and e-Scooters in Calgary. Data and analysis can be found in Attachment 2. The main themes emerging from the data are user behaviour, parking, and safety. Changes were made during the pilot, and further changes are required to address these issues.

**User behaviour - Key issue data:** Public survey respondents in 2020 cited e-Scooter riders not sharing the sidewalk or pathway fairly and not following the rules as their top two concerns. 125 of the 426 (29%) of 311 service requests in 2020 were about bad behaviour or conflicts with pedestrians.

**What we have done:** Based on 2019 data in high pedestrian volume areas, slow speed zones were implemented in 2020 in Kensington, Mission, Inglewood and on Stephen Avenue. 311s went down in these areas from 27 in 2019 to 11 in 2020. The Business Improvement Areas (BIAs), with slow speed zones, reported user behaviour improved in 2020, compared with 2019.

In 2020, Calgary Community Standards (CCS) conducted several education and enforcement initiatives throughout the pilot. In total, 39 tickets were issued, along with numerous warnings.

Eau Claire was one of the busiest areas for e-Scooter use in Calgary, with usage increasing 80% in the area from 2019 to 2020. Eau Claire accounted for 11% of the 311s in 2019 and 40% in 2020. Most of the concerns were around e-Scooter riders using the pedestrian pathway instead of the bike path. To address this concern, a number of improvements were made: signage was installed directing e-Scooters to the bike path; e-Scooter companies incorporated in-app reminders when trips started in Eau Claire; CCS conducted enforcement and engagement; and a slow speed zone and limits on the number of e-Scooters in the area was implemented in 2020 October on a trial basis.

**What we will do:** E-Scooter identification numbers, in conjunction with time and location, can be used to report poor behaviours and have been successfully implemented in several jurisdictions in North America. Companies can ban specific users if they receive serious or multiple complaints. Calgary Police Services and CCS support an easily identifiable number on each shared e-Scooter to assist enforcement. The City will require highly visible identification numbers on each shared e-Scooter.

To reduce conflicts with pedestrians in neighborhoods, Administration recommends that e-Scooters are allowed on lower-classification roadways without road markings. These are usually residential roadways with lower design speeds. Both users and non-users of e-Scooters reported they were comfortable with e-Scooters on these types of roads. Attachment 3 includes the amendments required to the Transportation Bylaw to allow e-Scooters on roadways without road markings.

**Parking - Key issue data:** 255 of the 426 (60%) of 311s in 2020 were due to parking concerns. Calgarians listed parking as their third top concern in the 2020 e-Scooter citizen survey.

**What we have done:** E-Scooters parked inappropriately cause impediments and accessibility concerns for people walking/wheeling on sidewalks and pathways. To address this, 30 designated e-Scooter parking zones were installed in high-use areas in 2020. Approximately 2.5% of trips ended in these zones, while 10% of e-Scooters were deployed by operators in these zones. While the zones had relatively low user usage, they helped organize e-Scooters in high-use areas. If there were more parking zones and incentives to use them, usage would likely increase.

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The City worked with the e-Scooter providers in 2020 to implement a \$10 fine to users who parked their e-Scooters improperly. The e-Scooter companies reviewed photos taken at the end of trips and issued fines to customers that did not park properly. Citizens also submitted 311s for improperly parked e-Scooters, and these were shared with the companies for investigation. 188 company fines were issued to users. The companies reported that the number of improperly parked e-Scooters went down by 25% from August to October 2020.

From 2019 to 2020 the number of permitted e-Scooters increased from 1,500 to 2,800. Some of the increase in parking complaints is likely attributable to the increased number of e-Scooters. From the e-Scooter citizen survey, there was not a substantial change in how often a user could easily find an e-Scooter (74% of the time in 2019, 84% of the time in 2020). While ridership was higher in 2020, the ridership per device went down from 11.1 rides per day in August 2019 to 4.3 in August 2020.

*What we will do:* We will limit the number of e-Scooters to the 2019 level of 1,500 devices. This allows the companies to operate economically, ensures e-Scooters are accessible for those who want to ride them and will likely reduce parking and sidewalk clutter issues. The City will reassess the e-Scooter device limit periodically and can adjust numbers if parking issues are resolved.

Various North American jurisdictions have reduced e-Scooter parking infractions by allowing The City to ticket companies directly for improperly parked e-Scooters. The company then passes along the fine to the user. As part of future operating requirements, The City will look to duplicate this approach.

Funds will be collected from e-Scooter companies to implement more e-Scooter parking zones. Administration will work with the companies to incentivize parking and deploying in the zones.

**Safety - Key issue data:** 75 shared e-Scooter injuries that required an ambulance during the pilot period were studied by a University of Calgary medical research team. 71 of these injuries occurred to the e-Scooter rider, while four impacted pedestrians or cyclists. There were zero fatalities and zero admissions to the ICU. 40% of the citizen survey respondents who had ridden an e-Scooter, stated that they had experienced e-Scooter maintenance or quality issues.

*What we have done:* The City commissioned a study by the University of Calgary Cumming School of Medicine, in conjunction with Alberta Health Services, to investigate e-Scooter injuries that required an ambulance. A summary of the insights gathered can be found in Attachment 2.

Each e-Scooter company was required to conduct education and safety events and distribute free helmets. In total, five events were held, and approximately 1,400 helmets were distributed.

*What we will do:* The future operating requirements for e-Scooter companies will emphasize safety. Specifically, promoting best maintenance practices, and safe e-Scooter etiquette including helmet use and educating riders on the risks of riding intoxicated and riding double.

### **STAKEHOLDER ENGAGEMENT AND COMMUNICATION (EXTERNAL)**

- Public Engagement was undertaken
- Public Communication or Engagement was not required
- Public/Stakeholders were informed
- Stakeholder dialogue/relations were undertaken

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Various stakeholders were consulted throughout the pilot, including: Government of Alberta, shared micromobility companies, University of Calgary, Alberta Health Services, Advisory Committee on Accessibility and the Canadian Institute for the Blind. Administration connected with colleagues in Seattle, Portland, San Francisco, Chicago, Montreal, Ottawa and Edmonton to learn from their experiences. Public engagement occurred through two online surveys (more than 17,000 responses) and an ongoing dialogue with BIAs. The City communicated details about the pilot through social media channels, calgary.ca and media interviews.

### **IMPLICATIONS**

#### **Social**

Increased transportation options expand people's ability to take part in a variety of economic and social activities. Shared micromobility options allow Calgarians and tourists to sightsee, socialize with family and friends, and visit local businesses and attractions.

#### **Environmental**

The citizen e-Scooter survey results show that a third of e-Scooter trips replace a car trip. E-Scooters and e-Bikes are electrically powered and do not have tail pipe emissions.

#### **Economic**

Approximately 55% of shared e-Scooter and e-Bike trips ended in BIA areas, which feature small local businesses. The shared micromobility companies hired 82 full time, 22 part time, and numerous contract staff in Calgary.

#### **Service and Financial Implications**

##### **No anticipated financial impact**

Between 2018 and 2020 The City took in \$177,000 from company permits and it cost an estimated \$163,000 for The City to run the pilot. The City will continue to recover all municipal costs by implementing a per-trip fee model and additional permit fees to build and maintain e-Scooter parking infrastructure.

### **RISK**

The Calgary e-Scooter injury study reports several injuries associated with e-Scooter usage. There will likely be further e-Scooter ER admissions if the program continues.

### **ATTACHMENT(S)**

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

#### Department Circulation

General Manager	Department	Approve/Consult/Inform
Doug Morgan	Transportation	Approve

# Background

## Previous Council Direction

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In July 2018, Council unanimously approved a Notice of Motion directing administration to conduct a two-year pilot for bike share by September 2018 that would 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

The Notice of Motion further directed administration report back to Council through the Standing Policy Committee on Transportation and Transit 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
- Provide an update on the pilot in Q4 2019
- Provide a final report with potential further recommendations no later than Q4 2020.

**Timeline for Shared Bike Notice of Motion**

<b>DATE</b>	<b>REPORT NUMBER</b>	<b>DIRECTION/DESCRIPTION</b>
7/23/2018	C2018-0934	<p><b>Bike Share in Calgary</b></p> <p>Council unanimously Approved the Notice of Motion directing Administration to undertake a 2-year micromobility pilot (bicycles, scooters or other personal mobility devices).</p>
2/27/2019	TT2019-0205	<p><b>Transportation Bylaw Changes</b></p> <p>Council approved a number of updates to charter and non-charter Bylaws including changes to where non-motorized Skateboards, Inline Skates and Scooters can operate, allowing cyclists to signal with either hand, the safe passing bylaw, and updating the definition in the bylaw for skateboards, scooters and bicycles. These changes helped allow for the legal operation of micromobility devices in Calgary.</p>
12/18/2019	TT2019-1374	<p><b>Shared e-Bike and e-Scooter Mid-Pilot Report</b></p> <p>Administration updated Council on the pilot and brought forth new operational strategies to help manage and regulate the pilot program. Council passed updates to the Traffic Bylaw to regulate e-Scooters, and additional fines in the traffic bylaw including fines for doubling and interfering with pedestrians.</p>
12/16/2020	TT2020-1260	<p><b>Shared e-Bike and e-Scooter Final Pilot Report</b></p> <p>Administration in proposing to continue the shared micromobility program post pilot, with the conditions that operators must cover City administrative costs to regulate and manage the program and obtain City permission and follow all requirements in order to operate. Bylaws are also proposed to allow e-Scooters on low volume roadways and to add additional vehicle requirements.</p>

Shared e-Bike and e-Scooter Data and Analysis Report

**Content**

Page	Topic	Content	Data source
2	Ridership	Fleet size Ridership numbers Destinations	Mobility Data Specification (MDS)
3	Destinations	Where are people going	Mobility Data Specification (MDS)
5	Routes	How people are getting to their destinations	Mobility Data Specification (MDS)
7	311 Calls and Correspondence with Citizens	Common concerns User behavior & conflicts	Citizen Survey Results 311 & Citizen Correspondence
10	Parking	Parking issues Share and Go Zones	311 & Citizen Correspondence Mobility Data Specification (MDS)
12	Public Engagement Survey	Complaints Distribution	Citizen Survey Results 311 & Citizen Correspondence
19	Safety & e-Scooter Injuries	How many, why and when are people being injured on e-scooters	Alberta Health Services Data
21	Financial Summary	City Revenues and Costs for the pilot	Financial Data

## Ridership

Table 1 shows a comparison of fleet size and number of trips recorded by shared e-Bikes and e-Scooters over the entire pilot period. 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.

