

2023 Shared E-scooter Season Data Analysis

End of Season Summary

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2022 vs 2023 Season Summary

Changes to the 2023 Season

- A larger deployment zone: Service providers operated in an area approx. **220%** larger area for most of the 2023 season compared to the area utilized in the 2022 season.
- A longer season: The 2023 season started in mid-May while the 2022 season started in early July. Both seasons ended on November 15.

Season Length

- The 2023 season started on May 17 (Bird Canada) and May 19 (Neuron) and ended on November 15 (**183** days).
- The 2022 season started July 6 and ended on November 15, 2022 (**133** days).
- The 2023 season was **50** days longer than the 2022 season.

Daily Rental Period

- Shared e-scooters were available to rent from 6 am to 11 pm in both the 2022 and 2023 seasons.
- Two extended hour pilot programs were implemented by Bird Canada and Neuron at the following two locations:
 - Central Business District¹ from September 8 to November 15²: Extended operating hours were from 5 am to 1 am (one additional hour in the morning and two additional hours at night).
 - Lansdowne Park from August 30 to November 15: Extended operating hours from 6 am to 12 am (one additional hour at night).

Fleet Size

- 2023 season permitted a maximum fleet size of **900** e-scooters with a maximum of **450** to Neuron, and **450** to Bird Canada.

¹ The area was bounded by Lyon in the west, Elgin in the east, Wellington in the north, and Laurier in the south.

² The earlier date and latter dater are listed when the pilot programs dates vary between service providers.

- This was the same permitted fleet size as the 2022 season.
- Table 1 shows the statistics about the maximum number of e-scooters deployed by the service providers during the 2023 season, neither Bird Canada nor Neuron reached their fleet cap. In general, each service provider deployed approx. **88 %** of their allowable vehicles. There is room for improvement for service providers to deploy their full allotment for most of the season.

Table 1: Description of Daily Maximum Vehicles by Service Provider

| Service Provider | Mean | Standard Deviation | Min. | 25% Perc. | 50% Perc. (Median) | 75% Perc. | Max. |
|------------------------------------|------|--------------------|------|-----------|--------------------|-----------|------|
| Bird Canada | 359 | 115 | 2 | 325 | 395 | 447 | 459 |
| Neuron | 382 | 65 | 0 | 370 | 395 | 421 | 456 |
| All Service Providers ³ | 738 | 153 | 72 | 648 | 806 | 835 | 893 |

- Figure 1 provides an overview of the number of vehicles available per day during the 2023 season.

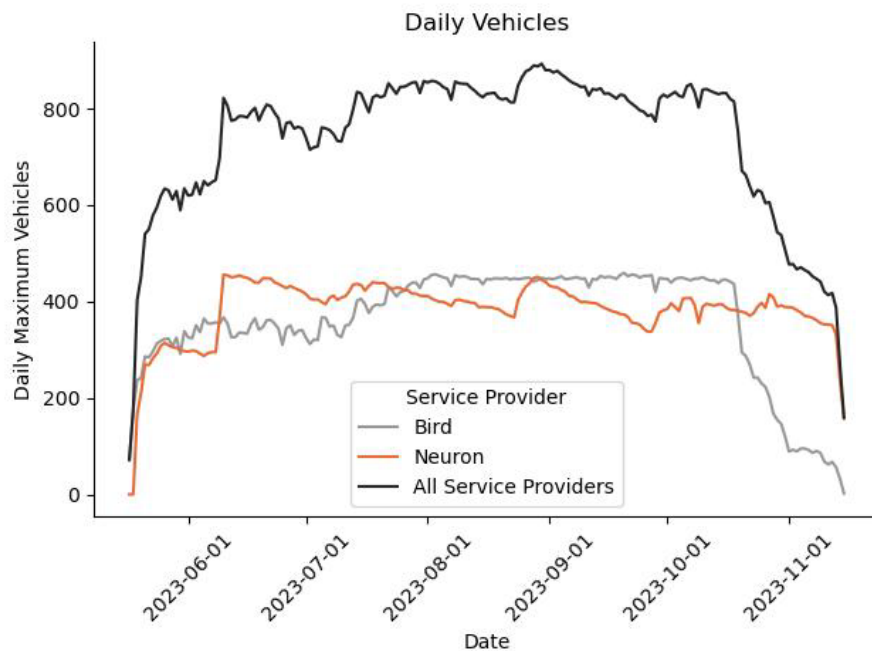


Figure 1: 2023 Daily Maximum Vehicles

³ Note that the bottom row is not a total. It is a description of the overall service delivery across both service provider. For example, there a day during the season where Bird Canada had a maximum of two vehicles deployed. Similarly, there was a day during the season were Neuron had a maximum of 0 vehicles deployed. These days did not occur on the same day.

Deployment Area

- A permitted deployment zone describes an area of the City where the service providers are allowed to operate.
- Service providers may choose to not fully utilize the permitted deployment zone during the season.
- Figure 2 provides a map of the final deployment zone for the end of the 2022 season (black dashed line); the permitted deployment zone to start the 2023 season (full blue line); and the final deployment zone to finish the 2023 season (blue fill).
- The 2023 final deployment zone (polygon with solid blue fill in Figure 2) for both service providers was approx. **220%** larger than the final deployment zone in the 2022 season (dashed black lines in Figure 2).
- Two deployment zones were in place during the 2023 season. The Phase 1 deployment zone for both service providers was bounded in the north by NCC properties along the Ottawa River, in the east and south by the Rideau River, and in the west by Bronson. This was the same as the 2022 final deployment zone. An expansion into the Phase 2 deployment areas for both service providers was initiated on June 5. Bird Canada and Neuron expanded further east to St. Laurent Blvd and west to Churchill Ave.

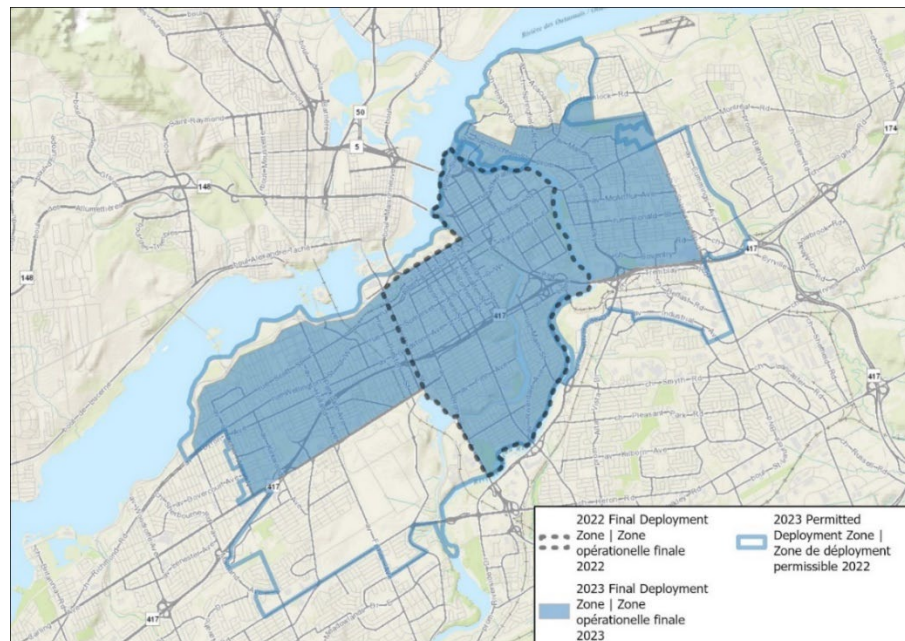


Figure 2: Deployment Zones

Unique Riders

- Approx. **50,000** unique riders during the 2023 season: **52%** with Bird Canada, and **49%** with Neuron.
- This is an increase of approx. **17,000** unique riders from the **33,000** unique riders serviced during the 2022 e-scooter season.
- Note that these numbers could double count riders that took a ride with both service providers.

