# Rental e-scooter trial 2.0

Results, evaluation and recommendations





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# 1 Context

# 1.1 Introduction

In transport, as in most parts of society, technology is changing the way we do things. In recent years, two of the biggest transport trends have been:

- the increase in "shared" services, facilitated by advances in information and mobile phone technology, and;
- the growing popularity of micro mobility devices, which are often powered by lightweight electric motors.

These trends combined in the first e-scooter rental scheme in San Francisco in late 2017 before spreading to urban areas across North America and around the globe. Auckland Transport was approached in 2018 by several rental e-scooter companies seeking permission to operate in Tāmaki Makaurau / Auckland.

Permission is required, depending on location, under the Auckland Council and Auckland Transport Trading and Events in Public Places Bylaws 2015<sup>1,2</sup> (**the bylaw**), which regulate the use of public places for commercial activities and events.

While the operating model, technology and impacts of rental e-scooters were still relatively new in both local and international contexts, it was clear there was the potential for them to contribute to the strategic outcomes described in the Auckland Plan<sup>3</sup>.

It was determined that a finite trial period would be the most appropriate means of managing e-scooter rental schemes and provide time to learn and gather data to inform a regulatory position for the future management of such schemes. This would be in keeping with the approach described in the Auckland Plan. After which, the trial's impacts would be evaluated to inform future decision-making processes and subsequent licence decisions.

The first trial was between 15 October 2018 – 14 January 2019 and was extended until 31 March 2019. Operators Lime, Wave and OnzO were granted licences to participate in the first trial. It should be noted that Wave launched on 13 March 2019, and OnzO decided not to utilise their licence.

It was decided at the end of the first trial period that a further trial period was required to better understand how a network of rental e-scooters could operate in Auckland. The second trial began on 1 April 2019 and will run until 31 October 2019. Operators Lime, Wave and Flamingo were granted licences to participate in this trial.

<sup>&</sup>lt;sup>1</sup> Auckland Council. (2015). Trading and Events in Public Places Bylaw 2015. Retrieved from

https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/bylaws/Pages/trading-events-public-places-bylaw.aspx

<sup>&</sup>lt;sup>2</sup> Auckland Transport. (2015). Trading and Events in Public Places Bylaw 2015. Retrieved from

https://at.govt.nz/about-us/bylaws/trading-and-events-in-public-places-bylaw/ <sup>3</sup> Auckland Council. (2018). Auckland Plan 2050. Retrieved from

https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/aucklandplan/Pages/default.aspx

# 1.2 Purpose

With the end of the trial approaching, a decision needs to be made on whether to continue to issue licences to rental e-scooter schemes in Auckland.

The purpose of this report is to present the key results and findings from the trial periods and evaluate these within the context of the specific matters outlined in the bylaw and the strategic objectives for Tāmaki Makaurau / Auckland.

The focus of the work undertaken during the trial period and of this evaluation is to inform decision making about future licensing decisions for rental e-scooter schemes in Tāmaki Makaurau / Auckland.

This report is focussed on understanding the compliance levels of rental e-scooter schemes against the requirements of the bylaw, the role that rental e-scooter schemes have played in the transport network during the trial period and how well their operation has aligned with the strategic objectives of the council.

This report builds on a previous provisional strategic evaluation report prepared following the completion of the first phase of the trial<sup>5</sup>. While the second trial has improved our understanding of rental e-scooter schemes and provided new insights on some aspects of their operation and use, in some other areas this further information has merely reconfirmed our initial understanding. Where this is the case this report has made use of or built on the previous comments.

# 1.3 Methodology

This report is set out in three main parts. Following an introduction and some high-level background information, the results and findings of the trial are presented in separate sections looking at the use of the e-scooters, what we understand about their level of safety and nuisance, and the results of public feedback received.

Secondly, these results are assessed against the relevant requirements of the bylaw and are evaluated within the context of the strategic objectives of the council focusing on transport and access; the natural environment; urban from and communities; and an economically successful city.

Finally, an explanation of international best practice and benchmarking of Auckland to overseas comparators is provided, along with recommendations for future licensing decisions.

