



Electric Scooter Shared Services **Discussion Paper**

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2.0 Introduction

In past two years electric scooter shared services, also known as e-scooters, have rapidly expanded across the world. These services are built on the success of the existing bicycle shared services which originated in the 1960's. While e-scooter shared services are not suitable for long commutes, they are useful for short trips, provide options for the 'last mile', provide links to public transport, and are appealing for recreational use and tourism.

Throughout the world e-scooter shared services have been operating for less than two years; therefore there is limited published research or data on usage, benefits or risks. Anecdotal evidence and hearsay has been heavily relied upon in the adoption of these services. Nonetheless this has not stopped a growing number of cities across the world from considering these services.

There are a range of issues that need to be addressed for e-scooters to operate in Western Australia. The State Government will lead the review and implementation of all necessary legislative and regulatory changes with Local Government input. An operator will require permission from the relevant Local Government to operate an e-scooter shared service. Operators must apply for a permit to operate pursuant to relevant local laws.

3.0 Purpose

The purpose of this paper is to inform the Local Government sector on the issues involved with the implementation of e-scooter shared services. This discussion paper identifies the issues and learnings of existing e-scooter shared services; and the policy implications pertinent to WA Local Governments. In Western Australia these services are likely to cross Local Government boundaries making a broadly consistent set of policies and regulations important. At the December 2018 meeting the Infrastructure Policy Team requested this paper to be developed to ensure all issues and options are considered.

4.0 What is an electric scooter?

Electric scooters, known as e-scooters, are powered by a rechargeable battery with a range of approximately 20-60 kilometres per charge and a maximum speed of approximately 25km/hour. To operate an e-scooter the user pushes the device along a short distance to kick-start the scooter, and then presses the throttle on the handlebar to trigger the electric motor. See Figure 1 for a depiction of a typical e-scooter.

E-scooters operated by shared services are fitted with GPS systems to ensure users can easily locate them. Users register, pay, unlock and lock e-scooters through a mobile phone app. At the end of the journey users do not need to physically lock the device with a conventional chain or return it to a designated station or rack. E-scooters from shared services are designed to be dockless meaning the user can choose where to end their journey. Generally some operators of e-scooter shared services remotely monitor the battery life of the devices and employ people to collect the devices for recharging and redistributing

as required.¹ Other operators have the ability to remove and collect the batteries from the devices for recharging, while leaving the device on the street.

E-scooters are also available to purchase for private use across Australia. Suppliers sell e-scooters with a disclaimer for users to consult the relevant legislation regarding operation.



Figure 1: Illustration of a typical e-scooter

5.0 The rise of e-scooter shared services

E-scooter shared services originated in the United States in 2017, with two major companies quickly expanding. The company Bird initially launched e-scooters in Santa Monica, California and expanded to other cities throughout 2018. The company Lime started with bicycle shared services and expanded to e-scooters in early 2018. Other e-scooter companies that have launched services, include Scoot, Skip and Spin.² E-scooter shared services are now reportedly available in approximately 100 cities in the US.

The average adoption rate of e-scooters across major cities in the US was 3.6% in the first twelve months based on using an e-scooter at least once. In comparison the adoption of traditional car-share services took twelve years before the average adoption rate was between 2% and 3%. This is likely due to there being less barriers for e-scooter operations than car-share service operations (e.g. legislative, licensing, costs).

A study completed in 11 major US cities found that 70% of people surveyed viewed e-scooters as a viable transport mode instead of using a private car either to replace short driving trips or in conjunction with public transport.³

In Portland, Oregon more detailed findings were produced after a four month trial from July to November 2018. The trial involved three e-scooter companies and there was a total of

¹ Engadget. (2018). Silicon Valley's scooter scourge is coming to an end.

<https://www.engadget.com/2018/04/19/san-francisco-scooter-invasion/>

² Architecture and Design (2018). Can e-scooters solve the 'last mile' problem? They'll need to avoid the fate of dockless bikes. <https://www.architectureanddesign.com.au/features/comment/e-scooters-last-mile-problem-dockless-bikes>

³ Populus. (2018). The micro-mobility revolution: The introduction and adoption of electric scooters in the United States.

2,043 e-scooters permitted. Over four months there was a total of 700,369 trips averaging 5,885 trips per day covering over 801,887 miles (1,290,512 kilometres).