Total Trips

- Approx. **179,000** e-scooter trips were completed during the 2023 season: almost evenly split between Bird Canada and Neuron.
- This is an increase of approx. **99,000** trips compared to the 2022 e-scooter season. Overall, the 2023 season was **38%** longer than the 2022 season and had a **123%** increase in trips.
- An average of **1,000** trips per day were completed from May 17 to November 15, 2023.
- During the busy season in July 2023, daily e-scooter trips averaged approx. **1,200** on weekdays and **1,800** on weekends, with some weekends as high as **2,500** daily trips.
- This compares with an average of **800** weekday and **1,100** weekend daily trips in August 2022 (busiest month of the season), representing an increase of approx. **50%** and **64%**, respectively.
- During the 2023 season, the busiest day for e-scooter trips was Saturday, July 1 with approx. **2,500** trips.

- Table 2 includes a breakdown of the 2023 monthly trip averages.

Table 2: 2023 Monthly Trip Data

| Month | Average E-Scooter Trips per Day | Average E-Scooter Weekday Trips per Day | Average E-Scooter Weekend Trips per Day |
|--------------------|---------------------------------|---|---|
| May 2023 | 825 | 655 | 1,294 |
| June 2023 | 1,123 | 966 | 1,552 |
| July 2023 | 1,379 | 1,198 | 1,760 |
| August 2022 | 1,068 | 959 | 1,382 |
| September 2022 | 1,134 | 1,029 | 1,378 |
| October 2023 | 629 | 631 | 623 |
| November 2023 | 234 | 210 | 300 |
| All Season Average | 978 | 866 | 1,259 |

- Figure 3 provides an overview of the number of trips per week during the 2023 e-scooter season.

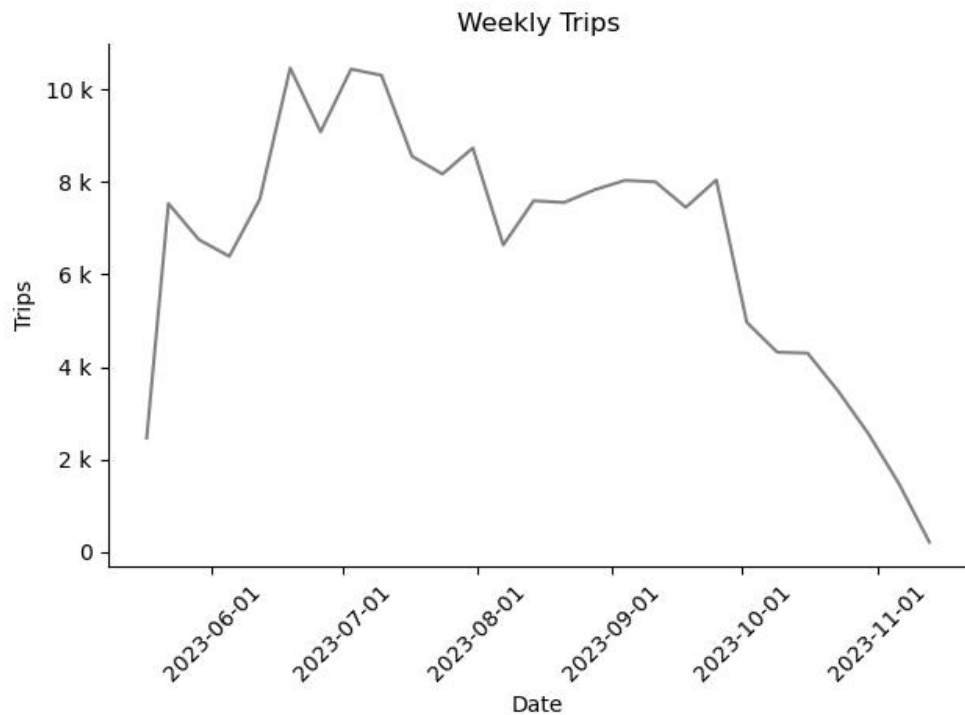


Figure 3: 2023 Weekly Trips Numbers

Key Origins and Destinations

- The heat map below (Figure 4) illustrates the most popular origins and destinations for the pilot, with a concentration of trips starting and ending in the ByWard Market and along commercial streets such as Elgin, Bank, and Wellington.

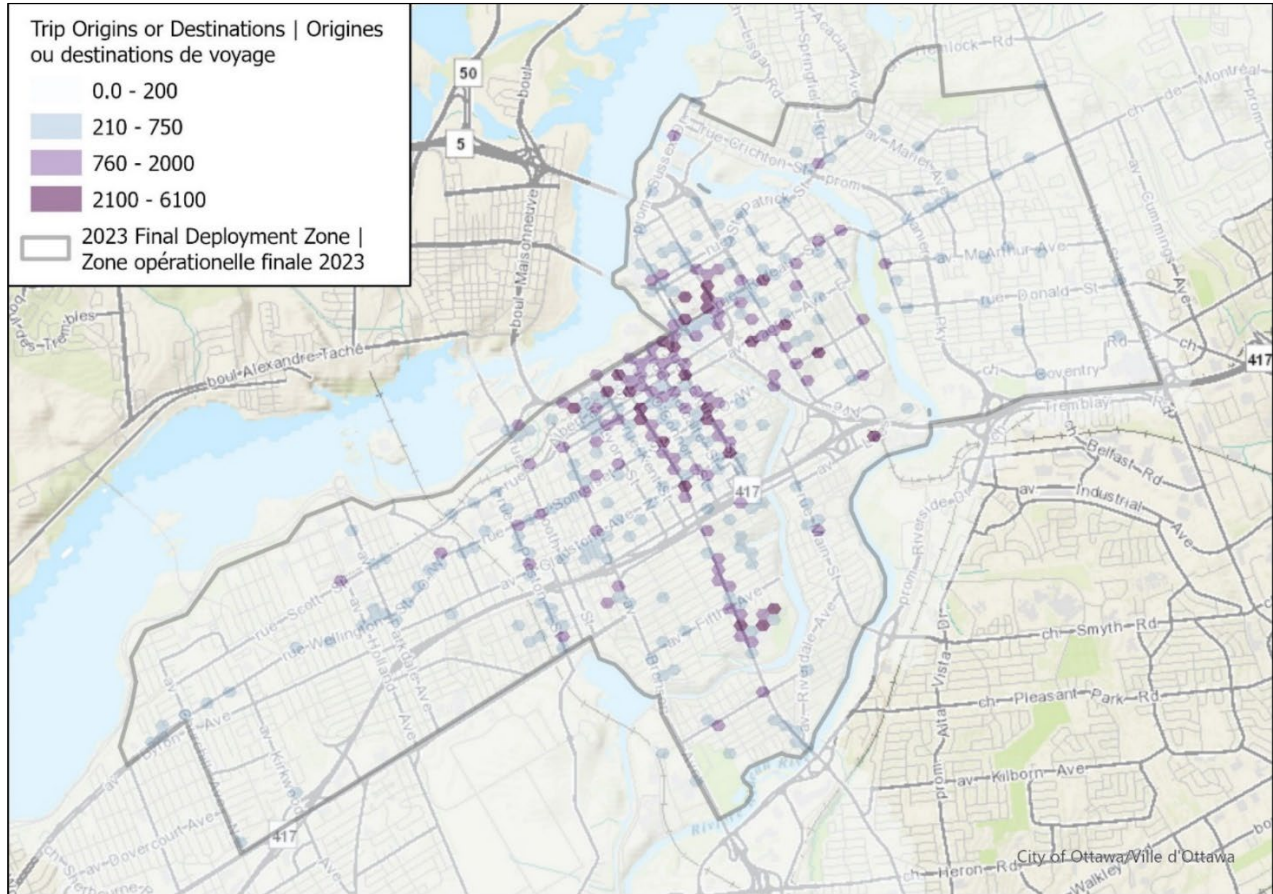


Figure 4: 2023 Origins and Destinations Heat Map

Trip Distance, Duration and Speed

- The total distance travelled has increased from approx. **166,000 km** in 2022 to **368,000 km** in 2023 (increase of approx. **202,000 km** or **122%**).
- The average trip duration in 2023 was **14.84 min.** and the average trip distance was **2.06 km**. The average trip duration dropped by about **23%** from the 2023 to 2022 season.
- There were approx. **1,400** trips with a recorded distance of over 10 km. The maximum recorded trip distance was approx. **36 km**. The potential for data management issues should be considered when considering the maximum recorded trip distance.
- These metrics will vary slightly depending on the treatment of outliers. Table 3 and Figure 5, Figure 6, and Figure 7 below do not include trips with speeds greater than the 99.9% speed percentile.