<sup>&</sup>lt;sup>5</sup> Auckland Council. (2019). E-scooter provisional evaluation. Retrieved from

https://www.aucklandcouncil.govt.nz/licences-regulations/Documents/rental-e-scooters%20trial-provisional-strategic-evaluation.pdf

# **1.4** Responsibilities and regulatory framework

Responsibility for the regulation and control of e-scooters sits across a range of central government agencies, local government and private companies.

In Aotearoa / New Zealand, <300-watt e-scooters are classed as 'wheeled recreational devices.' They are not considered to be motor vehicles, and like e-bikes, they are not required to go through entry certification or be licensed or registered for use<sup>6</sup>.

The requirements for the safety of e-scooters as products are covered under the Fair Trading Act<sup>7</sup> and the Consumer Guarantees Act<sup>8</sup>, administered by MBIE. Specific requirements for the safety of the batteries and battery chargers are covered by the Electricity (Safety) Regulations<sup>9</sup>, administered by Worksafe.

The requirements for safe use of e-scooters on roads, shared paths and footpaths is covered by the Road User Rule<sup>10</sup>, administered by the NZ Transport Agency and enforced by the Police.

To use a rental e-scooter, riders must comply with road user rules, Auckland Transport and Auckland Council Public Safety and Nuisance bylaws<sup>11,12</sup> and the rental company's terms of use.

# Mobile trading licence and Code of Practice

Auckland Council and Auckland Transport have mirrored bylaws called the Trading and Events in Public Places Bylaw 2015 (**the bylaw**). The bylaws regulate the use of public places for commercial activities and events for the purposes of ensuring public safety and preventing nuisance. Auckland Council's bylaw regulates the use of parks and civic places and Auckland Transport's bylaw regulates use of the road reserve (including footpaths). Auckland Transport has delegated the issuing of licences and the setting of fees, under its bylaw, to Auckland Council.

To trade in a public space rental e-scooter companies must obtain a license under the bylaw. The extent of control that the council and Auckland Transport have over e-scooter rental schemes is limited to the issuance of licenses and the imposition of conditions under these bylaws.

The council and Auckland Transport developed a Code of Practice for rental e-scooter schemes, which sets out conditions such as maintenance, safety and reporting requirements that must be adhered to in order to be granted and maintain a licence to operate from public places. The Code of Practice is specific to Tāmaki Makaurau /

<sup>&</sup>lt;sup>6</sup> NZTA. Low-powered vehicles. Retrieved from

https://www.nzta.govt.nz/vehicles/vehicle-types/low-powered-vehicles/

<sup>&</sup>lt;sup>7</sup> Fair Trading Act 1986

<sup>&</sup>lt;sup>8</sup> Consumer Guarantees Act 1993

<sup>&</sup>lt;sup>9</sup> Electricity (Safety) Regulations 2010

<sup>&</sup>lt;sup>10</sup> Land Transport (Road User) Rule 2004

<sup>&</sup>lt;sup>11</sup> Auckland Council. (2013). Public Safety and Nuisance Bylaw Bylaw 2013. Retrieved from <u>https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/bylaws/Pages/public-safety-nuisance-bylaw.aspx</u>

<sup>&</sup>lt;sup>12</sup> Auckland Transport. (2013). Public Safety and Nuisance Bylaw Bylaw 2013. Retrieved from https://at.govt.nz/about-us/bylaws/public-safety-and-nuisance-bylaw/

Auckland, but shares similarities with those developed for other cities in Aotearoa / New Zealand.

The first version of the Code of Practice was linked to the licences granted in the first trial (see Appendix 1).

The Code of Practice was updated for the second trial with additional conditions for more regular reporting and e-scooter maintenance (see Appendix 2). The operators also offered additional conditions of operation, such as slow speed zones in high pedestrian areas.

Further information on the regulation of rental e-scooters can be found in Appendix 3.

# 2 Results and findings of the trial

# 2.1 Public feedback and survey responses

During the second trial period, the council sought to understand the perspectives of the public (both users and non-users) and stakeholders. This has been done through:

- a representative survey (similar to an earlier survey commissioned by the NZTA in 2018);
- targeted stakeholder engagement; and
- recording public feedback received through a dedicated email address and standard communication channels, such as phone calls.

While public opinion is not a matter to be considered under the bylaw, this engagement does provide some understanding of the views of Aucklanders and helps us understand how the trial has impacted them, for better or worse.