**Table 1: e-Bike and e-Scooter Fleet Size & Ridership**

Company	2019	2020
	500 e-bikes 1,000 e-Scooters	Lime chose to remove their e-Bikes in 2020 1,300 e-Scooters
	500 e-Scooters	1,000 e-Scooters
	N/A	500 e-Scooters
Number of trips per year	918,000	956,000
Operating Days	110	162
Number of unique riders	200,000+	
<b>Total # of trips during the pilot</b>	<b>1,874,000</b>	

Due to uncertainties with COVID19, a restricted number of 450 e-Scooters were permitted to operate between May 22<sup>nd</sup> and June 22<sup>nd</sup>, 2020. The permitted number of e-Scooters increased on June 22<sup>nd</sup> to 2,500, which was the original number of permitted e-Scooters for the second year of the pilot. In accordance with the performance based Dynamic Cap, the number of permitted e-Scooters increased again in August 2020 from 2,500 to 2,800. Although 2,800 e-Scooters were permitted, the maximum number deployed during the pilot was 2,300.

### Destinations

People used e-Scooters and e-bikes to travel to a variety of destinations in the inner city, as shown in Figure 1. The following destinations were the most popular throughout the pilot:

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

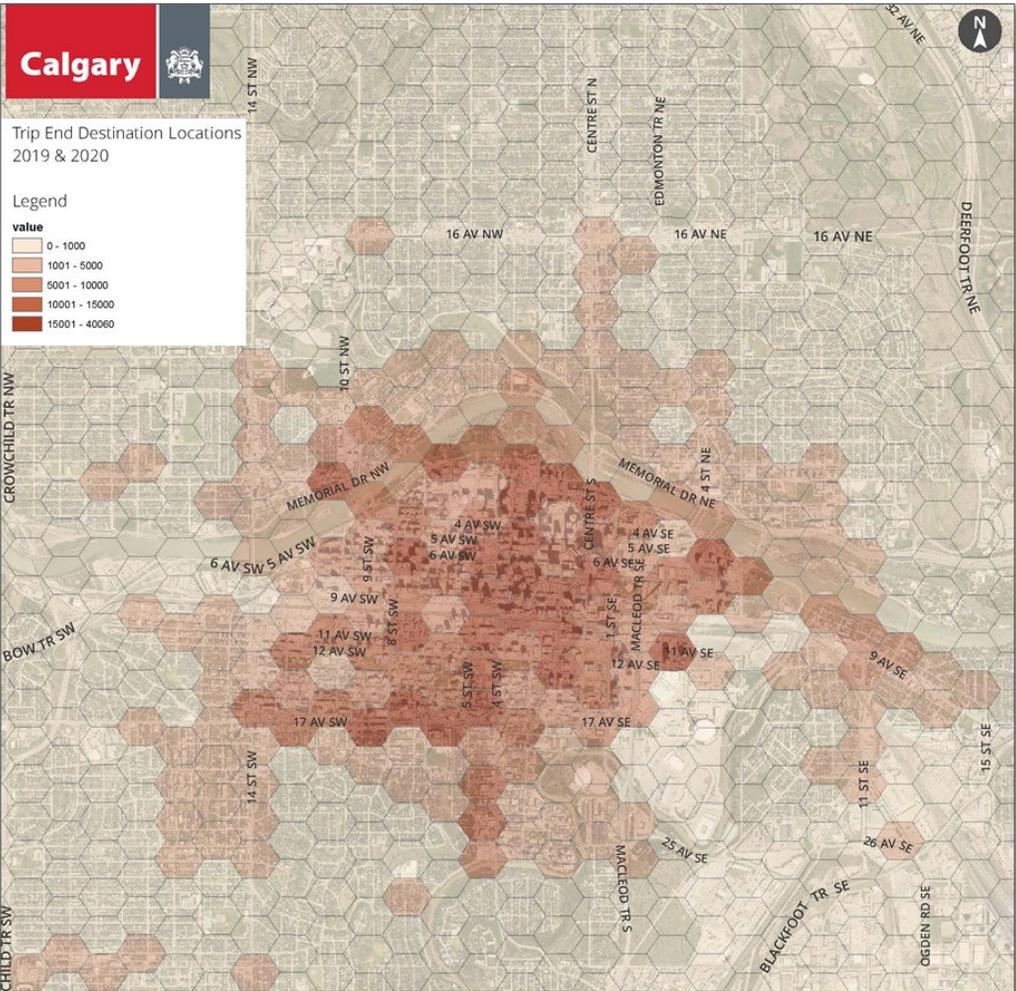


Figure 1: Trip End Locations for the Combined Two-Year Pilot

Throughout the duration of the pilot, approximately **55%** of shared e-scooter and e-bike trips ended in a BIA or BRZ, as shown in Figure 2.

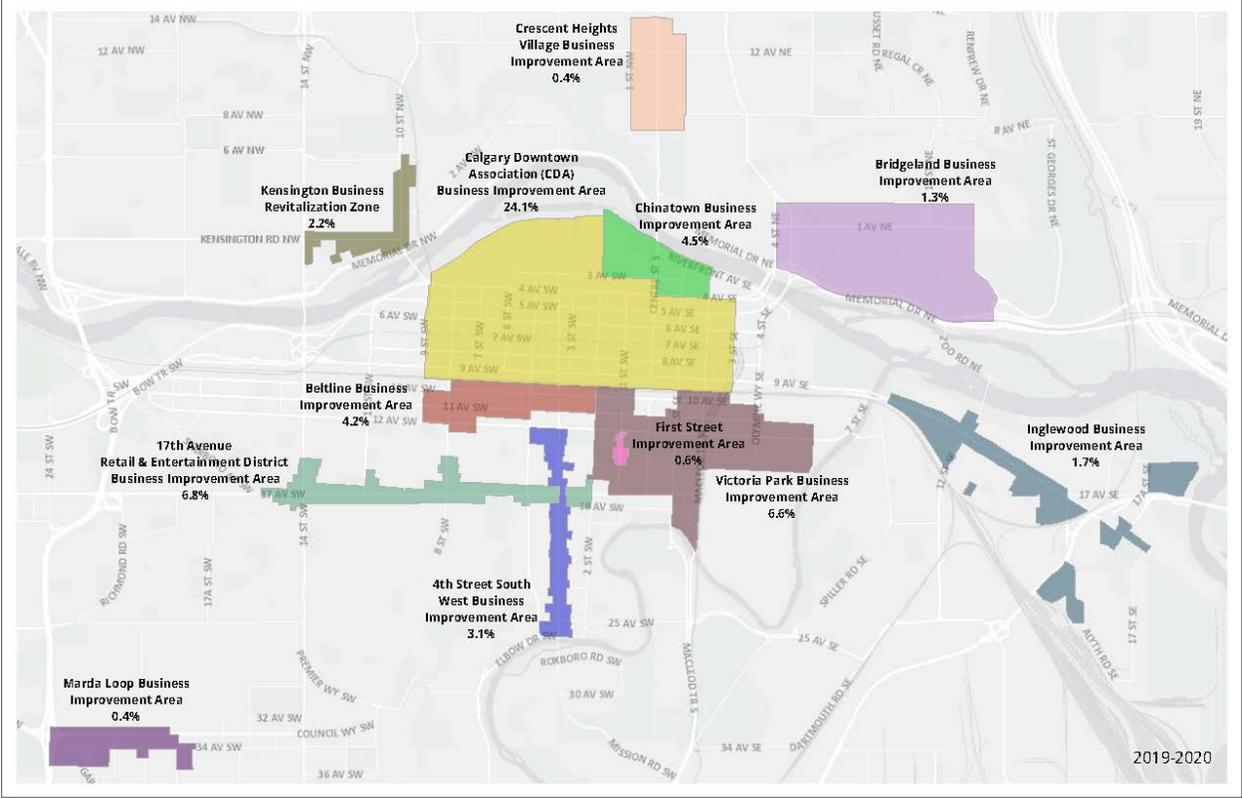


Figure 2: Percent of Overall Trip Destinations That End in a BIA or BRZ

Table 2 Percentage of Total Trips that ended in a BIA - 2019 vs 2020

BIA / BRZ	2019	2020
Calgary Downtown Association (CDA)	24.1%	24.1%
Victoria Park	7.2%	6.2%
17th Avenue Retail & Entertainment District	5.7%	7.7%
Beltline	4.0%	4.3%
Chinatown	3.6%	5.2%
4th Street South West	3.0%	3.3%
Kensington	2.3%	2.1%
Inglewood	1.8%	1.6%
Bridgeland	1.4%	1.2%
First Street Improvement Area	0.5%	0.7%
<b>Total</b>	<b>53.6%</b>	<b>56.4%</b>

### Routes

Approximately 60% of e-Scooters and e-Bikes used the pathway network or cycling infrastructure to get to their destinations. The rest of the volume of the trips (40%) took place on sidewalks and/or roadways. The most popular routes in the city were along the river path, commercial areas, and in the cycle track network (Figure 3).