Table 3: 2023 Trip Duration, Distance and Speed

| Value | Trip Duration (mins) | Trip Distance (km) | Trip Speed (km/h) |
|-------------------------|----------------------|--------------------|-------------------|
| Average | 14.84 | 2.06 | 9.10 |
| 25% Percentile | 6.23 | 0.92 | 6.40 |
| 50% Percentile (Median) | 10.52 | 1.56 | 9.28 |
| 75% Percentile | 18.03 | 2.61 | 11.99 |

* Excludes outlier trips with a trip speed greater than the 99.9% percentile.

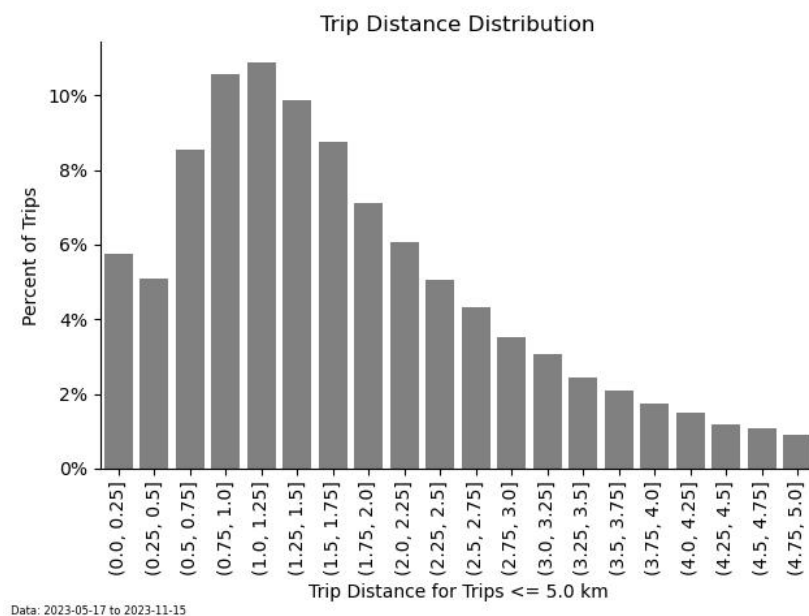


Figure 5: 2023 Trip Distance Distribution

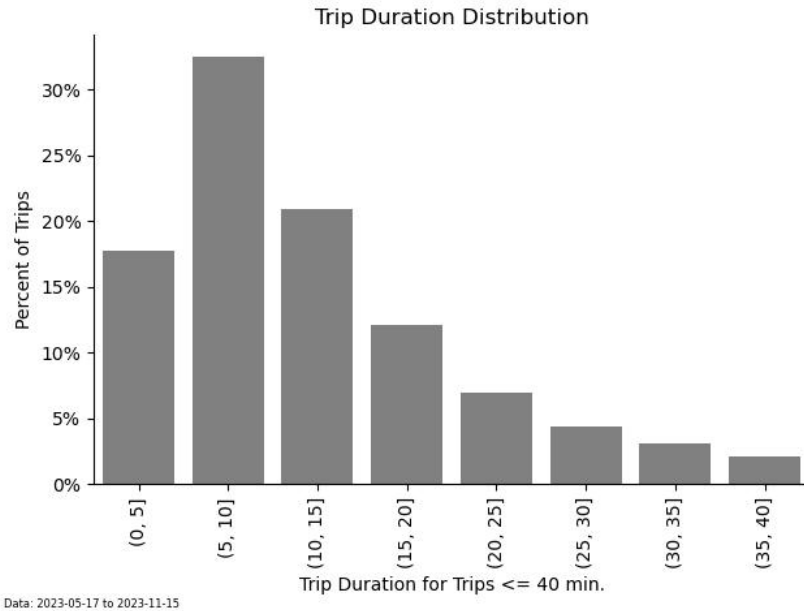


Figure 6: 2023 Trip Duration Distribution

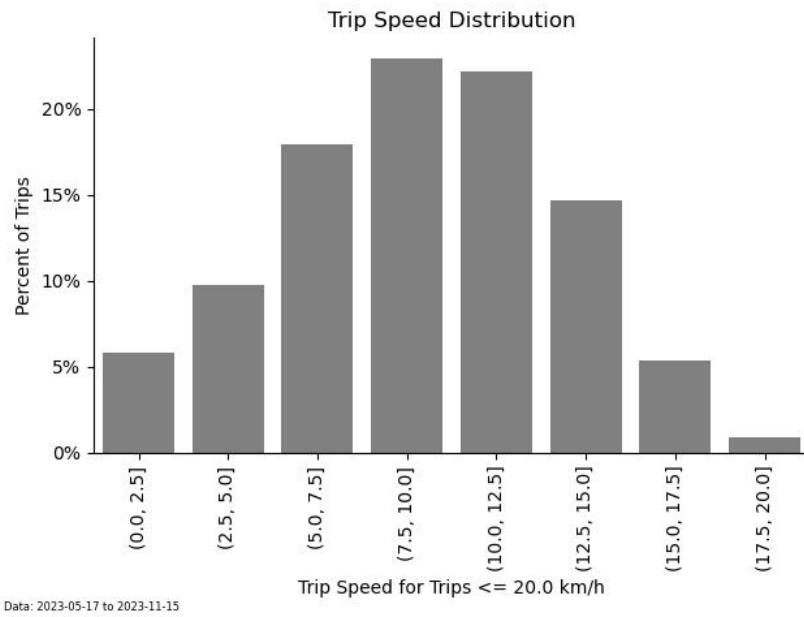


Figure 7: 2023 Trip Speed Distribution

Trip Purpose

- As part of the evaluation of the 2023 pilot, staff conducted an online survey which provided insight on the benefits and issues associated with e-scooters. The City's E-Scooter Survey ran from October 31 to November 24, 2023.
- A total of **589** respondents completed the survey⁴. Respondents to the 2023 survey included both e-scooter users and non-users:
 - E-Scooter Non-Users: 1) **52%** of respondents did not ride an e-scooter in the 2023 season.
 - E-Scooter Users: 1) **48%** of respondents rode an e-scooter in the 2023 season; and 2) **38%** of respondents have ridden an e-scooter in previous seasons.
 - “New” E-scooter Users: **62%** of respondents did not ride an e-scooter in previous seasons but did ride one in 2023.
- The survey collected data on trip purpose as outlined in Table 4.