### **Representative survey results**

Auckland Council commissioned KANTAR to conduct research on public opinion of the escooter trial (see Appendix 4 and 5). The research involved an online survey with a sample of 1,000 Auckland residents between 15 July 2019 and 1 August 2019. Respondents were drawn from a 'research panel' with procedures enacted so that they reflect the 2013 Census in terms of gender, age, ethnicity and population distribution by ward for Tāmaki Makaurau / Auckland.



Just over half of all respondents (55 per cent) said that when the current trial ends, they would like to see either a trial extension (29 per cent) or a permanent scheme (25 per cent). One quarter (23 per cent) felt 'rental e-scooters' should not be allowed (22 per cent were unsure). These proportions were very similar for residents who live in, or regularly travel within, the main ride share e-scooter deployment areas.

Positive and negative overall opinion of the trial was precisely split (37 per cent each), though strength of negative feeling was slightly stronger (14 per cent said *very* negative, 9 per cent said *very* positive). Those who were positive largely put this down to convenience, fun, providing an additional transport option and, to a lesser extent, non-personal benefits (e.g. reducing congestion, environmental benefit). Those with negative opinions largely cited safety including rider behavior, pedestrian safety, risk of injuries in general and speed. Reflecting this, analysis shows positive opinion was most strongly correlated to use of e-scooters and secondly, having experienced a safety issue (as a pedestrian, e-scooter user or as a motorist) was predictive of negative sentiment. Thirdly, among non-users, older users were more negative.



Figure 2. Unprompted positive and negative responses

Three in five (61 per cent) said they felt at least a bit unsafe sharing a footpath with escooters, a quarter (25 per cent) very unsafe. Most felt e-scooters sharing footpaths was at least a bit unsafe for disabled (82 per cent) and elderly pedestrians (82 per cent). Two in five (38 per cent) said they felt at least a bit unsafe when riding an e-scooter, with more frequent users feeling safer. Reasons for feeling unsafe while riding were often related to the scooters (e.g. speed, design, braking) or the environment (e.g. competing for space, traffic, surfaces). Around a quarter (28 per cent) said they experienced poorly parked scooters at least once a week (33 per cent of those that live or travel within the main escooter deployment areas).

Most (82 per cent) supported a Code of Practice<sup>13</sup>. There was high support (94 per cent or more said fairly or very important) for the Code of Practice to include frequent maintenance, reporting safety data to the council, slow speed zones and safety campaigns with users, and lower support (65 per cent) for mandating availability of scooters across the wider city.

Among potential interventions tested with respondents, the most popular were restricting speeds in high pedestrian areas (78 per cent were at least somewhat supportive), initiatives to encourage better parking (69 per cent), emitting a warning sound when in motion and compulsory helmet use (both 65 per cent). Potential changes involving subsidies, incentives, changing pricing from time to distance, access to cycle lanes and

<sup>&</sup>lt;sup>13</sup>Introduced as 'rules that operators must follow in aspects such as safety, maintenance, sharing of data and communicating with and educating users'.

banning ride share e-scooters from parts of the CBD were less popular (56 per cent to 41 per cent support).

If their supported changes were made, responses indicate this would double positive opinion among non-users (27 per cent to 59 per cent) increasing the total ratio of positive to negative opinion from 1:1 to approximately 4:1. The precise impact is speculative but results suggest strengthened regulation has the potential to make e-scooter ride share licensing acceptable to a majority of Aucklanders.



Question: If the above changes that you supported are made, what would your opinion of rental e-scooters now be? Base: Total Aucklanders - 1008. Rental e-scooter users - 259. Non users - 749. Live or travel within rental e-scooter zone - 674

Figure 3. Opinion if changes are made

### Stakeholder engagement

Target engagement was undertaken in September 2019 via an online survey (see Appendix 6). The survey complemented public opinion research commissioned by Auckland Council. In total 68 stakeholder organisations were invited who represented one or more of the following stakeholder types: likely to be highly engaged or highly impacted, subject matter experts, mana whenua or other local Māori community. Highly engaged or impacted organisations included advocacy groups (disability, ageing, cycling, public transport, automobile, local school principals, environmental), residents and business associations, universities, their student associations and emergency services. A selection of nine experts in transport, engineering and health were also invited.