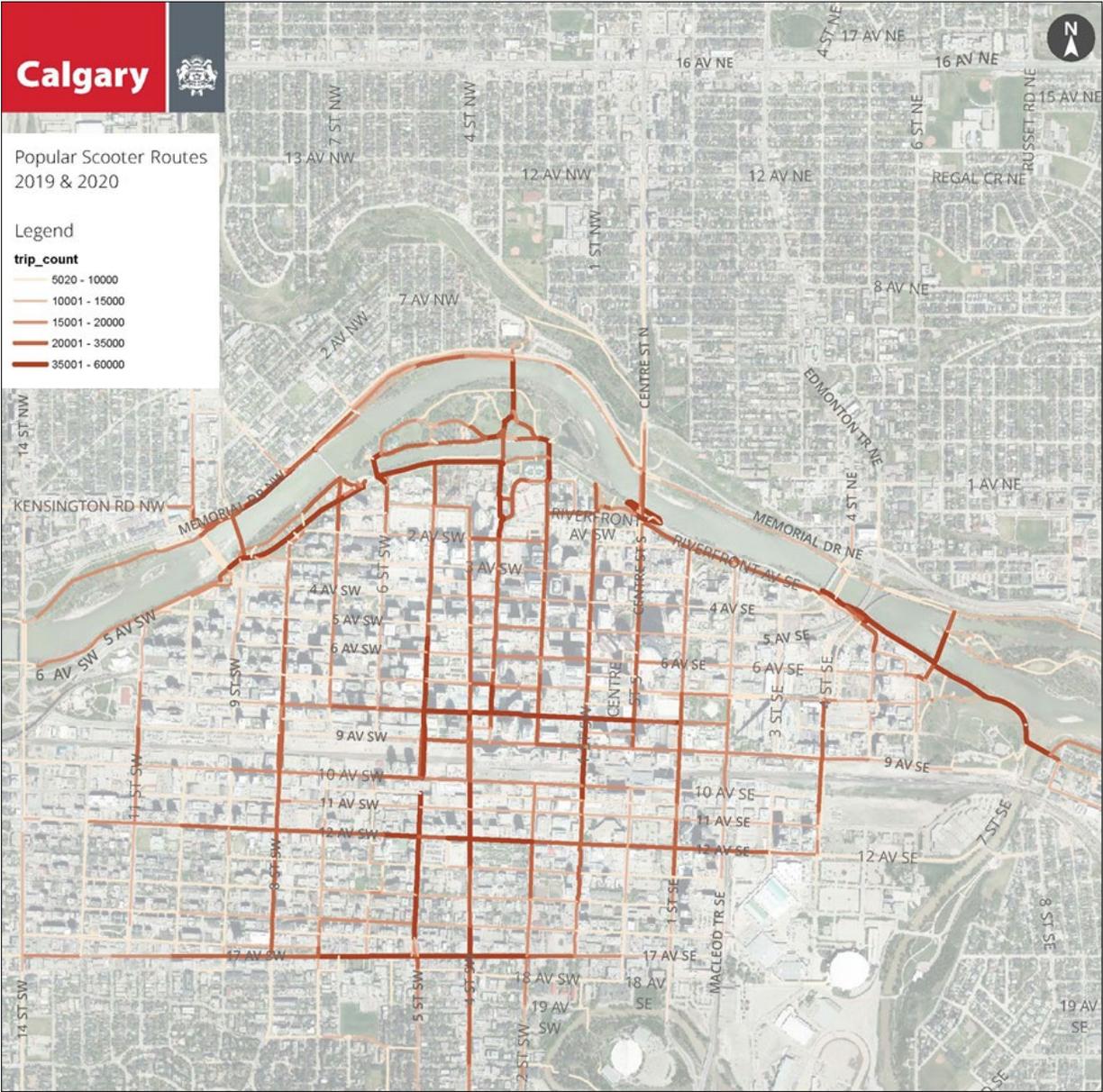


Figure 3: Most Popular Routes – 2019 + 2020

Figure 4 shows the difference in popular routes in 2019 vs 2020. Areas with a darker shade of orange/red indicate increased use in that area in 2020 compared to 2019. In 2020, there were a higher number of trips in: Eau Claire, the River Pathway, 17<sup>th</sup> Avenue SW, Memorial Drive (Adaptive Roadway) and select streets in the downtown core.

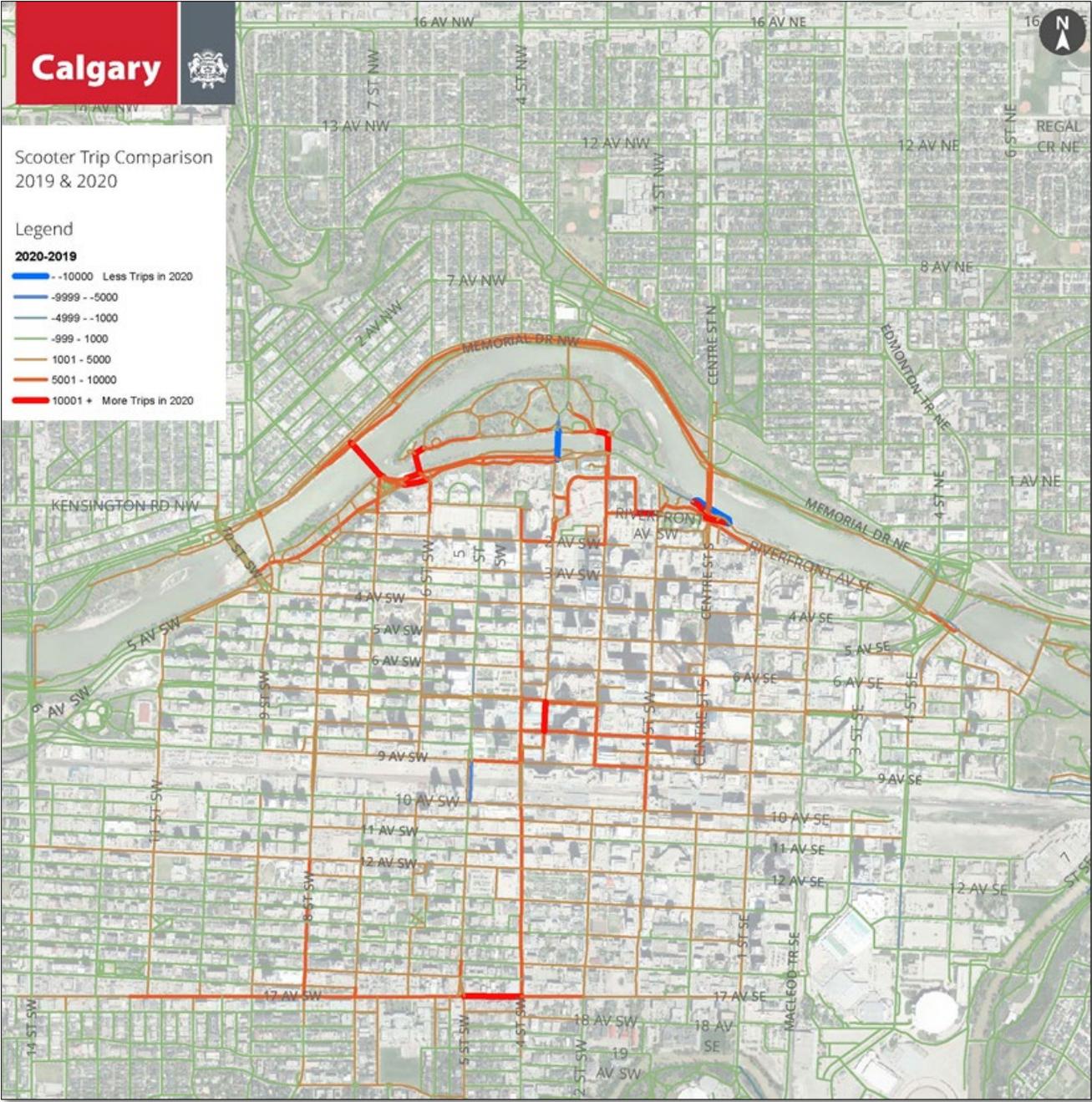


Figure 4: Differences in Route Use - 2019 vs 2020

### 311 Calls and Correspondence with Citizens

Throughout the course of the pilot, there were a total of 769 logged 311 service requests. As shown in Figure 5, the two most common complaints were around rider behaviour/conflict with pedestrians and parking. The number of concerns around bad behaviour and conflicts with other sidewalk and pathway users was higher in 2019 (206) than 2020 (125). More parking complaints were logged in 2020 (255) than in 2019 (69). More other complaints were logged in 2020 (46) than in 2019 (66).