Table 4: Trip Purpose

| What were the most common reasons why you used a shared e-scooter? | 2020 | 2021 | 2022 | 2023 | Change (2023 vs 2022) |
|--|------|------|------|------|-----------------------|
| Get to/from work | 18% | 34% | 27% | 39% | 12% |
| Get to/from school | 5% | 12% | 9% | 4% | -5% |
| Run errands/appointments | 36% | 48% | 33% | 39% | 6% |
| Get to/from social activities | 49% | 63% | 71% | 70% | -1% |
| Get to/from dining | 33% | 49% | 46% | 43% | -3% |
| Get to/from shopping/local business | 34% | 47% | 38% | 33% | -5% |
| For fun/leisure | 76% | 57% | 50% | 40% | -10% |
| To try out the service | 51% | 34% | 33% | 26% | -7% |
| Other | 1% | 3% | 4% | 5% | 1% |
| Faster/more efficient than other modes of transportation | - | - | 47% | 48% | 1% |
| To reduce vehicular emissions/pollution | - | - | 32% | 21% | -11% |
| Sightseeing/tourism | - | - | 32% | 22% | -10% |
| To get to/from another mode of transportation | - | - | 27% | 25% | -2% |

⁴ For survey results, calculated percentages depend on the number of responses which vary from year to year and question to question. For further analysis of survey results see the “As We Heard It Report”.

Time of Day Usage

- The busiest period for e-scooter usage occurs in the evening. Figure 8 shows the distribution of e-scooter trips throughout the day.
- The distribution of trips between the 2022 and 2023 seasons are similar with most trips started during the 22:00 hour (approx. **17,600** trips in 2023).

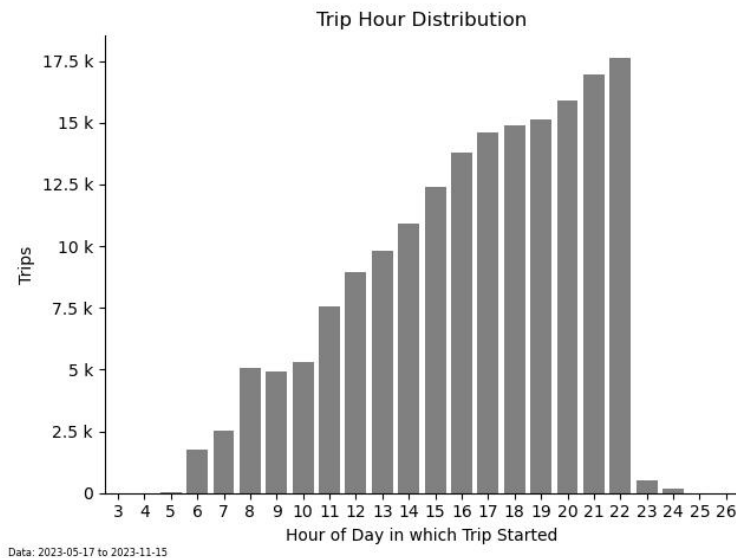


Figure 8: 2023 Trip Distribution by Time of Day⁵

Demand for E-Scooters

- The number of daily trips versus the average number of available e-scooters was analyzed to assess the average vehicle utilization. As shown in Figure 9, there was a decrease in the average vehicle utilization in the 2023 season compared to the 2022 season, with the average utilization decreasing from **2.32** to **1.35** trips per vehicle per day.
- It is thought that 3 to 4 daily trips per vehicle days is a good target for the size and population of the City of Ottawa.
- Based on the results from the E-Scooter Survey, 68% of respondents found it easy to find an e-scooter when they wanted to use one, an increase from 2022. See Table 5 below.

⁵ The x-axis of this plot starts at 03:00 (3 am) to represent the start of a service day that has an overnight break in service. Therefore, trip start times with hours after midnight are expressed in hours greater than or equal to 24, i.e., 24 is midnight, 25 is 01:00 on the next service day, etc.

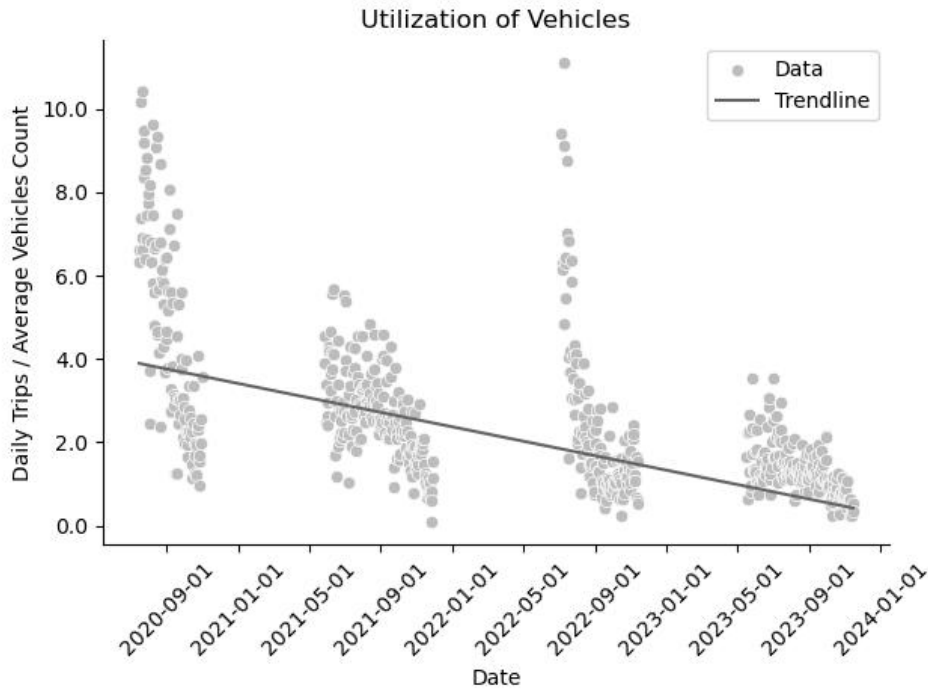


Figure 9: 2020 to 2023 E-scooter Vehicle Utilization

Table 5: Difficulty Finding an E-Scooter

| How easy was it to find a shared e-scooter when you wanted to use one? | 2020 | 2021 | 2022 | 2023 | Difference (2022 to 2023) |
|--|------|------|------|------|---------------------------|
| Difficult | 7% | 4% | 23% | 13% | -10% |
| Easy | 85% | 84% | 58% | 68% | 10% |
| Neutral | 8% | 11% | 17% | 17% | 0% |

- The Survey also asked about how many e-scooter trips each respondent completed. As shown in Table 6, most respondents who used an e-scooter in 2023 did so more than once.
 - The number of respondents reported having completed a single trip dropped from **27%** to **15%** from the 2022 survey to the 2023 survey.
 - The number of respondents who completed several trips (10+) increased from **12%** to **35%** from the 2022 survey to the 2023 survey.

Table 6: Number of Trips per Rider

| How many e-scooter trips have you taken this season? | 2020 | 2021 | 2022 | 2023 | Difference (2022 to 2023) |
|--|------|------|------|------|---------------------------|
| One | 13% | 10% | 27% | 15% | -12% |
| 2-5 | 42% | 29% | 47% | 34% | -13% |
| 6-10 | 22% | 18% | 14% | 16% | 2% |
| +10 | 23% | 43% | 12% | 35% | 23% |

Alignment with Mobility Objectives

- A detailed breakdown of the changes in travel behaviour reported by respondents is presented in Table 7 and Table 8.
- Overall, in the 2023 season, majority of riders responding to the survey noted a decrease in their use of transit and a decrease in their use of personal vehicles, whether as a driver or passenger.
- In the 2023 season **68%** of respondents indicated a significant increase in the use of e-scooters (private + shared) in comparison to other modes of transportation.