In total 17 submissions were received from those invited (38 per cent - neither a high nor low level of participation compared to other consultations). Submitters comprised three disability and one ageing advocacy group, three business associations, three cycling advocacy groups, two residents' associations, two transport experts, a surgeon from Auckland hospital and the New Zealand police. Two out-of-scope individuals who obtained the survey link are excluded from this analysis.



#### Figure 4. Submitter types

The majority of submitters (11) explicitly indicated that rental e-scooters licencing should continue after the trial and three did not answer explicitly but outlined conditions. Three submitters wanted licencing to continue after the trial without specifying any conditions (Auckland School Cycling, Newmarket Business Association and a transport engineering expert). Two organisations explicitly opposed continued licencing of rental e-scooter schemes (the Auckland branch of Blind Citizens and Slow Cycles), though the latter suggested separating e-scooters from footpaths and roads would be acceptable in comments elsewhere in their submission. For most who specified conditions, it was not clear to what degree these were essential to their support.



Figure 5. Support and opposition to licensing of rental e-scooters

Submitters proposed conditions for rental e-scooter operators primarily around safety, in particular: speed restrictions, separating or encouraging separation from pedestrians and wearing of helmets.

A majority of submitters (9) found the most positive impact of rental e-scooters was the option of it being an alternative mode of transport (ideal for short trips or first and last mile connections).

Most submitters suggested the close proximity of e-scooters and pedestrians in public spaces was a risk or negative impact of rental e-scooter licencing. This was due to the risk of injury to riders and pedestrians. Other negative impacts infrequently mentioned included road and footpath congestion in general.

Of the two organisations who explicitly opposed continued licencing of rental e-scooter schemes, the main reasons were related to speed and the risk this was said to bring to pedestrians.

Nine submitters highlighted infrastructure changes as the main solution to mitigate negative outcomes and encourage positive outcomes. This included increasing road space available for e-scooters (and bicycles) or allowing e-scooters to use cycle lanes. Submitters did not explicitly distinguish between the typical areas of responsibility of central government and local government in relation to e-scooter regulation.

Several submitters highlighted excessive speed as the issue the council should focus on addressing. This included solutions to automatically restricting speeds specific areas, when on the footpath or in close proximity to pedestrians and also the top speed that the rental e-scooters can travel at.

Other suggestions made once or twice in relation to the trial included: allowing only three operators at one time, increasing the number of rental e-scooters, reserving allocation for local providers, advocating for operators to pay the ACC levy, operators providing training / guidelines for use, operators paying more, an e-scooter complaints hotline and a system equivalent to licence plates in order to identify inconsiderate or dangerous users.

# Public feedback

While not undertaking formal consultation on the trial or rental e-scooter schemes in general, the council has been open to public feedback on the trial. The council established a dedicated 'Escooter Programme' email address as well as recording (and responding to) feedback received by more traditional communication channels such as the council's online enquiry platform and call centre.

The council received around 106 instances of self-initiated communication from members of the public related to e-scooters between 1 April 2019 and 21 October 2019.

# Accidents and incidents

Below is a monthly breakdown of accidents and incidents that have been reported to the council from 1 April 2019 to 21 October 2019 (fig. 6). See Appendix 7.

Definitions:

- Accident = event that has caused an injury.
- Incident = an event that has not caused an injury (near miss or damage to property).

It should be noted that the following are included in the data:

- Two accidents involving a private e-scooter.
- One accident involving an e-scooter and an animal.
- Two reports of an e-scooter causing damage to private property.



Figure 6. Incidents and accidents reported to the council by members of public

# Feedback

Below is a summary of the issues raised by members of the public (fig.7 and Table 1). The most common feedback themes were pedestrian safety, speed and rider behaviour.



Table	1.Feedback	themes	received	bv	council
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Theme	Explanation				
Alternative way to travel	Good/complementary/short distance travel option				
Infrastructure issues	Issues with infrastructure that may exacerbate safety/nuisance issues or ways that infrastructure changes could reduce safety/nuisance issues e.g. parking corrals, improvements to cycle lanes				
Speed	Speed that e-scooters can travel at, or speed that e-scooters should be limited to				
Parking	Issues regarding where/how users have parked scooters, where/how scooters have been deployed, bunching (too many scooters in one place)				
Rider behaviour	Riders using an e-scooter in an unsafe way or in a way that causes nuisance e.g. swerving through traffic				

Safety features	Hardware/software changes that could improve safety e.g. helmets, warning devices
Safety concerns for riders	Issues regarding the safety of riders e.g. faulty hardware
Safety concerns for non-users	Issues regarding the safety of users of public spaces e.g. impacts for people with disabilities, pedestrians feeling unsafe
Other	Other issues, e.g. cost to the public, age of riders

# 2.2 Information sharing: Micromobility Symposium

Auckland Council in partnership with Auckland Transport and LGNZ hosted the first national micromobility symposium.

