Report to Council

Date: June 15, 2020

To: Council

From: City Manager

Subject: Overview of Shared Micromobility in Kelowna

Department: Integrated Transportation

Recommendation:

THAT Council receives for information, the report from the Integrated Transportation Department, dated June 15, 2020, regarding an update on the Bikeshare (Overview of Shared Micromobility in Kelowna) Permit Program;

AND THAT Council require operators to implement a low-speed zone for shared e-scooter services along the Waterfront Walkway from the Bennett bridge to the Rotary Marsh and on Bernard Avenue for the length and during the temporary closure.

Purpose:
To update Council on proposed e-scooter use in the Downtown and the Bikeshare (Micromobility) Permit Program.

Background:
The Bikeshare (Micromobility) Permit Program intends to regulate free-floating, shared fleets of small vehicles operating within the City of Kelowna. Kelowna has had two phases of shared micromobility service, and the City continues to learn as the industry and conditions evolve. Phase 1 was in 2018, and it was a single pedal bike operator. Phase 2 is the current system that allows multiple operators and vehicle types. The permit defines pedal bicycles, e-bicycles and e-scooters and e-mopeds as permitted vehicle types. There are now five companies that hold permits to deliver three vehicle types: e-bikes, e-mopeds, and e-scooters.

Through the permit, the City allows service providers to access the street network, parks and pathways while adhering to the requirements and conditions of the permit as well as all applicable provincial and federal regulations. In the case of e-scooters, their use is not permitted on public roads in British Columbia. However, the province has recently amended legislation that may allow this vehicle type to access the road network locally.

This report provides a comprehensive outlook of shared micromobility in Kelowna, provides context to Council to explore implications restricting e-scooters on the Waterfront Walkway and ends with

recommendations for Council as the City moves into the third year of shared micromobility service provision.

Discussion:

Implications of Restricting E-scooters on the Waterfront Walkway

In May 2019 council created a temporary exemption where electric bikes and electric scooters are allowed on three different facilities including the Waterfront Walkway, Angel Way, and the Okanagan Rail Trail.

Through council deliberation in November 2019, Staff was asked to "report back on the implications on amending the Parks Bylaw to restrict e-scooters on the waterfront pathways from the City Park Pedestrian Tunnel to the Rotary Marshes." To make sure the spirit of this recommendation adapts to evolving needs, Staff have also added the section of Bernard Ave closed temporarily to vehicular traffic to this analysis as a similar potential for conflicts may exist with the pedestrianization of this corridor.
This section of the report will focus on:

- Pedestrian safety,
- The Waterfront Walkway's role in the bike network,
- Our approach to regulating new vehicle types,
- An exploration of geofencing which would govern any changes and
- Recommendations for council consideration.

Pedestrian Safety

Safety is a complex challenge as there are factual and experiential safety concerns, and both are important. Available studies and data show that e-scooters are as safe as pedal bikes.

Pedestrian Safety Related to Shared E-scooters

The OECD's International Transportation Forum released a report in early 2020 entitled "Safe Micromobility."[1] This document offers a unique broad examination of "the traffic safety of pedal cycles, electrically assisted cycles and electrically powered personal mobility devices such as e-scooters, whether owned or shared, in an urban context."

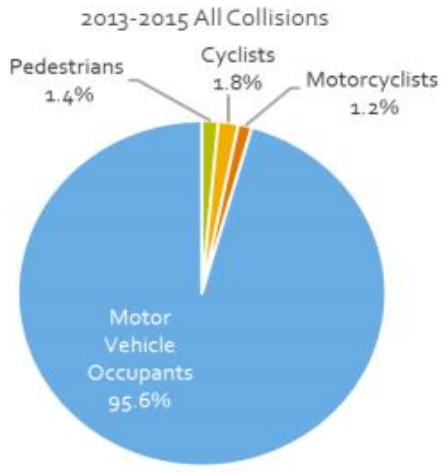

Figure 1 - The majority of collisions in Kelowna primarily involve motor vehicle occupants.