Table 7: Changes in Travel Behaviour

| How did the introduction or availability of shared e-scooters change the way you travel? | 2023 | | |
|--|-----------|-----------|-----------|
| | Increased | Decreased | No Change |
| Passenger in a private vehicle | 1% | 27% | 48% |
| Driving a vehicle | 1% | 39% | 42% |
| Public transit | 11% | 26% | 43% |
| Walking | 15% | 28% | 50% |
| Cycling | 4% | 13% | 59% |
| Shared E-scooters | 61% | 2% | 25% |
| Private E-scooters | 7% | 4% | 32% |
| Carpool/taxi/rideshare | 4% | 51% | 32% |

- Table 8 shows the difference of previous seasons survey responses to the question: “Why did you take a shared e-scooter instead of another mode of transportation?”
- With the 2022 survey, **42%** of respondents indicated that they took an e-scooter to avoid the cost and hassle of parking a car. For the 2023 survey, this has increased to **46%** of respondents.
- The response to ‘trying out e-scooters’ has decreased year over year throughout the e-scooter pilot project seasons.

Table 8: Factors Influencing E-Scooter Use

| Why did you take a shared e-scooter instead of another mode of transportation? | 2020 | 2021 | 2022 | 2023 | Difference (2022 to 2023) |
|--|------|------|------|------|---------------------------|
| Easier | 50% | 63% | 48% | 43% | -5% |
| Faster | 54% | 62% | 59% | 62% | 3% |
| Convenient | 65% | 73% | 70% | 73% | 3% |
| Affordable | 35% | 49% | 31% | 30% | -1% |
| To reduce Greenhouse Gas emissions | 27% | 40% | 31% | 26% | -5% |
| More fun | 76% | 66% | 72% | 67% | -5% |
| To try out e-scooters | 57% | 44% | 42% | 31% | -11% |
| To be physically distant from others | 21% | 17% | 10% | 8% | -2% |
| To avoid the cost/hassle of parking a car | 33% | 39% | 42% | 46% | 4% |
| Other | 2% | 4% | 6% | 8% | 2% |

Facilitating Transit and Multimodal Trips

- Based on the number of individual e-scooter trips starting or ending close to transit stations within the e-scooter operating area, it is roughly estimated that approx. **9%** of all e-scooter trips were combined with transit trips in 2023. It has increased from approx. **5%** in 2022.
 - The **9%** estimate is based on trips starting or ending close to the transit stations. Transit related e-scooter trips could also be defined as trips ending within a larger distance buffer from the transit station but that may over represent the number of transit related e-scooter trips (approx. 18% for 150m), particularly for downtown stations where a large trip

generator/attractor such as the Rideau Centre is located close-by. The true number of transit related e-scooter trips may be between **9%** and **18%**.

- It is important to consider such factors such as pandemic restrictions and number of LRT stations within the deployment zone when considering the change in transit related e-scooters trips year over year.
 - The 2020 to 2022 e-scooter seasons occurred during years of limited mobility in terms of leisure and work-related trips.
 - The size of the deployment zone has varied considerably from season to season with key LRT stations like Tunney's Pasture not included within the zone in 2022.
- First/last mile trips to/from transit stations averaged between 0.5 and 3.7 km, with longer distance trips tending to occur at Westboro Station, outside the downtown core.
- Results from the survey provide additional insight on multimodal trips.
 - **72%** of survey respondents reported taking a shared e-scooter to connect to or from another form of transportation (walking) at least once.
 - **72%** of respondents who reported connecting to another mode indicated that they connected to transit (bus or train).
 - Most survey respondents (**85%**) indicated that having access to shared e-scooters did make them more likely to use the mode to which they connected.

Health and Mobility Considerations

- **15%** of survey respondents reported that they walked more with the introduction of shared e-scooter.
- E-scooters continue to provide greater mobility. Riders who would have walked without the e-scooters were able to travel farther to access additional shops and services, accomplish their daily tasks more efficiently and conveniently, reach destinations that may not be convenient by transit, include family members with limited mobility in their outings, and feel more comfortable with evening travel options.

Support for Local Businesses

- **45%** of trips started in a Business Improvement Area (decrease from 2022 at **51%**).
- **42%** of trips ended in a Business Improvement Area (decrease from 2022 at **47%**).
- Of the survey respondents who used e-scooters to travel to or from dining and local businesses, **14%** indicated they spent \$20 or less on average (**18%** in 2022), **30%** spent \$21-50 (**35%** in 2022), **33%** spent \$51-100 (**29%** in 2022), and **23%** spent over \$100 (**17%** in 2021).

Issues Management

Sidewalk Riding

- Sidewalk riding was monitored using automated sidewalk counts at various locations throughout the city.
- Counts were completed between 15:00 and 21:00 on Friday or Saturday every month during the e-scooter season using Miovision cameras.
- The monitoring of sidewalk riding was limited by the available budget and the locations that could be monitored was limited by vandalism in years past⁶.
- Figure 10 provides an overview of the locations that were counted at least once over the course of the 2023 e-scooter season. Ten locations were monitored in 2022 and 2023. The goal was to monitor these locations every two weeks in 2022 and once a month in 2023.



Figure 10: Miovision Count Sites

⁶ During the 2021 season, interference with the count equipment occurred in locations near the Byward Market making it necessary to select alternative count sites to avoid damage to the equipment. In addition, locations where a low number of e-scooters were counted with dropped from the regular count program to reduce costs.

- Table 9 and Figure 11 provides a summary of the number of e-scooters operating on the sidewalk as measured by the count equipment. Caution should be taken in interpreting this figure, as there is a lot of variability in the data which is affected by the specific count location and the time of year.
- Counting technology does not distinguish between shared e-scooters from the service providers and privately-owned e-scooters, which may not support sidewalk detection technology.
- The number of sidewalk-riding e-scooters per study was **3.73** in 2022. This increased to **4.25** in 2023. Most studies noted few observations.

Table 9: Sidewalk Riding Counts Description

| Year | Samples | Mean | Std Dev. | Min. | 25% Perc. | 50% Perc. (Median) | 75% Perc. | Max. |
|------|---------|------|----------|------|-----------|--------------------|-----------|------|
| 2022 | 118 | 3.73 | 3.01 | 1 | 1.00 | 3.00 | 5.00 | 17 |
| 2023 | 59 | 4.25 | 7.16 | 0 | 1.00 | 3.00 | 5.50 | 52 |

- Since there were fewer e-scooter trips during the final months of the season, we would typically expect the amount of sidewalk riding to decline as well. To account for this effect, an attempt has been made to calibrate the number of sidewalk riding e-scooters as a function of the number of e-scooter trips each day. This scaling is not included within Table 9 above but is included within Figure 11 below.

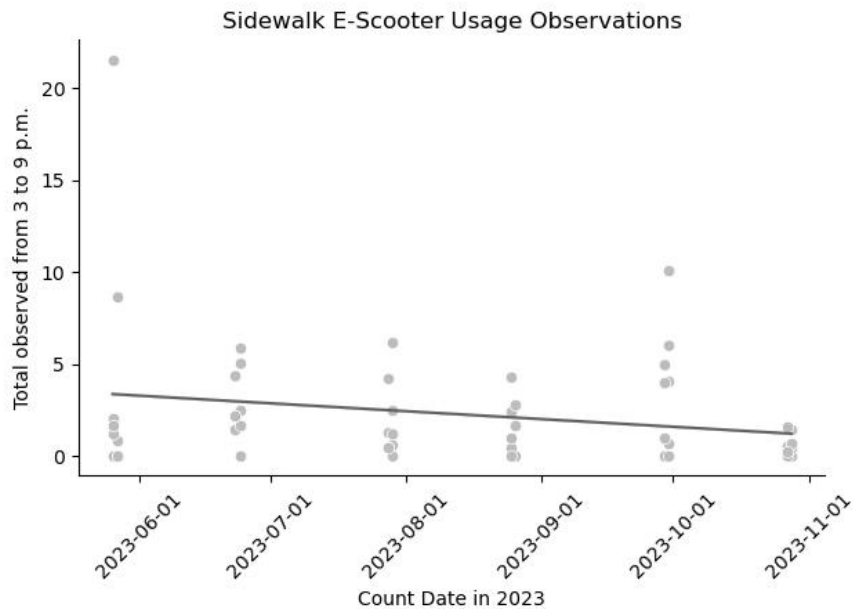


Figure 11: Sidewalk Riding Counts

- The end-of-season survey included questions about e-scooter sidewalk riding.
 - **61%** of respondents indicated that they have encountered people riding e-scooters on the sidewalk. These respondents were asked a series of follow up questions:
 - Survey respondents indicated the following frequency of encountering sidewalk riding: once/rarely (**21%**), monthly (**15%**), weekly (**32%**), daily (**17%**), and multiple times a day (**15%**).
 - Most respondents (**94%**) did not report it to the City of Ottawa, e-scooter service providers or the Ottawa Police Service.
 - **30%** of the respondents indicated that it changed their walking route.