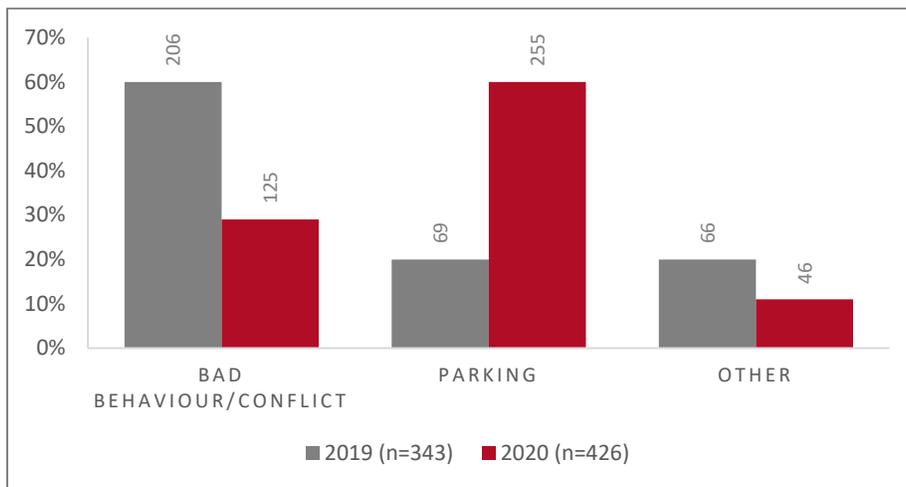


Figure 5: 311 Complaints by Category – 2019 vs 2020

While the total number of 311 complaints in 2020 exceeded those complaints in 2019, there were 52 more operational days in 2020 than in 2019, shown in Figure 6. Therefore, the overall average number of complaints per day dropped from 3.1/day in 2019 to 2.6/day in 2020.

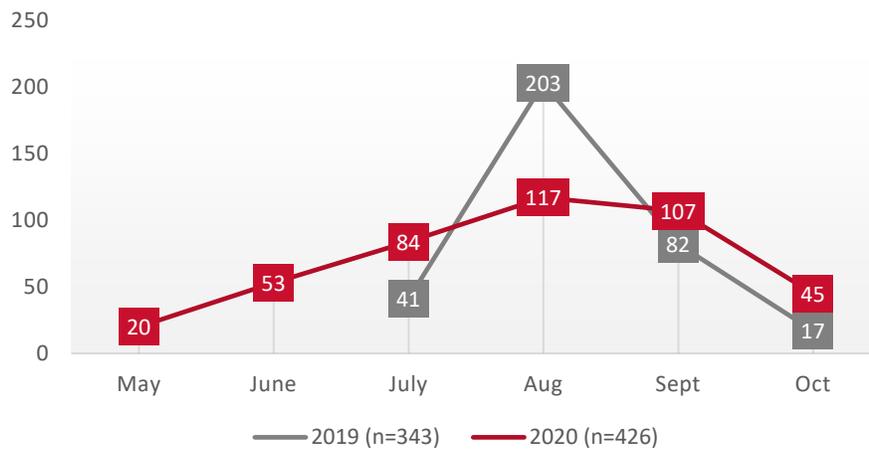


Figure 6: Overall 311 Complaints by Month – 2019 vs 2020

The areas with the most complaints were located centrally in Downtown and the Beltline, as well as along the riverfront in areas such as Eau Claire, Sunnyside and Bridgeland. For the 2020 operating season, The City implemented geofenced slow speed zones (highlighted blue in Figure 7) in Kensington, Mission, Stephen Avenue and Inglewood. While the overall number of 311s increased in 2020, 311 complaints generally went down in areas where Slow Speed Zones were implemented, as highlighted in Table 3. The Business Improvement Areas (BIAs), with slow speed zone's, reported user behaviour improved in 2020 compared to 2019.

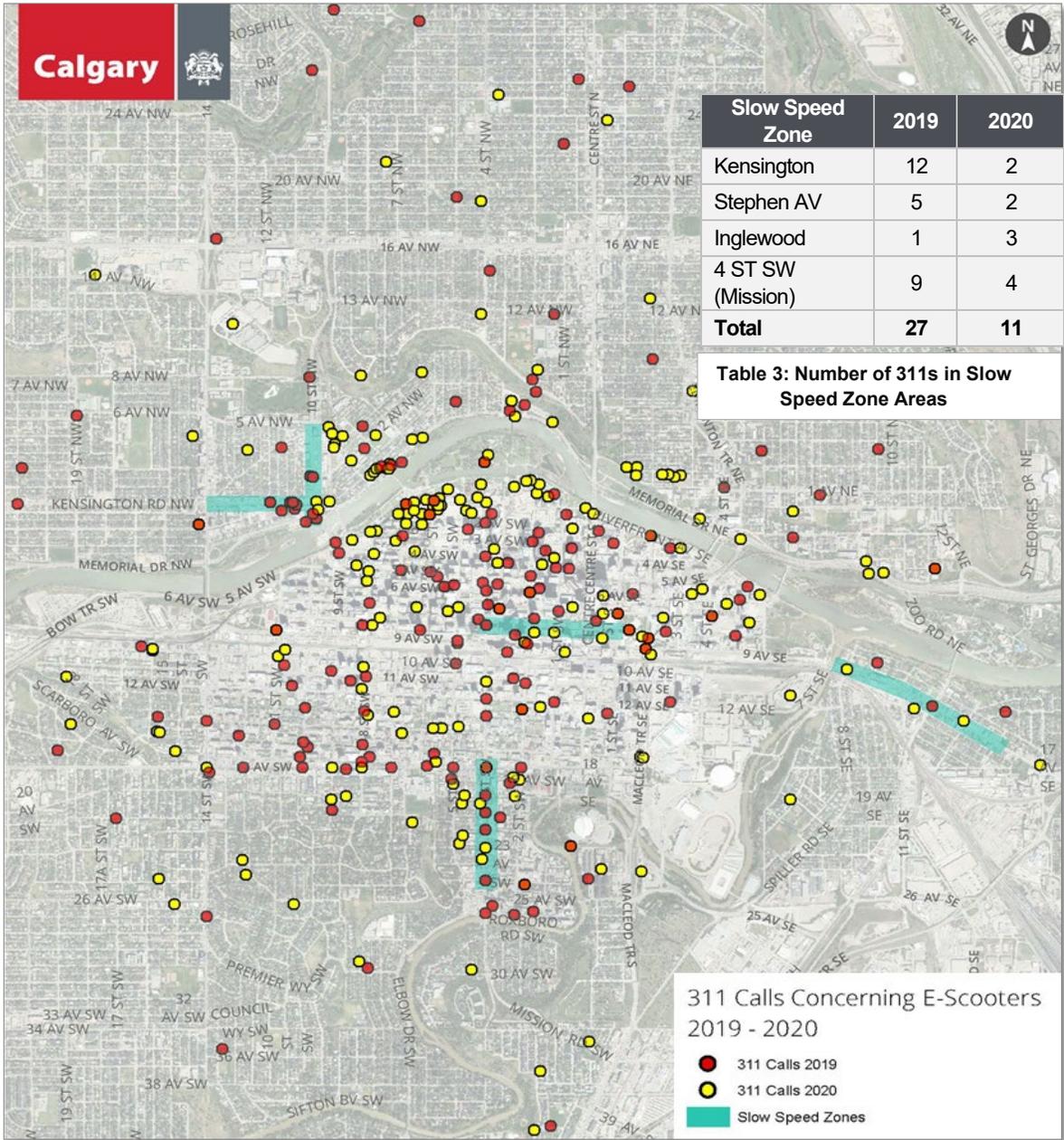
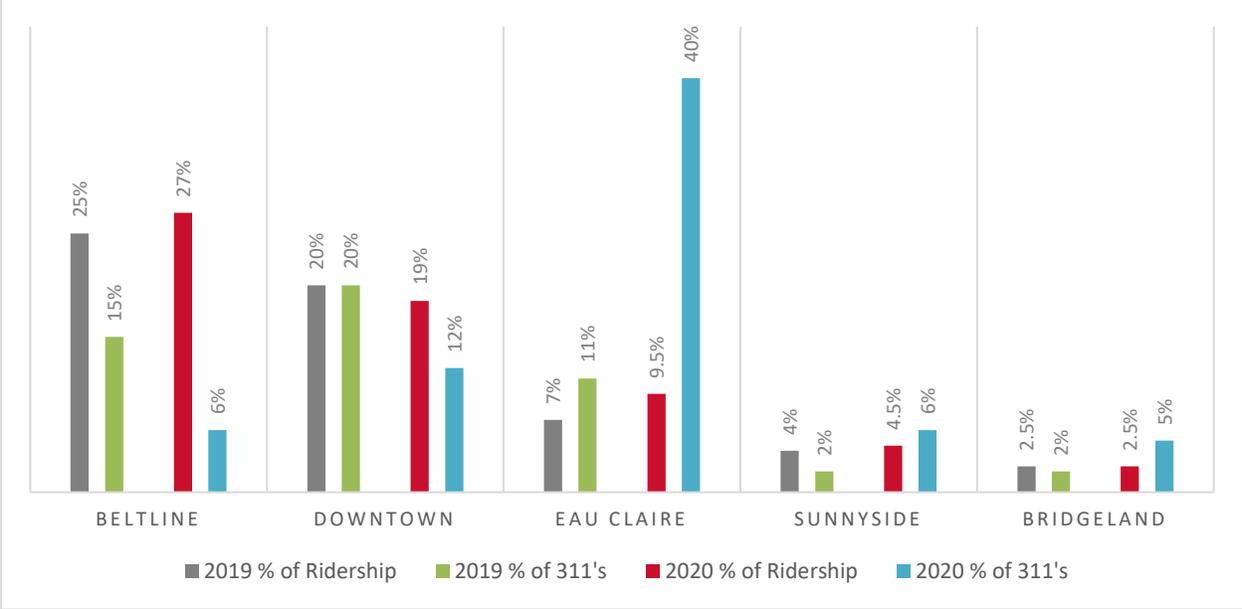


Figure 7: Locations of 311 Complaints – 2019 vs 2020

Eau Claire was one of the busiest areas for e-Scooter use in Calgary, with usage increasing by 80% in the area from 2019 to 2020. Rides in the area increased from 50,000 in 2019 to 90,000 in 2020. Eau Claire accounted for 11% of the 311s in 2019, and 40% of 311s in 2020 (Figure 8).