The purpose of the symposium was to bring together experts from a range of areas impacted by micromobility, from both the public and private sectors. Policy and place makers, academics and futurists convened to discuss the range of opportunities and challenges from these new and emerging modes of transport.

The four key themes for the day were:

- Future state
  - A look at micromobility experiences around the world, emerging trends, and future possibilities. The impact on our city's design and how we respond to this new technology.
- Aotearoa / New Zealand and international experience
  - What is the experience with micromobility in Aotearoa / New Zealand so far and how are we managing?
  - What is the international experience? What lessons can be learned?
- Safety and public health
  - What are the safety impacts of micromobility? What public health impacts should we consider? How can we reduce risks associated with ride-share micromobility for our most vulnerable pedestrians?
- Emerging transport technologies and their integration into social life: perceptions and considerations
  - What do we want for our cities? How do transport technologies integrate into our communities? Can they improve environmental, health or social inclusion outcomes? What do the public think?

The symposium provided an opportunity to share information, learn from other regions' experiences and to look to international case studies. It gave operational staff, leaders and policy makers a chance to gather valuable insights to help better understand how, when and where to use micromobility options in our cities and towns.

Creating the agenda for the symposium, hearing presentations and discussions from a range of experts on the day, helped to further highlight topics and sources of information and expertise relevant to the evaluation of the rental e-scooter trial.

# 2.3 Safety

For the full safety report see Appendix 8.

# Deaths and serious injuries<sup>14</sup>

The standard measure of road safety outcomes used by local councils, central government agencies and the Police is the number of deaths and serious injuries (DSIs) which have occurred. It is also the primary road safety key performance indicator for AT.

This system is motor vehicle centric and holds little information on e-scooter crashes offroad. It usually only captures e-scooters involved in a high severity, on-road crash involving a police investigation.

The table below displays the number of deaths and serious injuries each year for other non-motor vehicle modes.

	Auckland DSI						
	2014	2015	2016	2017	2018	2019	Total
People on bikes	41	55	42	55	52	27	272
People on foot	89	115	109	133	111	54	611
Skateboarder	0	2	1	0	0	1	4
Electric Scooter <sup>15</sup>	0	0	0	0	1	2	3
Push Scooters	1	2	3	1	0	1	8
Mobility Scooter	1	2	0	0	0	1	4
Grand Total	132	176	155	189	164	86	902

#### Table 2. Auckland deaths and serious injuries by mode of transport

In the last 5+ years up to September 2019, 902 vulnerable mode road users were killed or seriously injured on Auckland roads as a result of a crash with at least one vehicle. Three electric scooter riders have been reported to have sustained serious injuries after being involved in a road crash with a vehicle. Please note that ownership of these electric

<sup>&</sup>lt;sup>14</sup> Data extracted from NZ Transport Agency Crash Analysis System (CAS) 19/09/2019. Serious injuries include fractures, concussions and other similar injuries but not minor cuts, bruises etc.

<sup>&</sup>lt;sup>15</sup> A reported June 2019 death was an Electric Scooter-only incident, a medical death (e.g. died from a heart attack) and also occurred off-road (on a private property) and thus excluded from the official road death count. A September 2019 Electric Scooter fatal incident was on-road but because it didn't include a motor vehicle in the crash, it is also excluded from the official road death count. Pedal cyclist only crashes are included as was agreed by NZ Transport Agency and Police in late 2013 (implemented from 1 January 2014).

scooters is not specified on the Police traffic crash report i.e. it is not recorded if these are rental or privately-owned e-scooters.

In comparison, during 2018 and the year up to September 2019:

- Approximately four people on bikes and eight people on foot were killed or seriously injured every month.
- DSI involving people on e-scooters is at a similar level to skateboards, mobility scooters and push scooters.
- The number of DSI recorded for people on bikes and people on foot makes up 97.2 per cent of all DSI for vulnerable modes, while e-scooters is 1.2 per cent.