Mis-parked Shared E-scooters

- Mis-parked e-scooters were monitored during the 2023 pilot through on-site surveys. Staff surveyed retail and commercial corridors in the ByWard Market, Downtown, the Glebe, Chinatown, and Wellington West. Figure 12 demonstrates the path taken each week to observe parking behaviours.

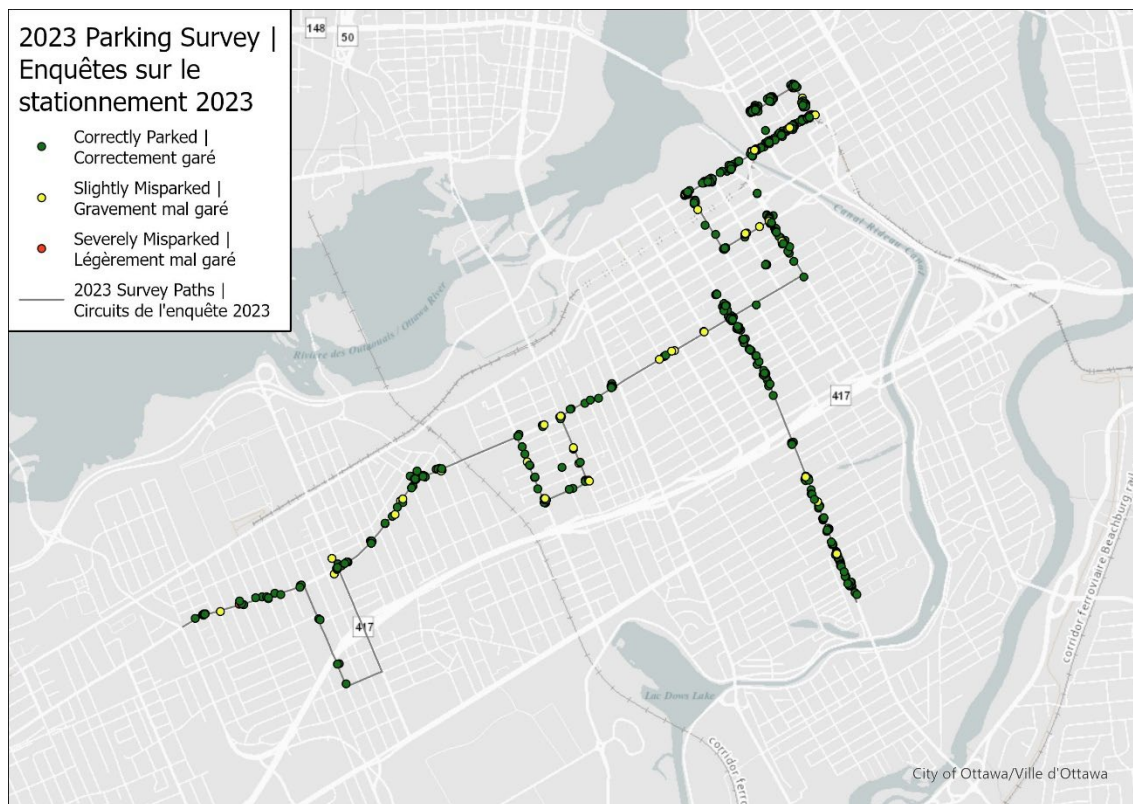


Figure 12: Weekday E-scooter Parking Observation Route (Monday to Friday)

- The scope of the monitoring was limited by budget and staff time. Resource limitations did not allow for monitoring of residential streets.
- The number of mis-parked e-scooters is tied to the level of e-scooter activity; with fewer e-scooter trips occurring in the Fall months impacting the number of observed mis-parked scooters.
- Figure 13 provides an overview of the mis-parked scooters that were surveyed over the course of the 2023 season as a percentage of the total number of parked scooters.
 - ‘Slightly mis-parked’ refers to scooters that are parked incorrectly or outside of the designated parking spots but not blocking the area from pedestrian access.
 - ‘Severely mis-parked’ refers to scooters that are parked incorrectly or outside of the designated parking spots and blocking the area from pedestrian access, requiring movement of the e-scooter.
- Approx. **3,100** parked e-scooters were surveyed over the course of the season.
- For the 2023 season an average of **94%** of e-scooters surveyed were parked correctly, **with 6%** slightly mis-parked, and a negligible percentage severely mis-parked.



Figure 13: 2023 Mis-parked E-Scooters Survey Results

311 and By-law Service Requests

- Residents were encouraged to submit their complaints regarding e-scooters through the City’s online e-scooter complaint e-form, in addition to the City’s 3-1-1 phone service. All complaints regarding issues such as mis-parked scooters were directed to by-law officers who would then forward the complaints to the appropriate e-scooter providers.
- Figure 14 provides a breakdown of the number of complaints to 3-1-1 (by phone and/or e-form) classified under the different subjects⁷ that were recorded after the start of the current season.
- **59%** of complaints were received by 3-1-1 through the self-serve e-forms (desktop web or mobile web site), while **41%** of complaints were direct calls to 3-1-1 agents.

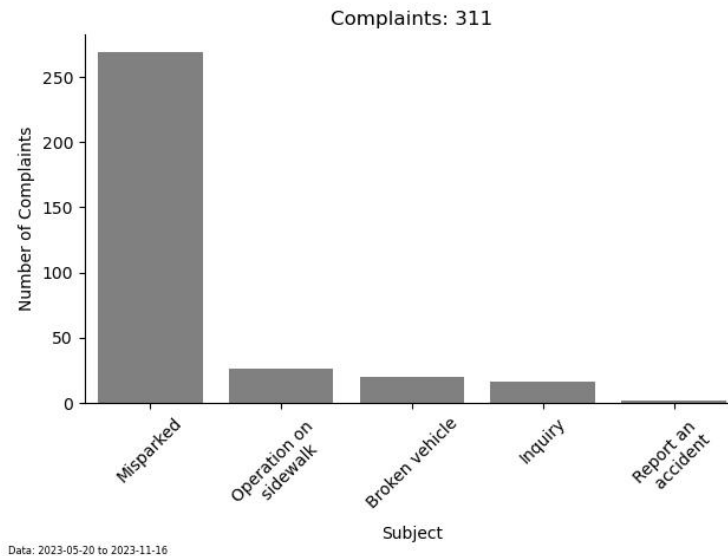


Figure 14: 2023 3-1-1 Complaints by Subject

⁷ Services requests may be mis-classified as being e-scooter: e.g., e-bikes or bicycles related.

- Table 10 provides the breakdown of service requests received from 3-1-1 each month. Majority of complaints were regarding mis-parked scooters. Note that there are a few requests received by 311 that originated from By-law staff.