This report found that e-scooters as a travel mode are just as safe as cycling. It goes further to say, "a road fatality is not significantly more likely when using a shared standing e-scooter rather than a bicycle"[1], and that, "the risk of an emergency department visit for an e-scooter rider is similar to that for cyclists."

The study describes e-scooter collisions with pedestrians as "rare" going further to say "non-riders, mainly pedestrians, represent between 1% and 14% of standing e-scooter related injuries, averaging 4% across all studies." This report highlight that this is similar

[1] Santacreu, Alexandre. "Safe Micromobility." *International Transport Forum*, International Transport Forum OECD, 17 Feb. 2020, www.itf-oecd.org/sites/default/files/docs/safe-micromobility_1.pdf.

to collisions between people biking and walking, which "are also rare, especially when compared to injuries sustained by pedestrians from collisions with motor vehicles. Adjusting for fleet size, a car is nearly 50 times more likely to be linked with a serious pedestrian injury."

Injuries Related to Shared E-scooter Use in Kelowna

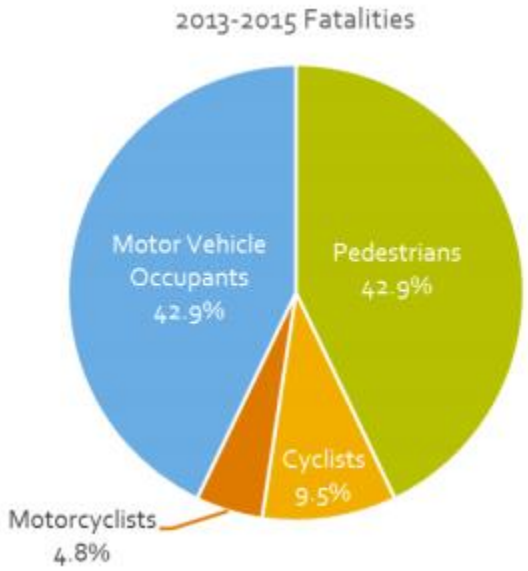

Figure 2 – The majority of injuries on our road network are attributed to people walking and biking. These injuries come from just 3.2 per cent of all collisions (See Figure 1).

Since the creation of the Bikeshare (Micromobility) Permit Program, no injuries related to shared e-scooters have been recorded. This includes injuries reported by shared e-scooter operators, local RCMP, Interior Health, the City's Bylaw services team and directly to staff via service request. It's important to note that some public agencies did not have a clear way to flag or don't explicitly track e-scooter injuries compared to other injuries on other small vehicles. Shared e-scooter operators that hold a permit with the City are obligated to highlight incidents of property damage, collisions or injuries to the City.

Pedestrian Safety in Kelowna

An average of 46 pedestrian collisions are reported in Kelowna every year. This trend of pedestrian safety being heavily linked to motor vehicle collisions is present both globally and in Kelowna, where, according to ICBC collision data from 2007-2017, 99 per cent of pedestrian collisions involving a person walking were with an automobile. Most pedestrian collisions result in injury, and there is an average of three fatal pedestrian collisions a year. People walking are more vulnerable than other travelers and are more likely to suffer injury or death in a crash compared to motor vehicle occupants. Between 2013 and 2015, people walking were involved in only 1.4 per cent of all crashes but represented 42.9 per cent of all fatalities (see Figures 1 and 2). To put this in context, the City of Kelowna's rate of 32.7 pedestrian collisions per 100,000 people is similar to comparable cities in British Columbia.

Waterfront Walkway's role in the Bicycle Network

It is difficult to understand the implications of removing shared e-scooters from one of the only corridors they have been permitted to operate. To understand more fully, Staff chose to look at the type of trips made in other jurisdictions where e-scooters can be used like bicycles. In general, shared e-scooter trips have similar patterns to bikeshare trips. The main differences are that shared e-scooter journeys tend to be on average slightly longer. Similarities to bikeshare trips include similar operating speed, weight and operating envelope, propensity to seek out bicycle facilities, as well as having a similar profile of use over the day.