• To date, only Auckland has any reported e-scooter DSI.

Figure 8. Micromobility deaths and serious injuries by region

# ACC Claims involving e-scooters

ACC claims in Auckland involving e-scooters (private and rental) increased in October 2018, coinciding with the launch of Lime rental e-scooters. Since then, the highest proportion of claims were made in the first week of February 2019 (approximately 57). There was a drop in late February 2019, which coincided with the temporary suspension in the trial of Lime e-scooters. Since then, claims have trended downwards from March to September.

While it is possible this trend is due to people becoming more familiar and skilled with the use of e-scooters, there are likely to be other factors involved, for instance fewer and shorter trips being taken during this period. It is noted though that other cities, such as Brisbane City, also report an increase in e-scooter injuries in the initial months after the introduction of rental providers, followed by a drop-off over time.



Figure 9. E-scooter ACC claims in Auckland

For comparison, below are graphs for ACC claims involving other active or micromobility modes. It should be noted that the scale on each graph is different.

- Cycling and other scooters showed a similarly high number of claims in early • February 2019.
- Since the end of Feb 2019, e-scooter claims have ranged from 40 to under 10 per • 21-day period. Cycling has ranged from 160 to 20, skateboarding from 60 to under 10 and other scooters from over 70 to under 10. Claims involving escooters appear comparable to skateboards and other scooters.









#### Figure 12. Other scooter ACC claims in Auckland

### Cost of ACC claims 2014/15 - 2018/19

The total cost for active claims within Auckland with ACC for e-scooters rose from \$214,316 in 2014/15 to \$1,664,030 in 2018/19. This includes \$6,144 for fatal<sup>16</sup> or serious injury claims, with the remaining majority of cost being for entitlement or medical claims<sup>17</sup>. This would also align with other data in suggesting that currently e-scooters are a very low risk within the Vision Zero context.

For comparison the cost for ACC claims for 2018/19 for other scooter was \$1,445,164, for skateboarding was \$2,970,515 and for bicycles was \$14,234,263.

### Pedestrian safety and perceived safety

Anecdotal and public survey evidence suggests that e-scooters are perceived as being unsafe around pedestrians with 72 per cent of people surveyed saying they are very unsafe or a little bit unsafe for pedestrians<sup>18</sup>. Comparatively, reported collisions and reported injuries involving pedestrians and e-scooters are low with three per cent of rental e-scooter users saying they had a hit or collision with pedestrians in the last three months<sup>19</sup> and three per cent of weekly pedestrians saying they had been hit by a rental e-scooter in the last three months<sup>20</sup>.

Hospitalisation of *more-than-one-day* is a surrogate measure for *serious injury*. Hospitalisation data from 2018-2019 suggest the absolute number of *more-than-one-day* hospitalisations resulting from being struck by a "Lime" or motorised scooter was 11.

<sup>&</sup>lt;sup>16</sup> This data extract had \$0 fatal claims for e-scooters.

<sup>&</sup>lt;sup>17</sup> Claim severity definitions:

<sup>1</sup> Fatal claim. The claim is listed as a fatal claim. The number of ACC claims for fatal accidents may not represent the total number of fatal accidents because not everyone is aware that a claim can be lodged for an accidental death. 2 Serious injury. The claim is managed as a serious injury claim. This is an internal case management category normally applied to claims that require very intensive intervention, often including around the clock care.

<sup>3</sup> Entitlement. These are claims that required an entitlement payment from ACC. These include weekly compensation, vocational rehabilitation, hospital treatment, and support for independence.

<sup>4</sup> Medical or other. These are claims that had some other costs, including medical treatment, but no entitlement costs.

<sup>&</sup>lt;sup>18</sup> Public response to rental e-scooters in Auckland, KANTAR, 2019, pg42.

<sup>&</sup>lt;sup>19</sup> Public response to rental e-scooters in Auckland, KANTAR, 2019, pg37.

<sup>&</sup>lt;sup>20</sup> Public response to rental e-scooters in Auckland, KANTAR, 2019, pg36.

During the same time 204 people on foot were hospitalised for *more-than-one-day* as a result of a collision with other types of vehicle (e.g. car, bus, bike, etc).