**Figure 8: Ridership vs 311 Complaints in Top 5 Communities – 2019 vs 2020**

### Parking

The 2020 e-Scooter citizen survey indicated parking was the 3<sup>rd</sup> top concern. Figure 9 shows the parking specific complaints made to 311. There were 69 parking 311s in 2019 and 255 in 2020. The City worked with the e-Scooter providers to implement a \$10 company fine to users who parked their e-Scooters improperly starting in August 2020. Companies issued 188 fines in August through October 2020. There was a greater number permitted of e-Scooters in Calgary in 2020 (n=2,800) compared to 2019 (n=1,500), which could account for increases in e-Scooter 311 parking concerns.

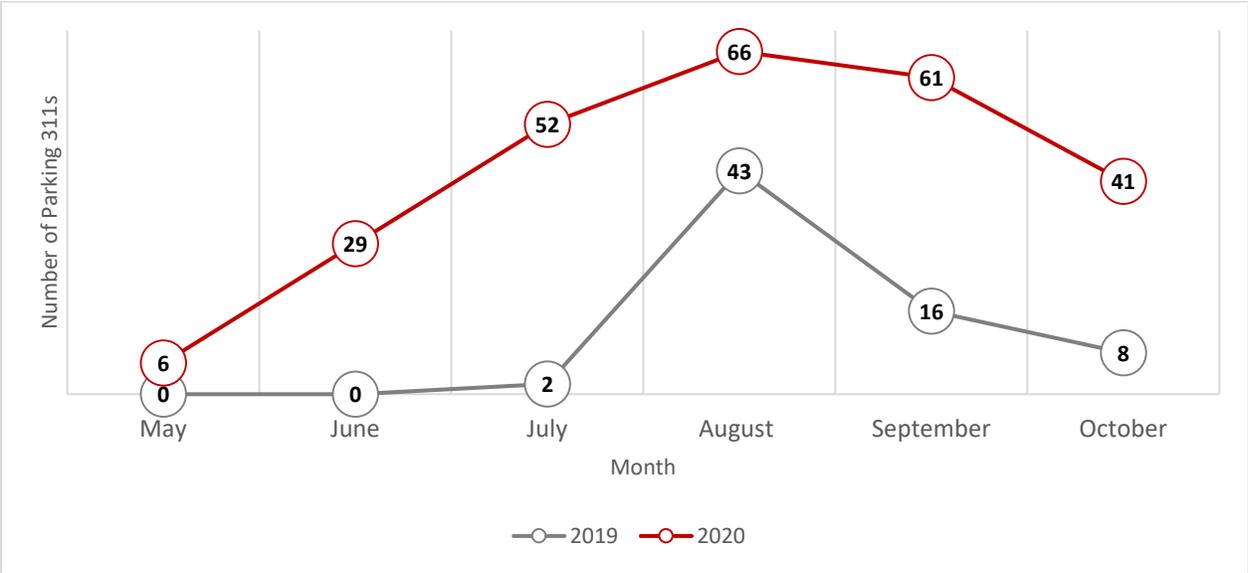


Figure 9: Number of Parking Specific Complaints by Months – 2019 vs 2020

### Share and Go Parking Zones

In response to concerns around improperly parked e-Scooters, The City implemented 30 “Share and Go Parking Zones” in 2020. These zones were created as a go-to place to find an e-Scooter or to end a ride. Three styles of parking zones were installed: painted off street zone, painted parking mat, and repurposed Car2Go parking stalls. Costs associated with the installation of parking zones were paid for by the fees collected from the e-Scooter companies.



**Figure 10: Three Types of e-Scooter “Share & Go” Parking Zones**

Since installation, approximately 2.5% of riders ended their trips in a Share and Go Parking Zone. The three most popular parking zones were:

- South of the Peace Bridge (painted off street zone)
- North of Eau Claire AV & 6 ST SW (painted off street zone)
- South of the Jaipur Bridge (painted parking mat)

Approximately 10% of e-Scooters deployed by the operating companies were in Share and Go Parking Zones. The three most popular deployment zones were:

- 12 AV & 10 ST SW (repurposed Car2Go stall)
- North of Eau Claire AV & 6 ST SW (painted off street zone)
- 15 AV & 5 ST SW (repurposed Car2Go stall)

### Public Engagement Survey

The City conducted two public engagement surveys that took place from September 23 to October 6, 2019 and September 16 to October 7, 2020 to understand what citizens thought about the shared e-Bike and e-Scooter pilot. The full What We Heard report is available publicly online. In 2019, approximately 9,900 people responded to the survey, while 2020 saw approximately 7,200 survey responses. As illustrated in Figure 11, about half of the survey participants had tried riding an e-Scooter.

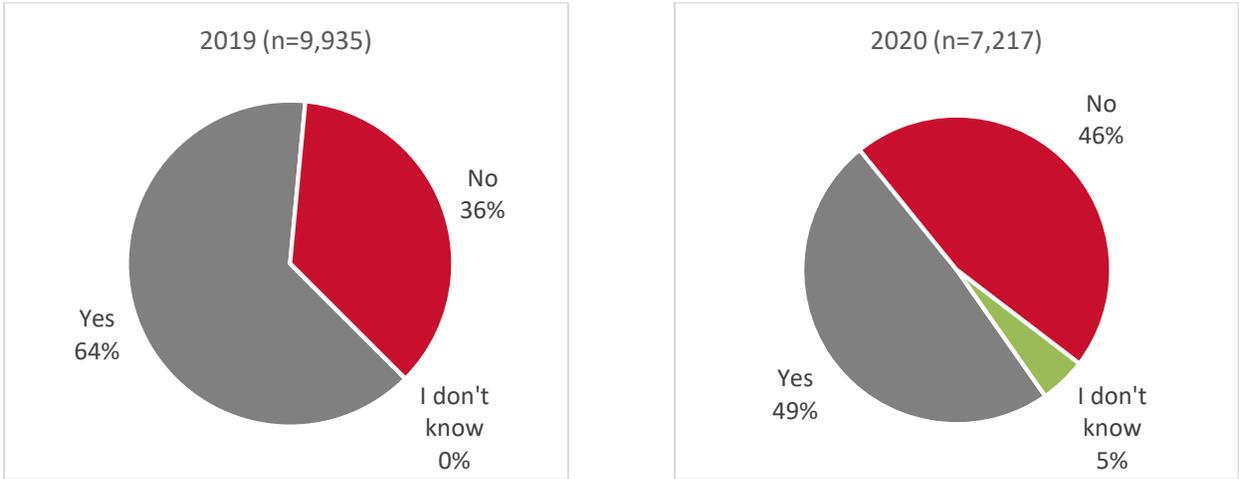


Figure 11: Survey Response to Using a Shared e-Scooter - 2019 vs 2020

In 2019, most riders took between five and 15 trips. As shown in Figure 12, the number of people who had used an e-Scooter 16 or more times increased in 2020.

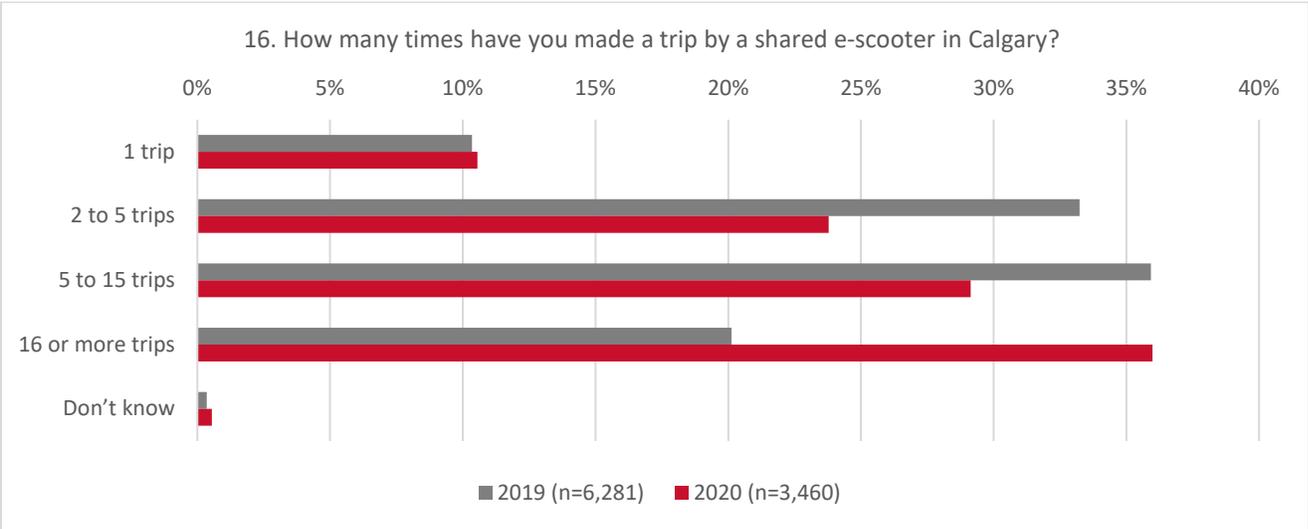


Figure 12: Survey Response to Number of Times Riders Use e-Scooters - 2019 vs 2020

As illustrated in Figure 13, in 2020, e-Scooter rider survey participants felt most comfortable riding the shared e-Scooters on pathways, empty sidewalks and bike lanes/cycle tracks. Residential roads were not as comfortable, but were preferred to busy sidewalks, commercial main streets, and major roadways, which were ranked the least comfortable.