Table 10: 3-1-1 Monthly Service Requests Received by 311

| Month | Number of Service Requests |
|--------------|-----------------------------------|
| May | 38 |
| June | 97 |
| July | 103 |
| August | 43 |
| September | 24 |
| October | 22 |
| November | 6 |
| Total | 333 |

- The total number of complaints received through 311 increased by approx. 13% to 333 complaints for the 2023 season, which was 50 days longer than the 2022 season and included a larger deployment area.
 - The proportion of 311 received complaints labelled as mis-parking complaints of all complaints increased by **14%** from **67%** in 2022 to **81%** in 2023.
 - The proportion of 311 received complaints labelled as sidewalk-riding complaints dropped by **5%** from **13%** in 2022 to **8%** in 2023.

- Table 11 provides the summary of data recorded by Bylaw each week. These include service requests received by 311, and others generated by internal Bylaw staff actions⁸. Therefore, the totals are greater in Table 11 than Table 10.
- Of Bylaw recorded data, **83%** were labelled as a mis-parking issue and **8%** were labelled as a sidewalk riding issue (other issues accounting for the remainder).

Table 11: Weekly Data Recorded by Bylaw (Monthly Total)

| | All Service Providers | | | Bird | Neuron | Neuron & Bird | Unknown |
|-----------|-----------------------|------------|-----------------|------------|--------|---------------|---------|
| Month | All Issues | Mis-Parked | Sidewalk Riding | All Issues | | | |
| May | 54 | 38 | 10 | 16 | 34 | 1 | 3 |
| June | 171 | 145 | 17 | 43 | 114 | 7 | 7 |
| July | 125 | 104 | 5 | 44 | 81 | 0 | 0 |
| August | 96 | 84 | 6 | 19 | 76 | 0 | 1 |
| September | 36 | 31 | 0 | 25 | 8 | 0 | 3 |
| October | 10 | 6 | 2 | 2 | 7 | 0 | 1 |
| November | 6 | 5 | 1 | 0 | 5 | 0 | 0 |
| Total | 498 | 413 | 41 | 149 | 325 | 8 | 15 |

- Residents were encouraged to direct all comments directly through City communication lines. Nonetheless, some complaints were directed directly to the service providers.
- Figure 15 illustrates the number of weekly complaints to 3-1-1 and each service provider.

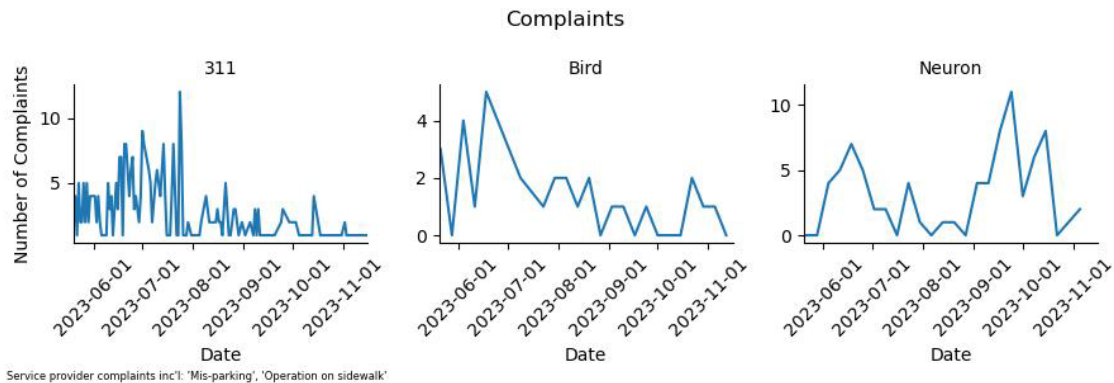


Figure 15: 2023 3-1-1 and Service Providers Complaints

⁸ This does not include proactive staff observations from outside Bylaw.

- Several city designated physical parking areas⁹ were implemented in the 2023 season. Figure 16 illustrates the location of these areas at the end of the season and the geospatial density e-scooter parking events for the season.
- The busiest parking areas were in the ByWard Market and along commercial streets in the Centretown region such as Elgin, Bank, and Wellington.
- Planning for new seasons allow the designation of additional areas, and the relocation of underutilized areas. Several areas were added partway though the 2023 season. There were 13 areas implemented by the end of the 2022 season and 22 areas implemented by the end of the 2023 season.

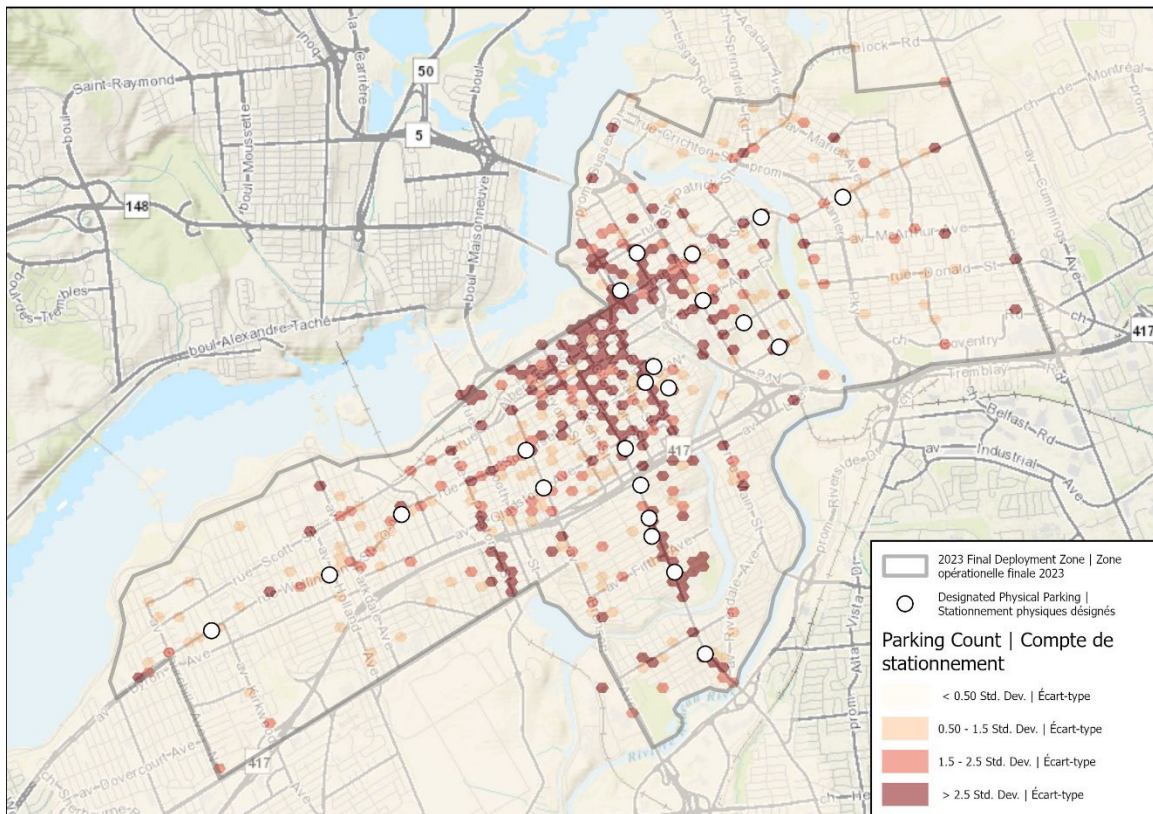


Figure 16: Total Parking Events and City Designated Physical Parking

- The end-of-season survey also included questions about e-scooter parking.
 - Few respondents (**56%**) indicated that they had encountered a mis-parked e-scooter. This is an increase compared to the rate from the 2022 survey (**40%**). These respondents indicated that they encountered

⁹ A physical parking area is defined as both a polygon within the service provider's application **and** includes physical on street signage such as flex stakes and pavement markings.

misparked e-scooters at the following frequency: rarely (**14%**), monthly (**14%**), weekly (**33%**), daily (**20%**), and multiple times a day (**18%**).