The perception of e-scooters as unsafe with pedestrians is not surprising when we consider the speed differential between walking speeds and e-scooters. However, the data seems to be indicating that actual collisions are occurring in low rates and also not resulting in many serious injuries requiring hospitalisation of *more-than-one-day*.

### E-scooter crashes as a new mode

Hospitalisation data (fig.13) is a useful sensitivity check for transport injury including escooters. We extracted public hospital discharges from Auckland hospitals for patients requiring hospitalisation of more-than-one-day as the result of a transport crash. The limitation of this data is that it is self-reported during hospital admission. These injuries could have been sustained as the user (driver/passenger/rider) of the transport mode or as the result of a collision.



Figure 13. Hospitalisation for more than one day from transport related accidents



Figure 14. Hospitalisation for more than one day from micromobility related accidents

The data suggests that less than one per cent (11 actual number) of hospitalisations were for injuries sustained as a result of riding an e-scooter or a collision with an e-scooter. This compares to 13 per cent people on foot and four per cent people on bikes.

Of the 11 hospitalisations that involved micromobility or wheeled devices:

- Three were riders who fell off an e-scooter, and one riding a Segway.
- The number of people identified as on foot struck by a powered or "Lime" scooter was six.
- An additional one person on foot was struck by a mobility scooter or motorised wheelchair.

# 2.4 Nuisance

If parked incorrectly, a rental e-scooter may cause a safety hazard or nuisance for other road and footpath users. The extent of this impact can range from being a minor inconvenience, for an able bodied and full sighted person walking on a wide footpath, to a substantial problem, where it prevents someone from getting to where they would like to go. They also pose a potential safety risk, one that is often avoided, but could eventuate if someone were to trip over them.

To help understand how rental e-scooters are being parked, a survey of 573 rental escooters was undertaken by Auckland Transport parking officers across the CBD (fig.15).See Appendix 9.



Figure 15. E-scooter parking survey zones

The information collected by the officers was checked against the following criteria:

- Clause 11 of the Trading and Events in Public Places Bylaw 2015<sup>21</sup>;
- The requirements of Section 4.2 Operations, of the E-scooter Shared Services Code of Practice;
- Relevant guidelines included within the Trading and Events in Public Places Guidelines 2015 (see Appendix 10).

It was found that about 70 per cent of rental e-scooters were parked in compliance with the above criteria (fig.16).



Figure 16. Rental e-scooter parking results

## **E-scooter parking zones**

A small number of e-scooter parking zones have been installed during the trial to encourage more considerate and safe parking behaviour. There are four 'on street' zones (three on Queen Street and one on Jean Batten Place) and six at public transport hubs (Britomart, Downtown ferry terminal, Parnell, Kingsland, Smales farm and Newmarket stations).

No monitoring has been undertaken of the effectiveness of these zones, so it is unknown how successful these have been.

# 2.5 Use of rental e-scooters

The full usage of scooter report is in Appendix 11.

# Usage trends during the trial

The following figures have been removed as they do not contain aggregated data:

- Figure 17 total rental e-scooter trips by date.
- Figure 18 number of rides per e-scooter per day.
- Figure 19 median e-scooter trips by day of week.
- Figure 20 median e-scooter trips by hour of day on weekdays.
- Figure 21 median rental e-scooter trips by hour of day on weekends.

Figure 17 showed the total number of e-scooter trips across Tāmaki Makaurau / Auckland from November 2018 to September 2019. This graph showed a high uptake of scooters following their initial release in Tāmaki Makaurau / Auckland, with a gradual trend downward over the winter months. A break in data during late February 2019 reflected the suspension on Lime e-scooters due to a wheel locking issue. During the time of the trials over 2 million rides were taken with a total distance of over 2.6 million kilometres.

Figure 18 showed the number of times, on average, each scooter is used each day. The overall average was 5 rides per scooter per day. This measure provides an indication of demand and supply. Operators (and literature) tell us that the ideal number (for operators) is around three rides per scooter per day. A higher number means that demand is exceeding supply and customers may not be able to find a rental e-scooter. It may also result in the battery being run down. A lower number may mean an oversupply of rental e-scooters.