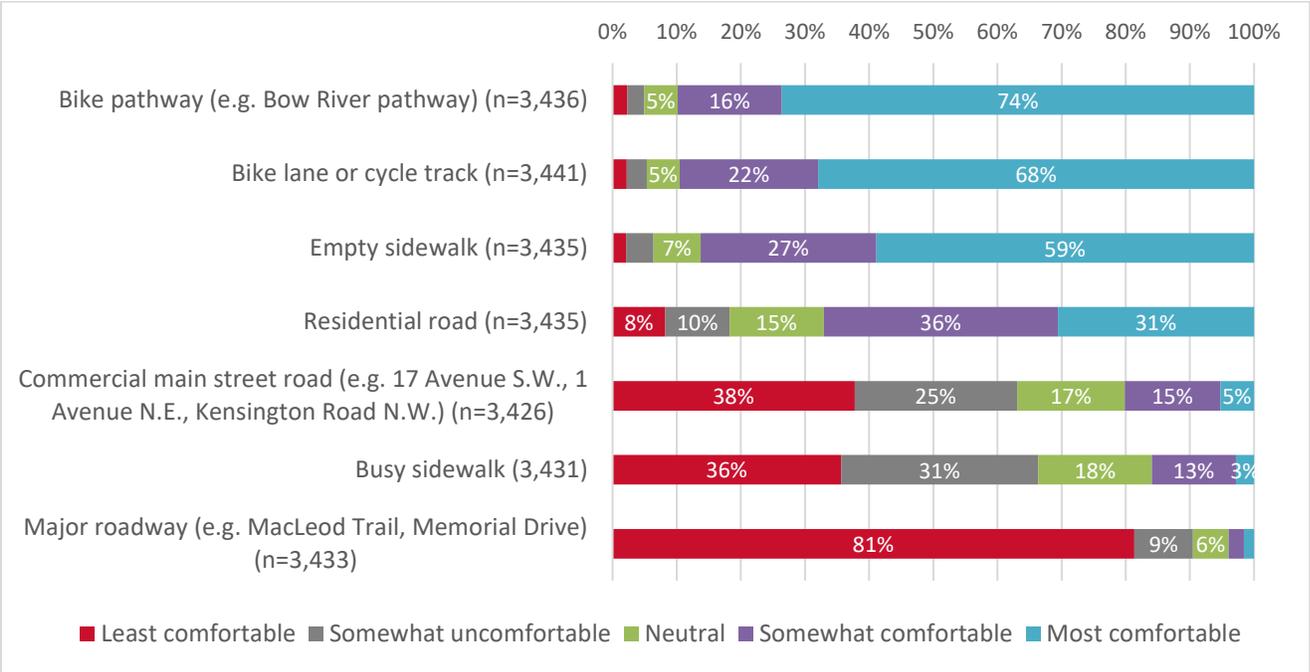


Figure 13: 2020 Survey Response to Level of Rider Comfort Based on Style of Infrastructure

When asked where people should be able to ride shared e-scooters, survey respondents (both riders and non-riders) were in favour of shared e-Scooters being permitted to use bikes lanes, bike pathways and cycle tracks. Residential roads and empty sidewalks were also acceptable, but sidewalks with many pedestrians were not. There was less support for allowing shared e-Scooters on main streets in commercial areas like 17th Avenue SW, Bridgeland and Kensington Road and almost no support for on major roadways like Memorial Drive and MacLeod Trail. Figure 14 illustrates the survey response summary for citizens' preference on where people should be allowed to ride e-Scooters.

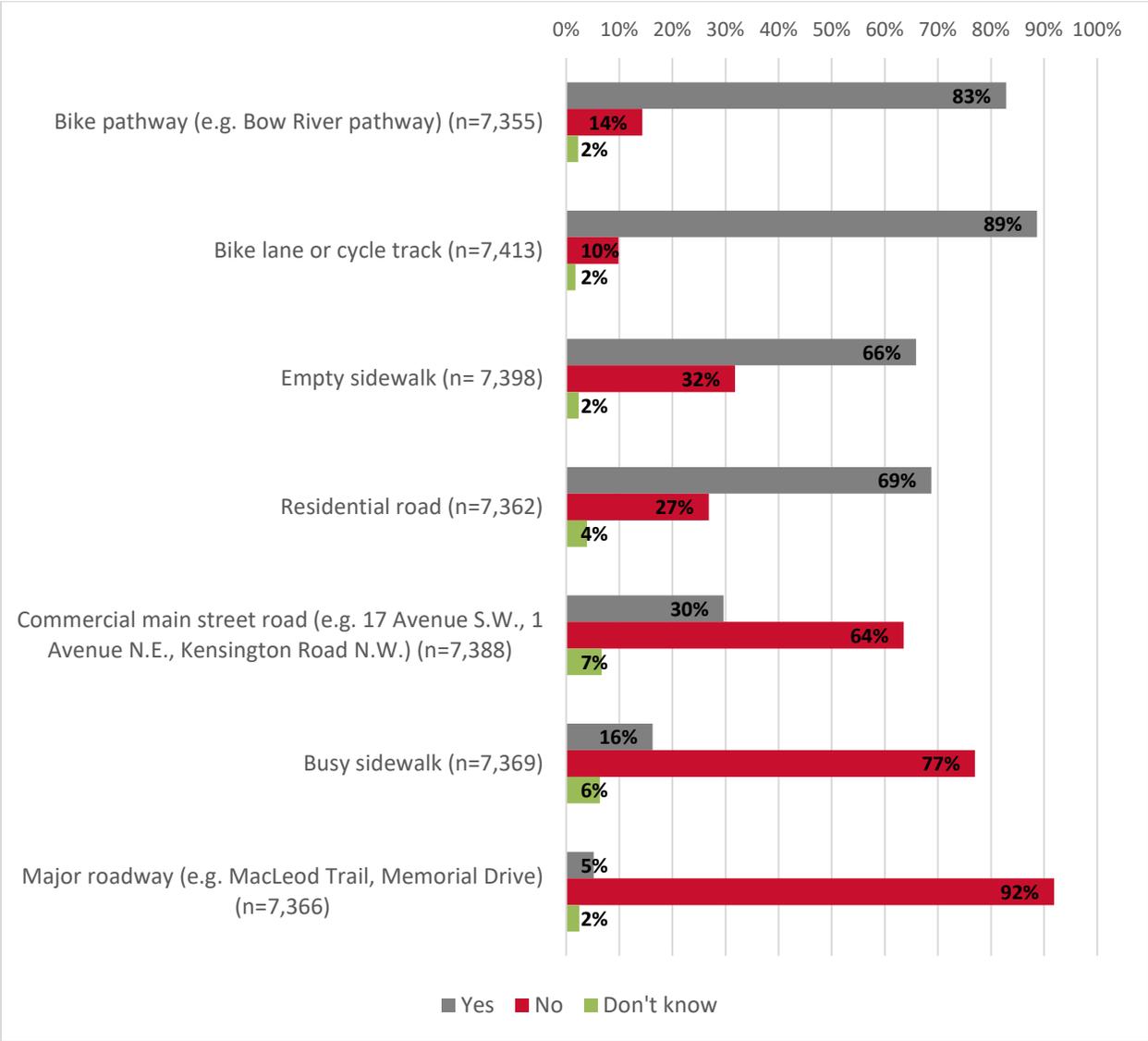


Figure 14: 2020 Survey Response to Where People Should be Allowed to Ride E-Scooters

As shown in Figure 15, in 2019 and 2020, approximately 1/3 of survey respondents indicated that they would have used a vehicle (either personal, taxi or rideshare) had an e-Scooter not been available. In 2019, In the absence of an e-Scooter, 56% of respondents indicated the same trip would have been made by walking, in 2020 that dropped to 47%. In the 2020 survey, a new answer option of “I would have not made the trip” was added. Close to 8% of survey respondents said they would not have made the trip had an e-Scooter not been available.