In New Zealand, the company Lime launched 600 e-scooters in Auckland and 400 e-scooters in Christchurch in October 2018. In the first two weeks of operation in Christchurch there was approximately 107,000 kilometres travelled by e-scooters⁴ and in two months there were over 100,000 trips. In Auckland more than 500,000 trips were recorded in the first six weeks⁵. E-scooters have since been launched in Dunedin and Hutt Valley and the total rides in all four locations has now surpassed one million.⁶

The operator Lime was given permission by the Queensland State Government to operate on a trial basis in Brisbane, the first e-scooter shared service in Australia. The service was launched in November 2018 and within the first two weeks of operation there was more than 50,000 trips by users. The operators Lime and Bird have been in discussions with the New South Wales Government to begin a trial in Manly.⁷

The Department of Transport has been approached by several operators seeking to launch services in Perth. The operator Lime held a demonstration of its e-scooters in December 2018 to showcase the capabilities to local media and provided the opportunity for selected State Government and Local Government representatives to test the e-scooters. The Department of Transport is liaising with relevant State Government agencies and stakeholders to identify and work through the issues associated with a trial.

The growing popularity of alternative modes of transport has prompted the Transport and Infrastructure Council to direct the National Transport Commission “to review the Australian Road Rules and highlight any regulatory barriers to the safe use of innovative vehicles and motorised mobility devices across Australia”. Innovative vehicles includes e-scooters. In January 2019 the National Transport Commission released an issues paper, the purpose of which is to understand the regulatory barriers to the safe use of innovative vehicles and motorised devices.⁸ The intent of the National Transport Commission is, after analysis of feedback from the issues paper, to release a discussion paper to canvass options to resolve problems by June 2019; draft amendments to the Australian Road Rules by mid-2020; and put the draft amendments to the Transport and Infrastructure Council for decision by November 2020.

6.0 Benefits of e-scooters

E-scooters offer a convenient mode of transport and provide an alternative mobility choice to users. They are readily accepted, easy to use and are valued for being able to transport

⁴ TVNZ (2018). E-scooters a hit in Christchurch, clocking up 107,000 kilometres within first two weeks.

https://www.tvnz.co.nz/one-news/new-zealand/e-scooters-hit-in-christchurch-clocking-up-107-000-kilometres-within-first-two-weeks?variant=tb_v_1

⁵ NZ Herald. (2018). Lime notches 500,000 scooter rides in NZ.

https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12169063

⁶ NZ Herald. (2019). Lime hits million-ride milestone in NZ, boss open to e-scooter tax

https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12191975

⁷ The Sydney Morning Herald. (2018). Sydney's share bikes take 22,000 city trips a week.

<https://www.smh.com.au/national/nsw/sydney-s-share-bikes-take-22-000-city-trips-a-week-20181130-p50jbk.html>

⁸ National Transport Commission. (2019). Barriers to the safe use of innovative vehicles and motorised mobility devices. [https://www.ntc.gov.au/Media/Reports/\(67C382BE-5673-11A6-8B64-86816071EC58\).pdf](https://www.ntc.gov.au/Media/Reports/(67C382BE-5673-11A6-8B64-86816071EC58).pdf)

people to destinations quicker than walking.⁹ It is anticipated that e-scooters could potentially provide last mile options and link to public transport, however as yet there is limited data to support this.

The use of e-scooters has potential environmental benefits which may contribute to less pollution and greenhouse gas emissions. According to the e-scooter operator Lime, for every 1.6km (1 mile) travelled on an e-scooter mitigates 350 grams of carbon.¹⁰ Furthermore other research suggests that one kilowatt hour of energy allows a typical motor vehicle to complete three laps (1.29km) around a typical football field, an electric vehicle (Tesla) to complete 17 laps (6.6km) and an e-scooter to complete 333 laps (133km) as shown in Figure 2. These figures are based on the assumption that e-scooters will replace car trips, with early indicators from the operator Lime suggesting this is occurring. A survey of 11,000 e-scooter and e-bicycle users by Lime indicated 30% users had replaced their car trips (private, rideshare, etc.).¹¹ In addition according to Lime, 22% of e-scooter trips in New Zealand replaced vehicle trips representing 20,000 fewer vehicle trips over two months on city roads.¹² Further research is required to understand if there is a shift away from car trips and any impact on the environment.