- For the 2023 season, a cohesive set of city designated virtual parking areas¹⁰ was provided to both services providers. Figure 17 illustrates the location of these 589 areas and the geospatial density e-scooter parking events for the season.
- A concentration of trips ended in the areas near the parking spots in the ByWard Market and along commercial streets in the Centretown region such as Elgin, Bank, and Wellington:

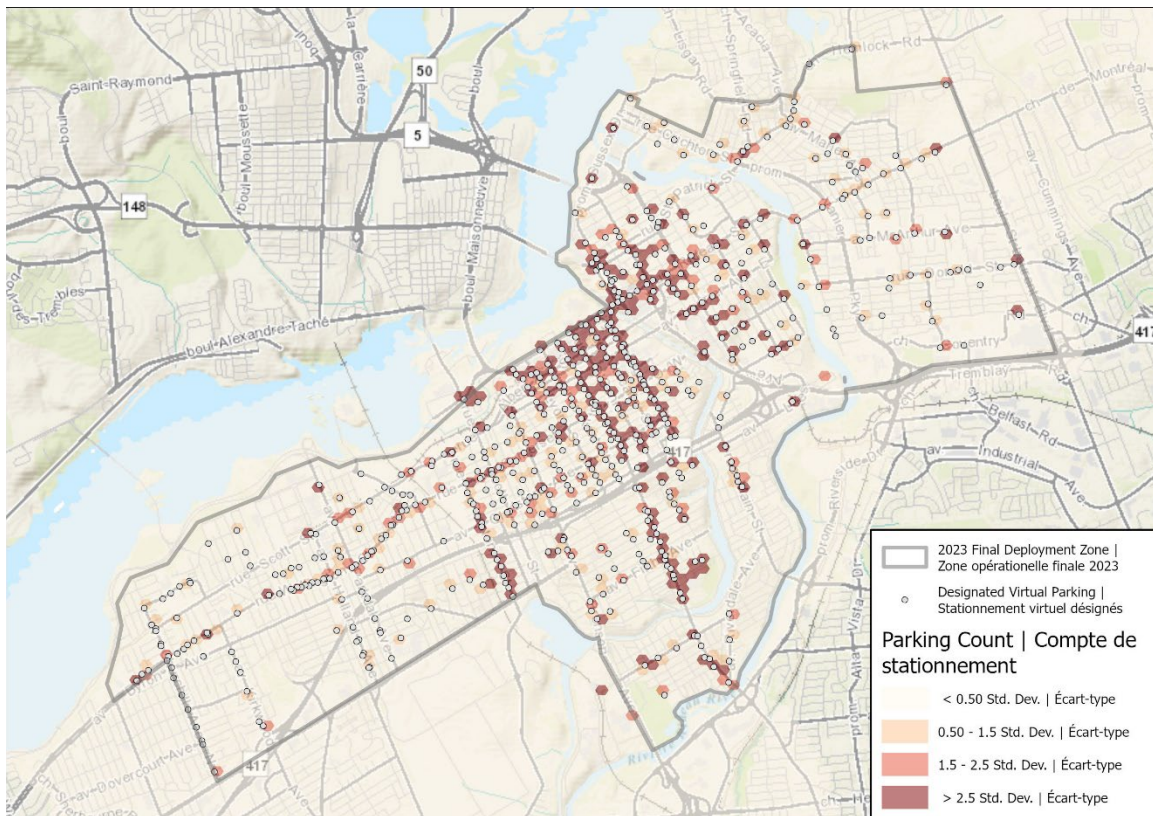


Figure 17: Total Parking Events and City Designated Virtual Parking

¹⁰ A virtual parking area is defined only as a polygon within the service provider's application and **does not include** any physical on-street signage.

Effective Injury Prevention

- The E-Scooter Service Providers provided the number of injuries reported to them during the 2023 season: Bird Canada (**7: minor injuries**), and Neuron (**12: 6 unverified, 6 verified of which 3 required medical attention**).
- The end-of-season survey included questions about e-scooter collisions:
 - **12** respondents indicated they were involved in a collision with an e-scooter.
 - **5** of the **12** respondents indicated they were injured but did not require medical attention.
 - **One** respondent indicated that an additional person was injured and required medical attention.
- As of April 1st, 2021, e-scooter related injuries were to be coded in hospital data systems using the International Statistical Classification of Diseases and Related Health Problem (ICD) code of *W02.08* “fall involving other specified sports equipment”¹¹. This code includes all falls from a scooter, including electric, motorized, and non-motorized vehicles used for sports, leisure, or locomotion.
 - More detailed coding was added in the 2022 ICD coding for *W02.08* to discriminate between electric e-scooters (*W02.080*), other motorized conveyances like hoverboards and Segways (*W02.087*) and non-motorized scooters (*W02.088*).
 - Emergency Department visits with the *W02.08* code totalled **34** for April to June 2023, the most recent month with available data.
- Table 12 below provides the number of collisions identified in the City’s collision records that involved e-scooters.
 - The total number of accidents is separated based on the classification of the accident.
 - This data does not distinguish between shared e-scooters from the service providers and privately-owned e-scooters. Certain accidents with privately-owned e-scooters could have occurred before the start of the seasons.

¹¹ Canadian Institute for Health Information. Updated ICD-10-CA coding direction: Homelessness, and falls from an electric scooter (e-scooter), mobility scooter, Segway® or hoverboard. Available from: <https://www.cihi.ca/en/bulletin/updated-icd-10-ca-coding-direction-homelessness-and-falls-from-an-electric-scooter>

Table 12: City Collision Data Involving E-Scooters

| Category | Number of Collisions | | | |
|----------------------|----------------------|------|------------------|------|
| | 2020 | 2021 | 2022 | 2023 |
| Property Damage Only | 1 | 3 | To be confirmed. | 1 |
| Non-Fatal Injury | 3 | 3 | | 6 |
| Total | 4 | 6 | | 7 |

By-Law, Ottawa Police Services, and Service Provider Support

- For the season, all e-scooter incidents reported to 311 via the e-form or call were transferred to a designated team at By-Law and Regulatory Services who would forward issues to the appropriate e-scooter service provider.
- By-Law reported no tickets or impounded e-scooters during the 2023 season.
- Service providers were required to respond to misparked scooters within 15 minutes. The following were the stated response time from the service providers:
 - Bird Canada: majority of response time was under 30 minutes.
 - Neuron: daily average response time was 19 minutes.
- Ottawa Police Services reported the following number of tickets and warnings under the City’s e-scooter bylaw (Ottawa Bylaw 2020-174) for each season. A summary is provided in Table 13.

Table 13: Number of Tickets and Warnings given by Ottawa Police Services

| Year | 2020 | 2021 | 2022 | 2023 | Difference (2023 to 2022) |
|---------|------|------|------|------|------------------------------|
| Ticket | 9 | 14 | 0 | 3 | +3 |
| Warning | 5 | 10 | 0 | 0 | 0 |
| Total | 14 | 24 | 0 | 3 | +3 |

- Fines and/or suspensions reported by the service providers in the end of year report:
 - 0 fines and 3 suspensions (account bans) in the 2023 season for sidewalk riding and other egregious behaviour. In 2022, there were 0 fines and 31 suspensions.
 - There were 93 incidents of thefts or vandalism recorded in 2023 season. In 2022, there were 61 incidents of thefts or vandalism recorded.