The Waterfront Walkway connects a variety of the most heavily used portions of our bike network while also being a popular destination. A delicate balance on this corridor is needed not only for new vehicles that emerge but also for conflicts between users, which escalate with such heavy usage.

[2] Zardadi, Mohsen, et al. *City of Kelowna: Bike Network Analysis*. 2019.

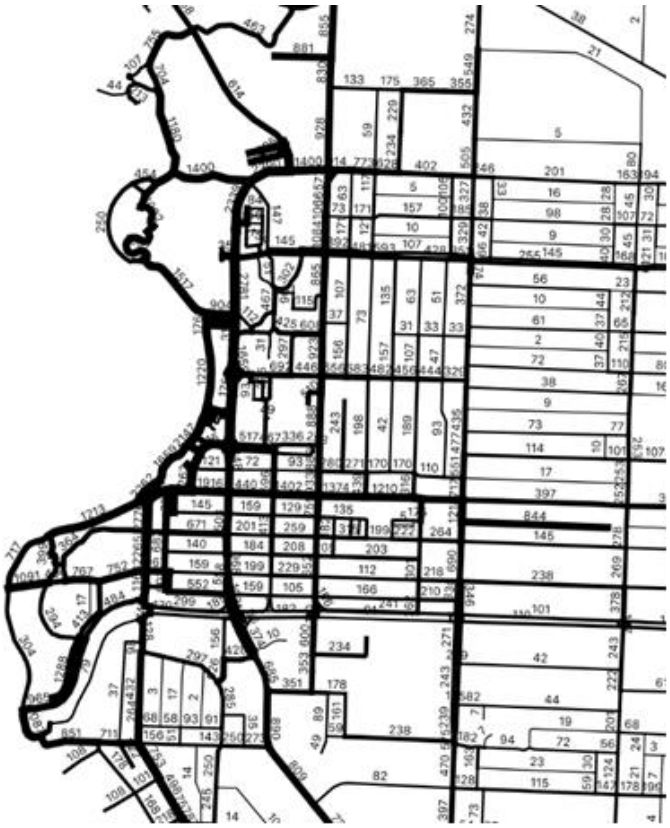

Figure 3 – In 2019 the City worked with UBCO masters of Data Science project built a model of expected bike volumes for an average summer day from 2018 bikeshare data and existing automated bike counters Downtown.[2]

Other than the Waterfront Walkway, no continuous bike connection exists north-south through downtown Kelowna. As a result of this, and due to the safe connection across Highway 97 into City Park, this pathway is a critical piece of the active transportation network for those walking and rolling. It's important to note that traffic on the Waterfront Walkway is split evenly between bikes and pedestrians during the summer (May to September), further highlighting the importance of this corridor for people on bikes, and as a result the viability of shared micromobility services.

Kelowna is currently experiencing record-breaking increases in use across our bike network, including bike lanes and multi-use facilities. On the Waterfront Walkway, usage has increased 45-63 per cent for May year-over-year.

In 2018, Staff conducted a project with UBCO Masters of Data Science students to combine bikeshare data with data from our permanent bicycle and pedestrian counters. The outcome of this project was a model of bike volumes on our transportation network through downtown for the average summer day. As you will see in the graphic provided, a significant number of bike trips utilize the Waterfront Walkway, and it acts as a spine for bikes, skateboards and e-scooters just as Harvey acts as a spine for motor vehicles. Removing the ability to use a network's backbone fundamentally lowers the utility of the network and any travel mode that accesses it.