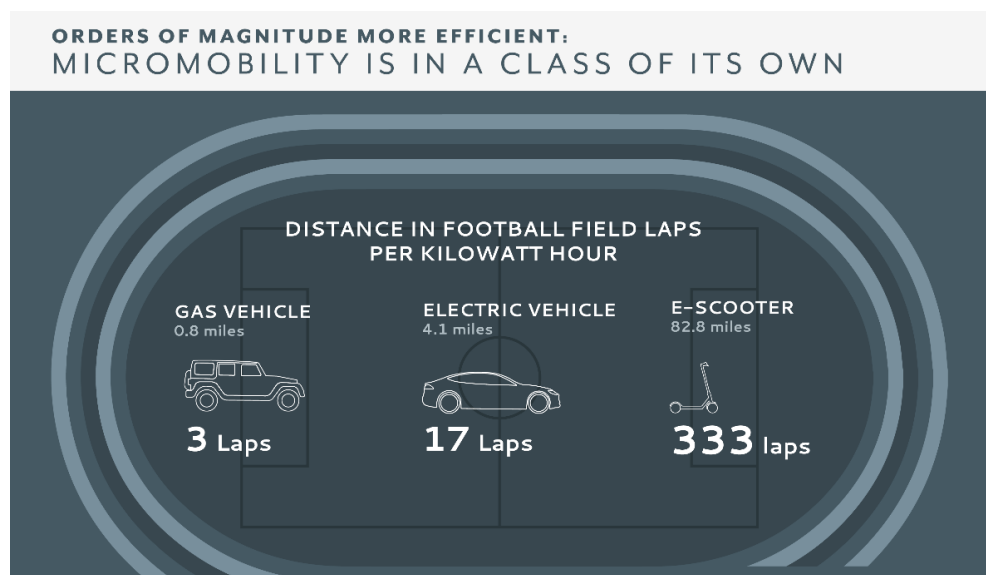


Figure 2: Comparison of different modes of transport distance in football field laps per KW/hour¹³

⁹ Dowling, R., Irwin, J., Faulkes, I. & Howitt, R. (2015). Use of personal mobility devices for first-and-last mile travel: The Macquarie-Ryde trial. <http://acrs.org.au/files/papers/arsc/2015/DowlingR%20071%20Use%20of%20personal%20mobility%20devices%20for%20first%20and%20last%20mile%20travel.pdf>

¹⁰ Cleantech Rising (Medium). (2018). The Environmental Impact of Electric Scooters. <https://medium.com/cleantech-rising/the-environmental-impact-of-electric-scooters-8da806939a32>

¹¹ Lime. (2019). Latest Data Show Lime Attracts New Riders To Active Transportation, Reduces Car Use And More. <https://www.li.me/blog/latest-data-lime-attracts-new-riders-reduces-car-use-more>

¹² NZ Herald. (2018). Man caught dangerously riding e-scooter through Auckland peak hour traffic. https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12180217

¹³ Wired. (2018). Let's Count the Ways E-Scooters Could Save the City. <https://www.wired.com/story/e-scooter-micromobility-infographics-cost-emissions/>

E-scooters appeal to the local tourist market, providing a quick and convenient option for tourists to explore a particular area. A 2018 survey undertaken by the Portland Bureau of Transportation showed 24% (1,088) of e-scooter users surveyed did not live or work in Portland indicating they were visiting from a different state or country. Of the 1,088 e-scooter users who did not live or work in Portland, the majority of users would have either taken a taxi/ride share (34.25%), walked (35.48%) or driven a personal vehicle (14.33%) if an e-scooter was not available.¹⁴

On a personal level e-scooters are very convenient modes of transport, more so than shared bicycles. They particularly appeal to office workers because they do not require movement of the body and the user stands upright preventing perspiration and wrinkling of clothing. They are also useful for women wearing skirts and dresses, which can be an issue on bicycles.¹⁵

¹⁶

7.0 Legislation

7.1 Definition of 'motorised scooter', 'scooter' and 'moped'

Part 1 regulation 3 of *Road Traffic Code 2000* defines a 'motorised scooter' as:

...a scooter that is propelled by one or more electric motors (whether the motors are a part of the scooter or attached to the scooter) and complies with the requirements of paragraph (e) in the definition of scooter

The *Road Traffic Code 2000* defines 'scooter' as:

scooter means a device that —

- (a) *has 2 or more wheels and a footboard supported by those wheels; and*
- (b) *is steered by handlebars; and*
- (c) *is designed to be used by a single person; and*
- (d) *is propelled by any one or more of the following —*
 - (i) *gravity;*
 - (ii) *the user pushing a foot against the ground;*
 - (iii) *an electric motor or motors; and*
- (e) *if it is fitted with an electric motor or motors, satisfies the following criteria —*
 - (i) *its maker certifies (either by means of a plate attached to the motor or on each motor, or by means of engraving on the motor or each motor) the ungoverned power output of the motor, or each motor;*
 - (ii) *the maximum power output of the motor, or the combined maximum power output of the motors, is not more than 200 watts;*
 - (iii) *when propelled only by the motor, or motors, the scooter is not capable of going faster than 10 km/h on level ground.*

¹⁴ Portland Bureau of Transportation. (2018). 2018 E-Scooter Pilot User Survey Results.

<https://www.portlandoregon.gov/transportation/article/700916>

¹⁵ Architecture and Design (2018). Can e-scooters solve the 'last mile' problem? They'll need to avoid the fate of dockless bikes. <https://www.architectureanddesign.com.au/features/comment/e-scooters-last-mile-problem-dockless-bikes>

¹⁶ Heinen, E., Maat, K., & Van Wee, B. (2011). Day-to-day choice to commute or not by bicycle. *Transportation Research Record: Journal of the Transportation Research Board*, (2230), 9-18.

Indications are that e-scooters associated with shared services can travel up to speeds of 25km/h, which does not align with the legal definition of 'motorised scooter' in the *Road Traffic Code 2000*.

Advice from the Department of Transport is that because an e-scooter can exceed the speed and power rating limits of a scooter or motorised scooter (as defined under the *Road Traffic Code 2000*) they fit the definition of a 'moped', which incurs compliance with other regulations i.e. having a licence to drive.

Under the provisions of Part 1 regulation 3 of the *Road Traffic (Vehicles) Regulations 2014* a 'moped' is defined as:

...a motor cycle or motor tricycle with an engine cylinder capacity of not over 50 mL and a maximum speed of not over 50 km/h.

Under the provisions Part 1 regulation 3 of the *Road Traffic (Authorisation to Drive) Regulations 2014* a 'moped' is also defined as:

a motor cycle that —

(a) is designed so as not to be capable of a speed exceeding 50 m/h; and

(b) either

(i) has an engine capacity not exceeding 50 cc; or

(ii) is not powered by a piston engine,

whether or not it is also capable of being propelled by pedalling, but does not include a power assisted pedal cycle.

The *Road Traffic (Authorisation to Drive) Regulations 2014* requires the driver of a moped to hold a 'moped licence', which is defined as:

...a driver's licence that authorises the holder to drive only a motor vehicle of class R endorsed with the condition N.

7.2 Protective helmets

Regulation 209A (2) of the *Road Traffic Code 2000* states:

A person shall not travel on a motorised scooter on a road or any path unless that person is wearing a protective helmet securely fastened on his or her head.

Regulation 244 (2) of the *Road Traffic Code 2000* states:

A person shall not drive a motor cycle unless —

(a) that person is wearing securely on his or her head a protective helmet.

8.0 Challenges for e-scooter shared services in WA

8.1 Speed and power rating of e-scooters

Current legislation dictates that an e-scooter (associated with a shared service) is a moped due to its power rating and speed capability of up to 25 km/h, which requires the driver to hold a moped licence and wear an approved protective helmet when operating the device on any road or path.

Therefore any operation of an e-scooter shared service in WA will, in the first instance, require consideration by the State Government to provide exemptions from some relevant legislation and, in the long term, review/amend legislation to accommodate these services.

This raises the question of what is considered to be a safe speed for e-scooters in areas where there is a high mix of users. There is no evidence to show the human tolerance to injury impact from e-scooters and this needs to be considered. A balanced approach is required to determine legislation that provides for both a safe and practical speed.