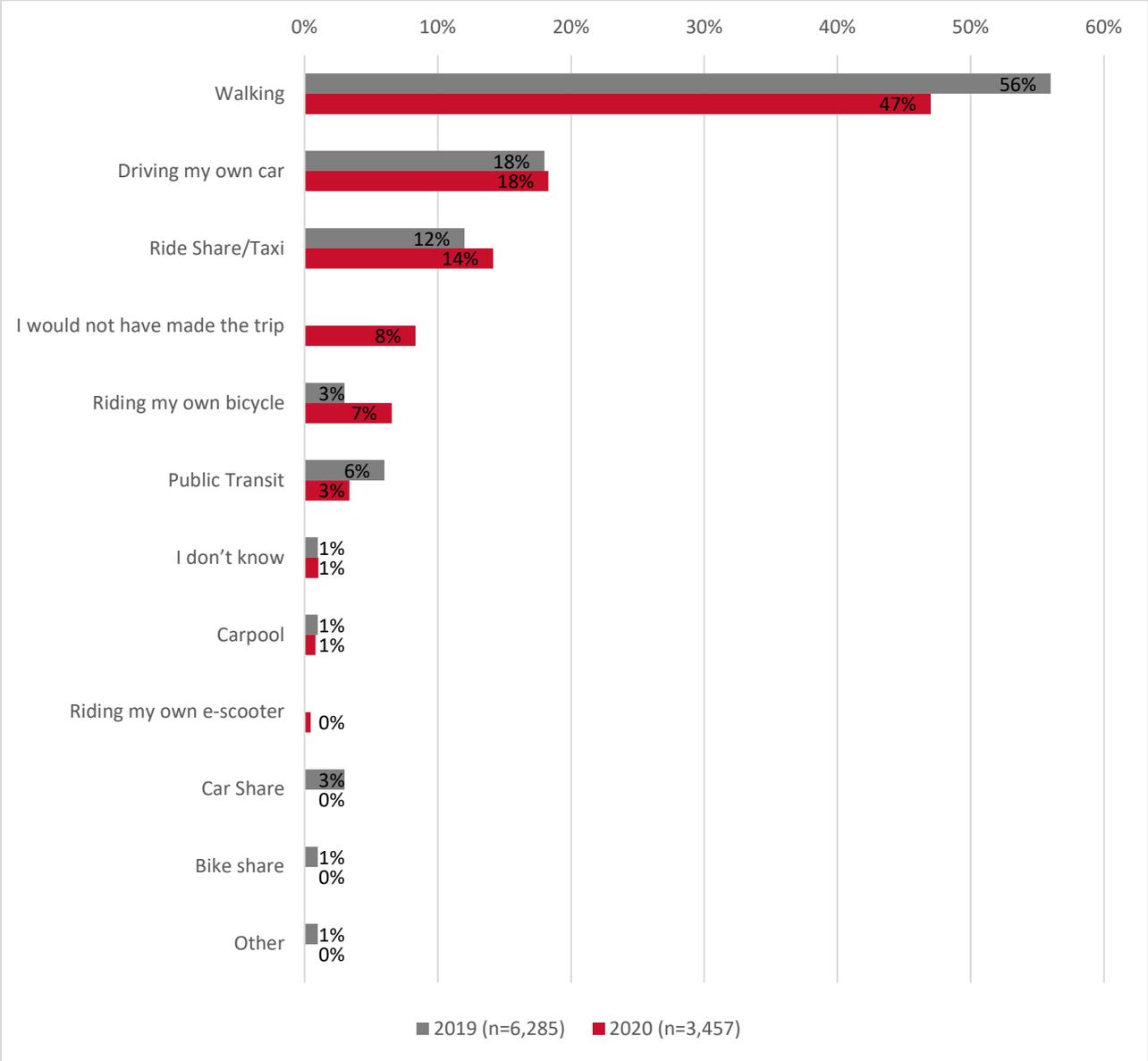
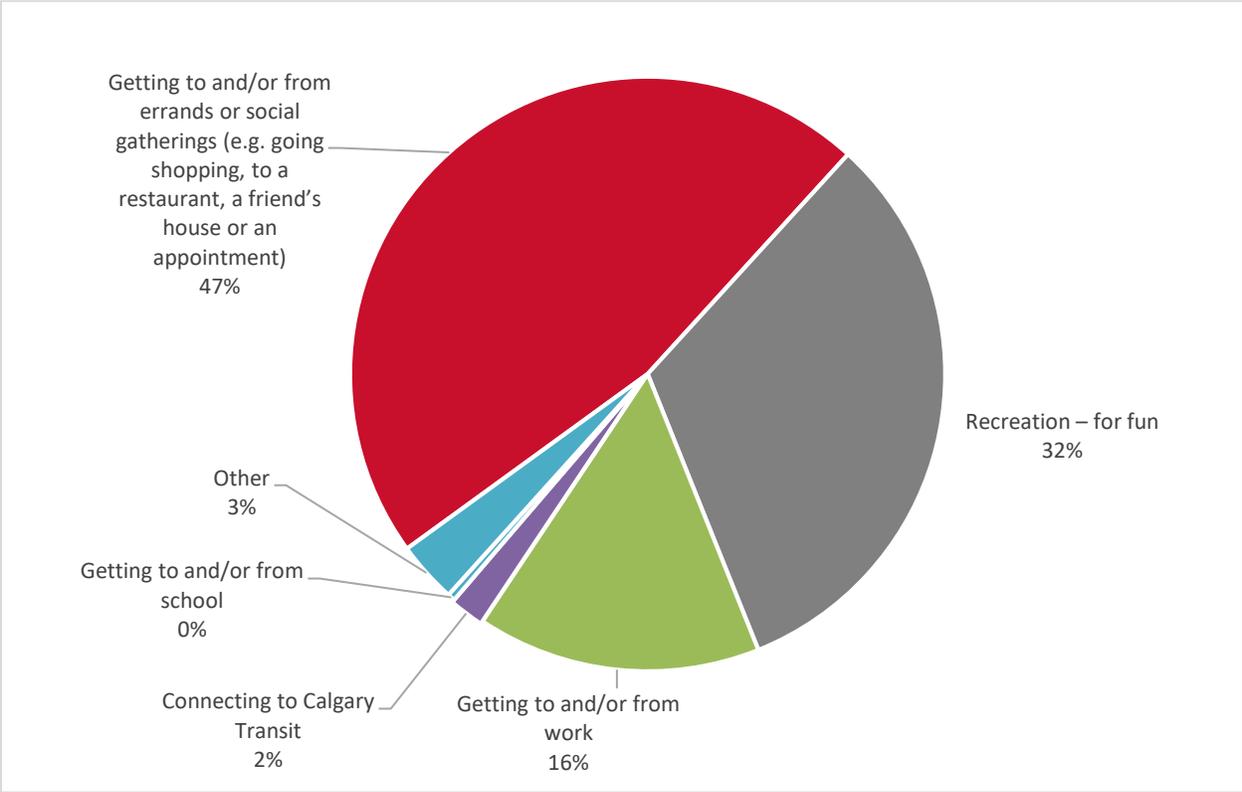


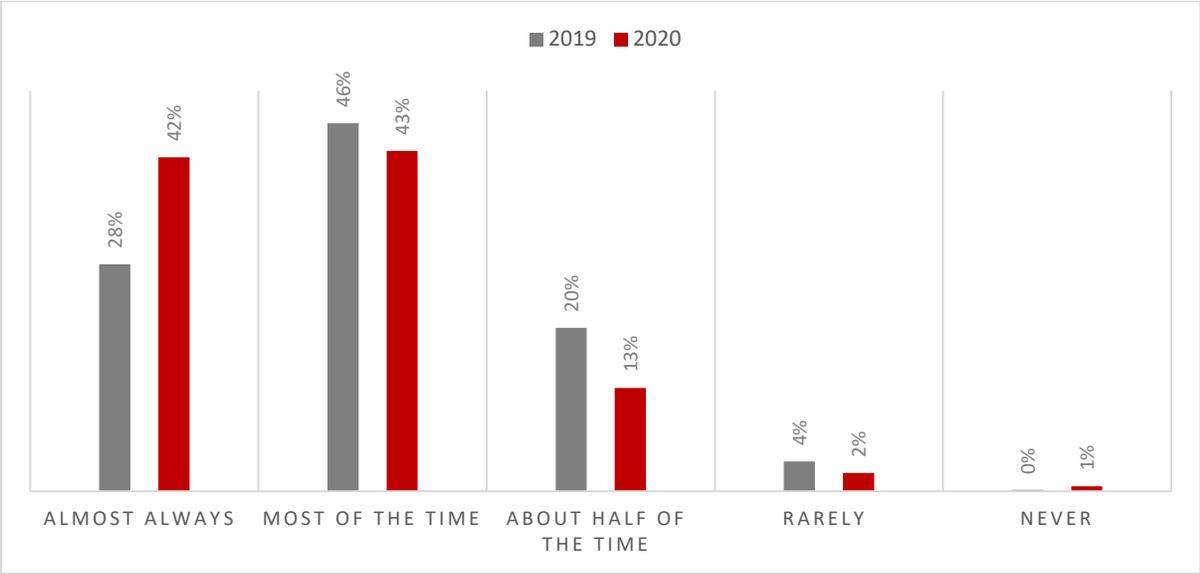
Figure 15: 2020 Survey Response to Alternative Mode Choice if an e-Scooter was Unavailable

The most common purpose for an e-Scooter trip in 2020 was getting to and/or from errands or social gatherings, such as going shopping or to an appointment, or visiting a restaurant or friend’s house. The second most common purpose for an e-Scooter trip was for fun/recreation. A summary of responses (n = 3,460) is illustrated in Figure 16.



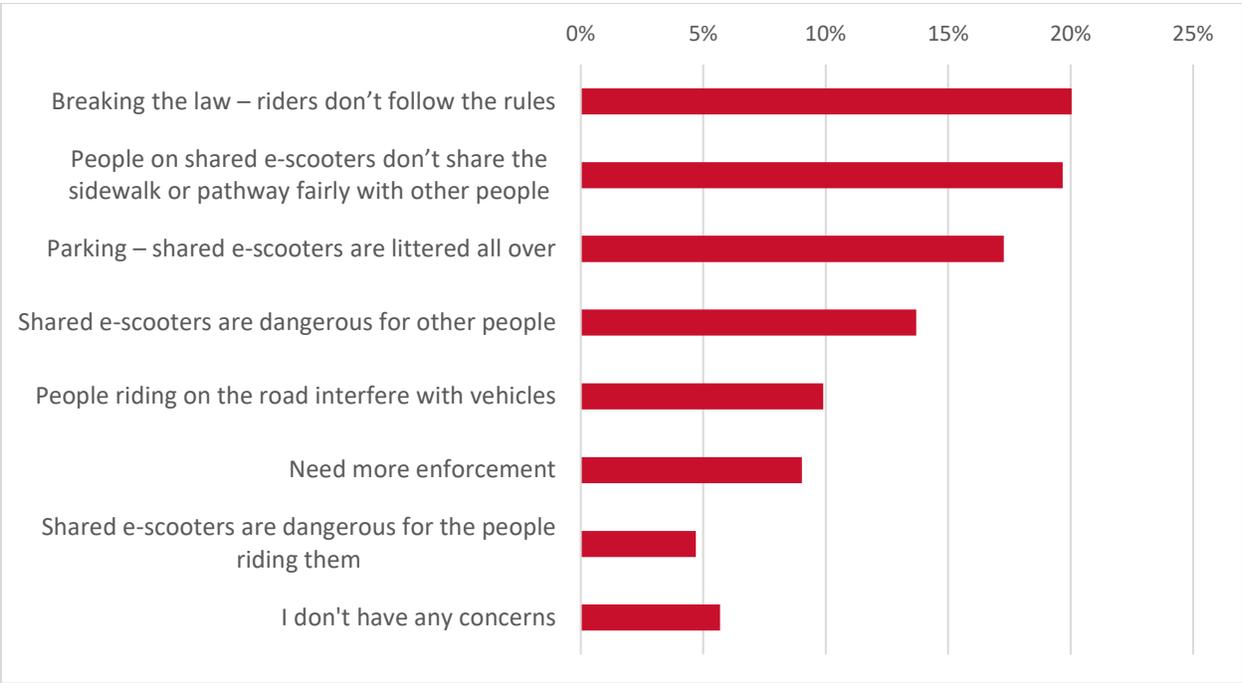
**Figure 16: 2020 Survey Response on Purpose of e-Scooter Trip**