Kelowna's Approach to New Vehicles

In the future, there will be more vehicles that break the traditional user types of bicycle, pedestrian, transit and automobile. The City can more closely regulate shared vehicles. However, Staff expects to see an increasing number of privately-owned new vehicle types. In this future, we need to be flexible to new vehicle types and set rules for vehicles by grouping similar vehicles together based on weight, speed, and operating envelope. In the past few years, we have seen growth not only in bikes but

Figure 4 The Onewheel features a self-balancing wheel and footboard. Currently this vehicle is not permitted to operate on roads in Kelowna.[3]

[3] "Press." *Onewheel // Future Motion*, onewheel.com/pages/press.

also e-bikes, skateboards, kick-scooters and e-scooters. In the future, new vehicles like e-skateboards, Onewheels (see Figure 4) and other vehicle types powered by electricity that travel under 32km/h and usually accommodate one user will likely show up on our transportation network. This greater variety of vehicle types permitted to travel on our bike network will welcome more people and increase the utility of existing infrastructure.

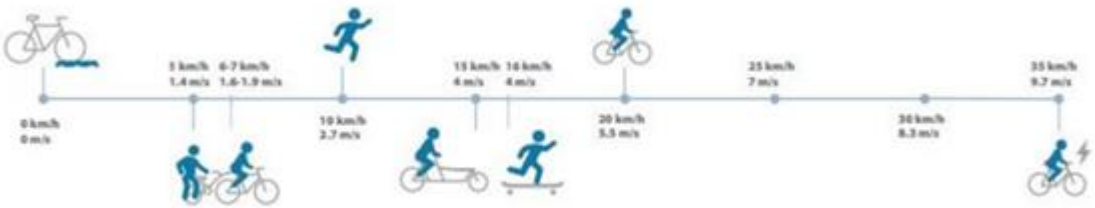

Figure 5 - Typical active transportation user speeds from the British Columbia Active Transportation Design Guide4

When we think about adding new vehicle types to our network and how we go about regulating them, it's helpful to compare new options to existing options. From the B.C. Active Transportation Design Guide, guidance is given about operating envelopes for different user types. Currently, at the City, we regulate a variety of vehicle types, including skateboard, kick scooter, bicycle, cargo bicycle, e-bike, and bicycle with trailer in the same general operating envelope. These vehicles typically operate in a 1.5 meter wide and 2.5 meters tall operating envelope and have an average operating speed of between 15-35km/h. Staff view e-scooters with a maximum speed of 25 km/h, as similar to this other group of vehicles and intend to govern them similarly.

There are also considerable differences in how small vehicles are regulated locally between parks and roads when they are in parks as a part of the road network. Active transportation facilities exist and bleed between on-road and within parks often, and inconsistent regulations will be a challenge.

Geofencing: Limitations and Safety Precautions

Any changes made related to where shared e-scooters can be primarily governed using geofencing. Geofencing in this context means "the use of GPS technology to create a virtual geographic boundary, enabling software to trigger a response such as slowing or stopping a vehicle when it enters or leaves a particular area."

In 2019, staff were able to use the permit program to learn about onboarding these types of emerging services. Providers that operated in Kelowna used a variety of approaches to education, maintenance, vehicle type, and software to deliver their service. One of the challenges Staff experienced was related to software providers and their ability to geofence correctly. Staff worked hard with providers who had software systems that were substandard to rectify deficiencies. If Staff noticed geofencing wasn't working appropriately, the City would require the removal of fleets from service until issues were resolved. As a part of that learning, staff have blocked new permit applications from being approved if their software providers are ill-equipped to deliver required features to operators such as standardized data and robust geofencing. The City

[4] "British Columbia Active Transportation Design Guide." *British Columbia Government*, Ministry of Transportation and Infrastructure, 2019, www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/engineering-standards-guidelines/traffic-engineering-safety/active-transportation-design-guide.

now encourages permit holders to work with technology providers we trust or prove the capabilities of new technology providers in advance of Staff issuing a permit.

Other than software issues, geofencing can be a challenging tool to work with due to its potential to frustrate riders and the safety risks it can pose. We typically do not institute geographic control over vehicles on our road network partly due to the ownership model for most vehicles, but also because of the complexity of operating on a roadway.