Question

What is considered to be a safe and practical speed for e-scooters for Western Australia?

8.2 Age limit of e-scooter user

The age of a user operating an e-scooter may also require consideration. The Queensland State Government imposed age restrictions - users of e-scooters must be aged over 16 years, with children between the ages of 12 and 16 requiring adult supervision.¹⁷

Question

Do you support age restrictions for e-scooter riders in Western Australia and if so what age?

8.3 Safety

As the number of e-scooter share services grow, the number of reported users sustaining injuries is increasing. The speed of e-scooters puts users as well as pedestrians and cyclists at risk of significant injuries.

In the United States two deaths attributed to e-scooters have been recorded. There is limited reliable information regarding the number of injuries, however reports from hospitals in the US show that both e-scooter users and other path users have attended emergency rooms for life-threatening and debilitating conditions. The injuries are not only caused by users losing control, but also due to malfunctioning e-scooters including brakes not working and

¹⁷ ABC News. (2018). What's the deal with e-scooters in Australia and where are you allowed to ride them? <https://www.abc.net.au/news/2018-12-23/the-rules-around-scooter-sharing-in-australia/10639170>

throttles sticking.¹⁸ It should be noted however there are various legislative conditions for e-scooters across the US and some States permit users to operate e-scooters on roads where the risk of injuries are increased. The Centres for Diseases Control and Prevention plans to undertake an epidemiological study on e-scooter injuries in Austin, Texas to quantify the risks.¹⁹

In Los Angeles from September 2017 to August 2018 a study in the medical journal JAMA Network Open found there were approximately 249 injuries reported to emergency departments from e-scooters, where 28% suffered contusions, sprains and lacerations, 30% had fractures, and just over 40% had head injuries. It was estimated that only 4.4% of those reportedly injured were documented to be wearing helmets, even though helmet use is required under California legislation. During the same period the injuries reported to the emergency departments for bicyclists was 195 and for pedestrians was 181.²⁰

A class action lawsuit was filed in October 2018 at the Los Angeles County Superior Court against the companies Lime and Bird for gross negligence and aiding and abetting assault. The lawsuit was filed on behalf of eight people who sustained injuries either as an e-scooter user or as a pedestrian.²¹

In Portland, Oregon at the conclusion of the four month trial of 2,043 e-scooters, it was estimated that injuries represented 5% (176) of the total traffic crash injuries presented to emergency departments. Of these 176 injuries, the majority (83%) were caused from a user falling off an e-scooter and 12.5% caused from collision with a vehicle. It should be noted that in Portland, e-scooters are only allowed on roads and bicycle lanes.²²

In New Zealand there were 69 injuries in the first two weeks of operation between 14 and 31 October 2018, which was confirmed by the Accident Compensation Corporation. Injuries included fractures, lacerations and abrasions, broken teeth, head injuries and collapsed lungs.²³ This figure rose to 408 Accident Compensation Corporation claims by 9 December 2018 - 251 claims in Auckland and 141 claims in Christchurch.²⁴ No claims were for life threatening injuries. As at 17 December 2018 there were no injury claims from pedestrians being struck by e-scooters in New Zealand.²⁵

Where e-scooters are allowed to operate is an important consideration i.e. on footpaths, shared paths, on-road cycle lanes, local roads, shared spaces, and malls. As more people

¹⁸ CNN. (2018). That electric scooter might be fun. It also might be deadly.

<https://edition.cnn.com/2018/09/29/health/scooter-injuries/index.html>

¹⁹ CityLab (2019). Anatomy of an Electric Scooter Crash. <https://www.citylab.com/transportation/2019/01/scooter-crash-accidents-safety-liability-bird-lime/577687/>

²⁰ Washington Post (2019). Electric scooters send more people to the hospital than bicycles and walking, new study finds. https://www.washingtonpost.com/technology/2019/01/25/electric-scooters-send-more-people-hospital-than-bicycles-walking-new-study-finds/?hpid=hp_hp-cards_hp-card-technology%3Ahomepage%2Fcard

²¹ The Washington Post. (2018). Class-action lawsuit accuses e-scooter companies of 'gross negligence'. https://www.washingtonpost.com/technology/2018/10/20/class-action-lawsuit-accuses-e-scooter-companies-gross-negligence/?noredirect=on&utm_term=.160bca308443

²² Portland Bureau of Transportation. (2018). 2018 E-Scooter Findings Report.