As shown in Figure 17, in 2019, the amount of people who could find an e-scooter “almost always” or “most of the time” was 75%. In 2020, this increased to 85%. In 2019, 20% of people could find an e-Scooter “about half the time” while in 2020 this number changed to 13%. In both 2019 and 2020, less than 5% stated rarely or never being able to find an e-Scooter.



**Figure 17: Survey Response on How Often a Rider Could Find an e-Scooter - 2019 vs 2020**

As shown in Figure 18, public survey respondents (both riders and non-riders) in 2020 cited e-Scooter riders not following the rules and not sharing the sidewalk or pathway with others as their top two concerns. The danger to others, abandonment of shared e-scooters after use, interference with traffic, and the need for more enforcement also rated high in the survey.



**Figure 18: 2020 Survey Response on the Top Concerns with Shared e-Scooters**

## Safety & e-Scooter Injuries

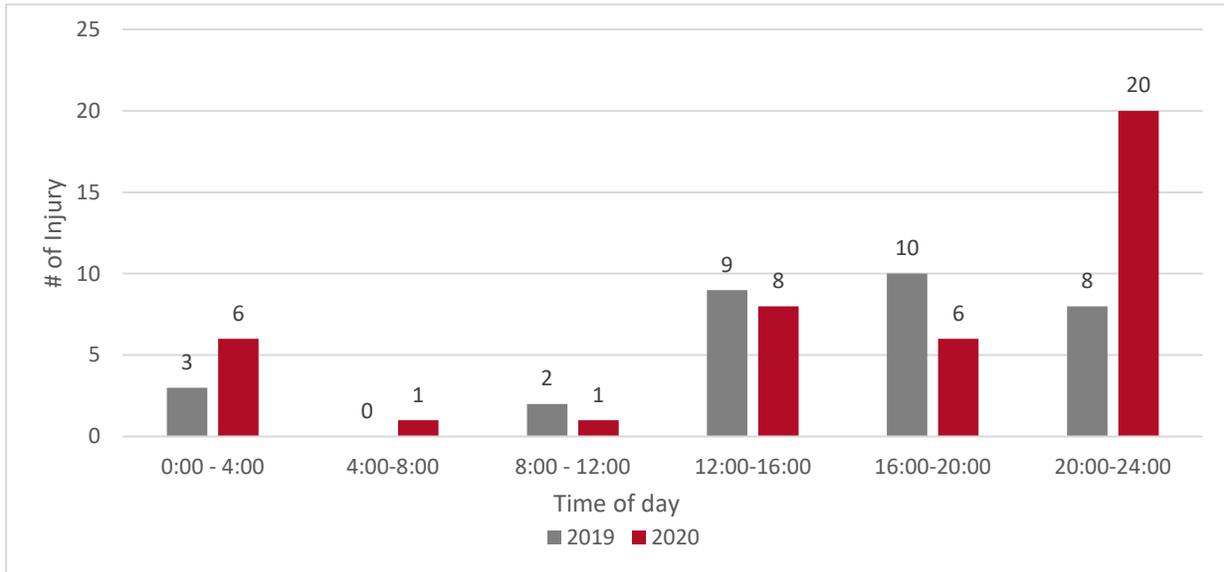
The City used the funds collected from the shared mobility companies to commission a study with Alberta Health Services and the University of Calgary Cumming School of Medicine. This study aimed to better understand who, how, when, and why people were being injured on shared e-Scooters. The study took place from July 8, 2019 to October 31, 2019 and from May 22, 2020 to September 30, 2020.

This study retrospectively reviews paper medical records of all patients presenting to Adult Emergency Departments in Calgary who arrive via emergency medical services (EMS) with the term “scooter” included in the triage note. One research assistant reviewed each paper chart in the secure Health Records Office and transcribed de-identified data onto the Case Report Form.

The University of Calgary Research Team reviewed 75 detailed patient records using this methodology. This was a purposeful selection of people who had the most severe types of injuries. The key findings from the study include:

- 71 out of 75 people injured during the pilot were riding on an e-Scooter; three incidents involved pedestrians and one incident involved a person cycling
- The average age of a person injured was 35 years.
- Females accounted for 55% of injuries, while males accounted for 45%.
- Common causes of injuries occurred due to losing control, removing a hand or foot while in motion, and environmental hazards in the built environment such as riding over gravel, potholes or transitioning over a curb.
- In 2019, the majority of injuries were evenly distributed between 12:00pm and 12:00am
- In 2020, the amount of injuries occurring between 8:00pm and 12:00am increased compared with 2019.
- In three out of 75 instances, the injured was known to be wearing a helmet
- Six out of 75 were double riding. Five in 2019 and one in 2020.
- Of the patients where alcohol intoxication was suspected, 28 patients had blood alcohol detected.
- 20 out of 75 injured were admitted to the hospital, with 32 injuries requiring surgery within 30 days.
- There were 0 fatalities and 0 admissions to the ICU

According to Alberta Health Services medical data and shown in Figure 19, the most common time of day for e-Scooter injuries requiring EMS in 2020 was between 8:00pm – 12:00am. This is a change from 2019, when injuries were more distributed between 12:00pm and 12:00am.



**Figure 19: Time of Day Comparison for e-Scooter Injuries – 2019 vs 2020**

A comparative analysis looked at injuries requiring an ambulance that involved bicycles, motorcycles, and/or motor vehicles, shown in Table 4. 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 must be estimated using different methods.

**Table 4: AHS Data on Number of Transportation Injuries Requiring an Ambulance**

Type	2019 (July 8 to October 31)				2020 (May 22 to September 30)			
	E-Scooter	Bicycle	Vehicle	Motorcycle	E-Scooter	Bicycle	Vehicle	Motorcycle
Emergency	33	197	502	103	42 <sup>1</sup>	484	617	166
ICU	0	4	17	3	0	3	11	5
Fatality <sup>2</sup>	0	1	3	0	0	3	4	1
Surgery	8	33	51	35	24	109	79	57

<sup>1</sup> There were an additional 25 e-Scooter injuries requiring EMS that did not contain detailed patient records in 2020.

<sup>2</sup> Fatality numbers do not include those who died on site. There were no e-Scooter fatalities.



Approximately 1,300 e-Scooter related emergency department visits were identified using the keyword search “e-Scooter” in Alberta Health Services records during the pilot period. This may be an over inclusive amount due to the search strategy and could include: personal e-Scooters, mobility scooters, vespas, motorcycles and other devices referred to as scooters.

Based on this information, approximately one in every 1,400 e-Scooter trips resulted in a visit to the emergency room.

## Financial Summary

*Table 5: City of Calgary Revenues and Costs 2019 and 2020*

Line Item	Revenue	Costs
Company Fees ( <i>security deposits not included*</i> )	\$177,000	
Staff Time		\$120,000
Infrastructure (Parking Zones)		\$15,000
AHS/U of C Medical Study		\$6,000
Enforcement and Education		\$11,000
Data Analysis (Internal and External)		\$11,000
<b>Total</b>	<b>\$177,000</b>	<b>\$163,000</b>

*\*Fees to remove e-Scooter from the river were paid for by the company's security deposits*

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

**WHEREAS** the *Highway Traffic Act* authorizes a municipality to regulate and control vehicle, animal and pedestrian traffic and parking on the streets and on other property within the municipality;

**AND WHEREAS** the *Municipal Government Act* allows a municipality to pass bylaws and delegate authority with respect to streets under its direction, control and management and transport thereon;

**NOW, THEREFORE, THE COUNCIL OF THE CITY OF CALGARY ENACTS AS FOLLOWS:**

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

2. The following is added after subsection 44(3) as subsections 44(3.1), (3.2) and (3.3):

“(3.1) A person shall not ride an e-scooter on any roadway unless the e-scooter has the following:

- (a) at least one headlamp but not more than 2 headlamps;
- (b) at least one red tail lamp;
- (c) at least one red reflector mounted on the rear; and
- (d) a handbrake.

(3.2) A person shall not operate an e-scooter along any section of road where the roadway has lane markings unless within an exclusive bicycle lane.

(3.3) A person who is operating an e-scooter along any section of road shall operate the e-scooter as near as practicable to the right curb or right edge of the roadway unless that person is in the process of making a left turn with the e-scooter.”

3. This Bylaw comes into force on the day it is passed.