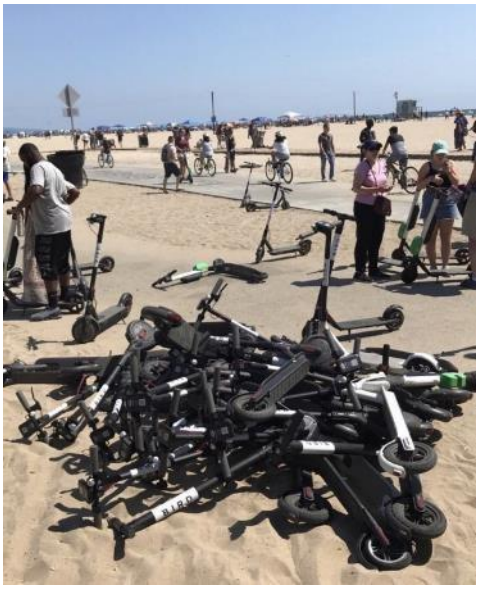

Figure 6 – Public realm disorder due to a hard geofence on Santa Monica's waterfront pathway.[5]

There are two ways to geofence e-scooters: one is by instituting a speed limit and one is by applying an automated brake. Other cities have experimented with geofences that trigger brakes and once the vehicle passes a certain threshold. A geofence that engages the brake can be unsafe and create a variety of negative externalities. Additionally, some cities that have opted for a geofence that prevents users from entering an area have experienced safety challenges and public disorder as riders can have their vehicle lock up unexpectantly or leave the vehicle in an unsightly manner out of frustration or inability to move the vehicle once locked. Figure 6 is an example from Santa Monica, California's waterfront pathway. After instituting a full ban and reviewing results, Santa Monica opted for a low-speed zone to limit disorder and frustration from users, while managing conflicts on a heavily used pathway. [5]

Last year was the first-year staff had experimented with geofencing. Knowing the safety risks staff erred on the side of caution. As a result, users could take e-scooters up to 200 meters off the approved corridor with onboard warnings to the user from the vehicle before being slowed down to walking speed, which in most cases gave riders the ability to turn around and get back to the corridor that e-scooters were restricted to.

Potential Actions

1. Implement a low-speed zone across the entire Waterfront Walkway and the Bernard temporary closure

A low-speed zone could be created for shared e-scooters along the entire Waterfront Walkway from the City Park Underpass to the Rotary Marsh. Limiting speed to 10km/h (jogging speed) to mitigate concerns of unsafe riding and monitor impacts. This action would have adverse effects for providers as the waterfront walkway is the only cross downtown bike facility. It would also provide potential safety improvements as other users familiarize themselves with the vehicle type. Staff recommends this course of action with additional monitoring and further escalation if problems persist.

2. Ban e-scooters from the Waterfront Walkway and the Bernard temporary closure

[5] Paul, Sunil. "The Scooter Wars Will Be a Bloodbath - and Uber Will Win." *Vox*, Vox, 12 July 2018, www.vox.com/2018/7/12/17549498/scooter-wars-bloodbath-bird-lime-spin-uber.

Staff would amend the Parks and Public Spaces Bylaw to remove e-scooters as a permitted use which would ultimately trigger a change to the bikeshare permit program and would require all operators to install a hard geofence. As a result, entry to the park would be prevented by all e-scooters within the bikeshare permit program. This would have significant challenges for users with few safe connections across downtown or crossing Highway 97. This would significantly impair the viability of e-scooter shared services, dramatically shrinking market size and limit the potential to connect to a variety of destinations. Due to the safety challenges, other cities have experienced with a requirement of this nature and the impact on the viability of these services across the city, Staff does not recommend this course of action.

Additional Actions

Based on the context and analysis provided in this report, several actions can be taken to respond to Council and the public's concerns, the first two potential actions are mutually exclusive and staff recommends the first one, implementing a low-speed zone, complemented with the additional actions listed below.

1. Improving Rider Education In-App

Helping users understand various elements of the program will help with compliance. Staff will focus on delivering other messages that encourage users to wear helmets, prevent intoxicated riding, and encourage considerate riding around pedestrians on shared pathways.