<https://www.portlandoregon.gov/transportation/article/709719>

²³ NZ Herald. (2018). E-scooter injuries coming in 'fast and furious', say New Zealand emergency doctors.

https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12153209

²⁴ NZ Herald. (2018). Man caught dangerously riding e-scooter through Auckland peak hour traffic.

https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12180217

²⁵ Lovett, N. Email correspondence from Christchurch City Council 17 December 2018.

choose e-scooters as a preferred mode of transport there may be increased risks to pedestrians and other users particularly as e-scooters have the ability to travel at speeds of up to 25km/h - noting in WA there is currently a legislative requirement that an e-scooter is not capable of going faster than 10 km/h on level ground. In the US there has already been cases of e-scooter users colliding with pedestrians resulting in injuries.^{26 27} In Brisbane e-scooters must be used on paths wherever possible and on local streets with speed limits of up to 50km/h where it is safe to do so. Users are not permitted on main roads or streets in the Brisbane CBD.²⁸

Local Government will need to identify any particular conditions for an e-scooter shared service e.g. prohibition of use in particular areas/places i.e. exclusion zones; and/or implement speed limits.

This then raises the question of how these conditions will be monitored and enforced particularly as the WA Police enforce non-use of helmets by cyclists.

In addition, the collection of crash data will also need to be considered. Any e-scooter crashes occurring in WA should be collected by an agency and the method of collection will need to be determined. At the moment it is difficult to obtain accurate figures for crash data from cyclists and this could also be a problem for e-scooters.

Question

In Western Australia do you believe e-scooters should be permitted to operate:

- On roads;
- On dual use paths;
- On footpaths;
- In malls.

8.4 Helmets

Regulation 209A (2) of the *Road Traffic Code 2000* states:

A person shall not travel on a motorised scooter on a road or any path unless that person is wearing a protective helmet securely fastened on his or her head.

Regulation 244 (2) of the *Road Traffic Code 2000* states:

A person shall not drive a motor cycle unless —
(a) that person is wearing securely on his or her head a protective helmet.

There are no indications the State Government will provide exemption from helmet legislation for e-scooter shared services. Therefore, it will be responsibility of e-scooter

²⁶ The Washington Post. (2018). Class-action lawsuit accuses e-scooter companies of 'gross negligence'. https://www.washingtonpost.com/technology/2018/10/20/class-action-lawsuit-accuses-e-scooter-companies-gross-negligence/?noredirect=on&utm_term=.65503d791014

²⁷ The Conversation. (2018). Electric scooters on collision course with pedestrians and lawmakers. <http://theconversation.com/electric-scooters-on-collision-course-with-pedestrians-and-lawmakers-99654>

²⁸ Queensland Government. (2018). Rules for personal mobility devices. <https://www.qld.gov.au/transport/safety/rules/wheeled-devices/personal-mobility-devices>

operators to provide helmets and it is the user's responsibility to wear a helmet while operating an e-scooter.

The challenge will be where the operator stores helmets for easy access by e-scooter users and how the user correctly stores them at the end of their journey. The City of Sydney reported in March 2018 that helmets went missing far more quickly than they could be replenished for shared bicycle services.²⁹ This could potentially be the same for e-scooters. Lime is now operating e-bikes in Sydney and there are plans to set up what will be known as 'Lime Hubs' which will be shown in the mobile phone app, where users will be able to obtain and leave helmets.³⁰ This could also be an option for e-scooter operations which will need to be negotiated.

9.0 Local Government issues

9.1 Assessment of e-scooter shared service

It is important for a Local Government to understand the business model of an e-scooter shared service. A thorough assessment of an e-scooter shared service application to operate will be required to ensure the most appropriate e-scooter shared service(s) is chosen and the business model meets the needs of a Local Government.