Figure 7 - Handbills were placed on each e-scooter in Portland, Oregon during their e-scooter pilot that clarifies expectations for riders.[6]

2. Improving Rider Education in Person

Taking cues from other cities, staff are working to deliver a small handbill hung from the handlebar of every e-scooter every day as they get redeployed.

This educational resource will play an essential role in both riders and the wider public to learn more about the dos and don'ts for riders and our expectations in terms of safe riding behaviour.

3. Educational Campaign related to E-scooter Responsibilities

The City will work to deliver an educational campaign that highlights where e-scooters are allowed and how they can operate. This action will be especially crucial with increased personal e-scooter ownership.

4. Educational Campaign related to Shared Pathways

Staff launched an educational campaign in early June and will continue to deliver an education related to increased shared pathway usage as a result of COVID-19. This information is being provided at key locations, including along the Waterfront Walkway, on social media and through news releases.

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[6] "Laws Applicable to Electric Scooters in Portland." *Shared Electric Scooter Pilot - Portland Bureau of Transportation*, 3 Dec. 2019, www.portlandoregon.gov/transportation/article/689878.

Conclusion:
Kelowna has learned from being a pioneer in shared micromobility in Canada and is adapting and responding to Council's concerns to continue evolving local micromobility options, which encompasses more than just e-scooters. Micromobility is a suite of new options, for example, shared e-bike, e-moped, and e-scooter, however, new emerging vehicle types could arise. With time, all technologies evolve and some shared micromobility options are becoming less attractive for private operators to deliver. Shared pedal bikes are one option that we are unlikely to see delivered without subsidies here in Kelowna.

Full restriction of e-scooters on the Waterfront Walkway will considerably limit the attractiveness for operators to invest in Kelowna and reduce the utility of shared e-scooters to access a variety of destinations. Staff recommends creating a low-speed zone on the Waterfront Walkway from the Bennett bridge to the Rotary Marsh and on Bernard St. from St. Paul to the Sails until September, combined with additional monitoring to make changes when needed.

If the Province grants the City the ability to regulate e-scooters similarly to bicycles, Staff will bring forward to Council an amendment to the Traffic Bylaw No. 8120 to enable their use within bike lanes and on the road network.

Staff will work to deliver a variety of educational measures specifically targeted at e-scooters listed as Additional Actions in this report.

Staff will additionally be monitoring and adapting public health-related requirements for operators of shared micromobility fleets as the COVID-19 crisis evolves.

Reconstruction of a large portion of the Waterfront Walkway within City Park is planned to occur in phases will be completed in 2021. Where possible this will include increased width to accommodate the high volume of traffic.

Internal Circulation:
Business and Entrepreneurial Development
Bylaw Services
City Clerk
Parks and Building Planning
Parks Operations
Traffic Operations
Communications

Considerations applicable to this report:
Existing Policy:
The *Kelowna On The Move: Pedestrian and Bicycle Master Plan* recommends Staff "*research and develop a strategy to demonstrate which programs would be most effective in achieving behavioural change to grow the share of residents selecting active modes of transportation*."

The *Community Climate Action Plan* recommends staff "*expand the pilot community bike share program."*

Considerations not applicable to this report:
Legal/Statutory Authority

Legal/Statutory Procedural Requirements
External Agency/Public Comments
Communications Comments
Financial/Budgetary Considerations

Submitted by:
M. Worona, Mobility Specialist

Reviewed and Approved by:
R. Villarreal, Department Manager, Integrated Transportation

Approved for inclusion:  A. Newcombe, Divisional Director, Infrastructure

Attachment 1 - Overview of Shared Micromobility in Kelowna Presentation
Attachment 2 - Other Considerations

cc: Deputy City Manager
Director, Business and Entrepreneurial Development
Divisional Director, Corporate Strategic Services
Divisional Director, Financial Services
Divisional Director, Human Resources & Community Safety
Divisional Director, Infrastructure
Divisional Director, Partnership & Investments
Infrastructure Operations Department Manager