Considerations of a business model would include:

- E-scooters are safe and are compliant with relevant standards.
- Compliance with helmet legislation.
- E-scooter fleet size.
- E-scooter densities; re-balancing of devices; and method of re-charging batteries
- Docked or dockless system.
- Parking strategies including geo-fencing.
- Minimum response times to rectify improperly parked or abandoned e-scooters.
- E-scooters are equipped with GPS to enable location tracking.
- Fleet maintenance plan which identifies strategies and response times to repair or remove damaged e-scooters.
- What app will be used for the service and what are the capabilities of the app?
- Helpline to assist user, community and Local Government concerns.
- How the service will be evaluated?
- How relevant data will be collected, analysed, stored and provided to Local Government when required?
- Community consultation plan.
- Advertising the service.
- Timing of the service launch.
- Device longevity, evidence of reliability, and battery life.
- If there is an age limit enforced by the State Government, how will the operator adhere to it?
- Quality of servicing, repairs and technical support.

²⁹ City of Sydney (2018). Inner Sydney Bike Share Guidelines – three month review 22 Dec 2017 – 22 Mar 2018.

³⁰ News. (2018). Everything you need to know about Lime bikes and scooters popping up in our cities. <https://www.news.com.au/technology/innovation/motoring/on-the-road/everything-you-need-to-know-about-lime-bikes-and-scooters-popping-up-in-our-cities/news-story/d74e7921b19fba4d90335774817b6d68>

- Hours of operation.

9.2 Local Government permission to operate

An operator will require permission from the relevant Local Government to operate an e-scooter shared service. Operators must apply for a permit to operate pursuant to relevant local laws.

In December 2018 the company Lime launched an e-scooter shared service on the Gold Coast reportedly without obtaining permission from the Gold Coast City Council. Lime was in breach of a local law and was given two hours to move the e-scooters off the streets.³¹ Subsequently, the Council took 22 Lime scooters off Gold Coast streets. This highlights the importance of the operator working together with Local Governments to ensure these services are implemented legally and appropriately.

9.3 Permit terms and conditions

A Local Government will need to set out terms and conditions in support of issuing a permit to an operator. The terms and conditions establishes the principles, practices and obligations that an operator of an e-scooter shared service is required to comply with as a condition of a permit to mitigate public amenity and safety risks. Terms and conditions issued with a permit to an operator hold legal standing under local laws. WALGA considers this as good practice, however Local Governments are free to implement formal Agreements or guidelines instead.

9.4 Parking and abandonment

As e-scooter shared services are dockless there have been reports that e-scooters are vulnerable to being left in undesirable locations, and/or being stolen and vandalised similar to dockless bicycles.

In Oakland, California more than 60 e-scooters were retrieved from Lake Meritt in October 2018.³² At Santa Monica Beach in Los Angeles in August 2018, e-scooters were abandoned on the beach (shown Figure 3) and dumped in bins.³³ Typically e-scooters are left parked on paths impeding accessibility for pedestrian and other users.

In San Francisco there was initially significant issues with e-scooters including inappropriate parking,³⁴ as well as operators not holding permits, which led to the San Francisco Municipal Transportation Agency ordering the operators Bird, Spin and Lime to cease operation in mid-2018.³⁵ Between 11 April and 23 May 2018 there were 1,900 complaints received by San

³¹ ABC News. (2018). Lime scooters halts Gold Coast rollout after a day as council confiscates them. <https://www.abc.net.au/news/2018-12-29/lime-scooters-halts-gold-coast-roll-out-council-dispute/10673452>

³² Slate (2018). Bird Bath: Why do people keep throwing electric scooters into rivers and lakes—and what should companies like Bird and Lime do to stop them? <https://slate.com/technology/2018/12/electric-scooter-bird-lime-lakes-rivers-environment-vandalism.html>

³³ News. (2018). This town seriously hates electric scooters. <https://www.news.com.au/technology/innovation/motoring/on-the-road/this-town-seriously-hates-electric-scooters/news-story/ea4d7a514daea00eb58c8d62380bf258>

³⁴ Mashable Australia (2018). E-scooters aren't getting stolen, the real issue is sidewalk litter. <https://mashable.com/2018/04/17/electric-scooters-sidewalk-litter/>

³⁵ CNET. (2018). San Francisco says goodbye to electric scooters, for now <https://www.cnet.com/news/san-francisco-scooter-law-means-goodbye-to-electric-scooters-for-now/>

San Francisco's Customer Service Centre regarding e-scooters and the San Francisco Public Works impounded more than 500 inappropriately parked scooters.³⁶ In October 2018 the San Francisco Municipal Transportation Agency approved only two of 12 permit applications from e-scooter operators after a rigorous assessment process to begin a new 24 month trial. Scoot and Skip were granted permission to operate, provided they were able to meet certain conditions.³⁷ This included ensuring the companies fit a lock-to design (which has an integrated cable lock) meaning e-scooters can be safely locked in appropriate parking areas and reduces theft, vandalism and e-scooters being discarded in the river.³⁸

In Western Australia before commencing operation, a Local Government may establish with the operator parking guidelines and steps to take with non-compliance of these parking guidelines as stipulated in the terms of conditions of an issued permit. It is the operator's responsibility to educate users regarding appropriate and inappropriate parking. Local Governments may enforce inappropriate parking through a local law. This includes subsequent financial penalties for not complying with agreed parking areas. Most local laws also authorise a Local Government to notify the operator about inappropriately parked/abandoned objects; and if not removed by the operator, a Local Government may remove the objects and issue financial penalties.

Local Governments can also require that an operator has the capability to implement 'geofencing' before commencing a service. 'Geofencing' refers to the use of GPS to create virtual designated parking areas. These areas are shown on a map in the service's mobile phone app. When a user arrives in a designated parking area, the GPS software triggers a response notifying the user via the app they are at an appropriate parking location. If users fail to park their e-scooter inside the designated parking area, a notification will be received alerting the user to park in the designated zone or be penalised.³⁹

Local Governments may also consider demarcated parking areas for e-scooters. These can be designated by symbols, paint, tape, or thermoplastic. This has been utilized in Santa Monica, California (see Figure 4).⁴⁰ Similarly to the permit requirements by the San Francisco Municipal Transportation Agency, Local Governments in Perth can also request locked-to devices to ensure that e-scooters can be docked to existing infrastructure or designated parking areas.

³⁶ The Verge. (2018). Scooters will return to San Francisco, but Bird and Lime aren't invited

<https://www.theverge.com/2018/8/30/17800960/scooters-sf-permits-bird-lime-uber-lyft-scoot-skip>

³⁷ San Francisco Municipal Transportation Agency (SFMTA) (2018). Powered Scooter Share Permit and Pilot Program. <https://www.sfmta.com/projects/powered-scooter-share-permit-and-pilot-program>

³⁸ A. Leung. Email 20 December 2018.

³⁹ Transportation for America. (2019). Shared Micromobility Playbook. <https://playbook.t4america.org/parking-street-design/>

⁴⁰ Santa Monica Next. (2018). Regulating the Scooters <http://www.santamonicanext.org/2018/09/regulating-the-scooters/>



Figure 4. Designated e-scooter parking zone.

9.5 E-scooter shared services and neighbouring Local Governments

A Local Government intending to permit an e-scooter shared service to commence should consider the impact that service may have on neighbouring Local Governments. It is likely that e-scooter users will be unaware when crossing Local Government boundaries which can have implications for a neighbouring Local Government in terms of inappropriate parking, abandonment and safety of others.

Neighbouring Local Governments may also be launching e-scooter shared services resulting in an oversupply of e-scooters in adjacent areas. Therefore, it is important that neighbouring Local Governments are engaged to raise awareness of an impending e-scooter shared service, to understand any unintended consequences and to agree on mitigation strategies e.g. geo-fencing.

Question

What other key issues faced by Local Government have not been identified in this paper?

10.0 Conclusion

The prolific spread of e-scooter shared services throughout the world since launching in 2017 has shown initial positive signs as being a convenient mode of transport. Due to the contemporary and unpredictable nature of these services, there has not been substantial evidence to support modal shift. These services also attract similar problematic parking and abandonment issues as bicycle shared services as well as safety issues associated with speeds of up to 25km/h particularly in high pedestrianised environments.

Amendments to the *Road Traffic Code 2000*, or an exemption, will be required in order for any trial to proceed as this will legally allow e-scooters to operate at speeds of more than 10km/h. Only then can Local Governments assess suitable operators and offer them a permit to operate under terms and conditions. It remains unclear whether or not the

legislative changes will occur in the short to medium time frame. However, Local Governments will need to assess the issues and prepare to respond to operators including considering the terms and conditions associated with any permits that are issued.