Figure 19 showed the average number of e-scooter trips taken by the day of the week. Escooter use increases across the work week, reaching a peak on Friday. Overall, weekend use appears to be less popular, with Sunday having the lowest number of median trips and Saturday also having lower usership rates than most weekdays.

Different usage patterns exist for rental e-scooters between weekdays and weekends, as was demonstrated by Figure 20 and Figure 21. During the week, usage increases from 1pm, and peaks between 4pm and 6pm. Weekdays also show a slight morning peak between 8am and 9pm. Both peaks correlate generally with public transport peaks.

Weekend median use shows mid-afternoon to have the highest usage rates, with generally high uptake between 11am and 6pm, peaking between 2pm-3pm, and very little early morning activity. Usage stays higher later into the evening compared with weekdays, although still drops away.

# **Trip Durations and Distances**

Figure 22 and 23 show the median trip distance and duration per month respectively for all operators. Over the trial the median trip distance was 919 metres and the median trip duration was 445 seconds (7 min 25 seconds). This indicates that rental e-scooters are primarily being used for very short journeys.



Median Trip Distance (All Providers)

Figure 22. Median rental e-scooter trip distance

Median Trip Duration (All Providers)





The following figures have been removed as they do not contain aggregated data:

- Figure 24 median rental e-scooter trip distance by month.
- Figure 25 median rental e-scooter trip duration by month.

Without 12-month data for all providers, seasonal trends are difficult to establish, but a reduction in distance can be observed over winter months. Future observation of whether this increases again over summer may be useful.

Since March 2019, journey durations have remained steadier, fluctuating between six and seven minutes.

# **Trip proportions**

Figures 26 and 27 below show the proportion of trips made up by different distance and duration for all operators. The majority of journeys are less than two kilometres.

Proportions for trip durations are similar, with most journeys lasting less than 10 minutes.



## Trip Proportion by Trip Distance

Figure 26. Proportion of trips by distance (all operators)



Trip Proportion by Trip Duration

Figure 27. Proportion of trips by trip duration (all operators)

# **Geographic Trends**

Figure 28 shows the trip counts, by roads, for September 2019. It clearly demonstrates that the vast majority of rental e-scooter trips are taking place within the CBD and central isthmus. Outside of this area, general ridership is below 180 trips for the entire month of September for any given road. Figure 29 shows that within the CBD, there are several high usage routes including Queen Street.



Trip Counts - Previous Month Trip Count

- ≤628
  ≤1411
  ≤2933
- \_\_\_\_ ≤5356

Figure 28. Trip counts by road for September 2019



Trip Counts - Previous Month

- Trip Count
- ≤180 ≤628
- \_\_\_\_≤1411
- ≤2933 ≤5356

Figure 29. Central city trip counts by road

Auckland is split in to 'tiers' for the purpose of determining a fee level for licenses under the bylaw. See figure 30.



Figure 30. Licence tier boundaries

Tier 1 covers the central city, Tier 2 extends to the outer suburbs, and Tier 3 covers the rest of the Auckland region.

The following set of figures shows the volume of rental e-scooter journeys beginning and ending within each tier respectively. This does not show whether trips began and ended in the same tier.

Tier 1 has 61 per cent of journeys beginning within it, with Tier 2: 36 per cent and Tier 3: 4 per cent.

Zone Trip Starts		% Starts	Trip Ends	% Ends	
Tier 1	1,187,908	60.60%	1,165,314	59.40%	
Tier 2	699,874	35.70%	710,530	36.20%	
Tier 3	73,258	3.70%	85,343	4.40%	
Total	1,961,040	100.00%	1,961,187	100.00%	

Table 3. Trips starting or ending in each tier

The greatest number of journey starts and ends, are most heavily weighted in the Queen Street, Britomart and Viaduct areas. Higher numbers of trip starts and ends are located toward the centre of the city, particularly focussed on Queen Street and the waterfront area. This is demonstrated in Figures 31 and 32.



Figure 31. Rental e-scooter trip starts in Tier 1



Figure 32. Rental e-scooter trip ends Tier 1

Figure 33 below shows the areas with the highest numbers of journey starts in Tāmaki Makaurau / Auckland across the data collection period. The area in which the highest number of rental e-scooter journey starts is the area directly outside Britomart, with other key areas including two points along Queen Street and the Viaduct.



Figure 33. Top journey start hotspots

The figures below break two of these hotspots down further, demonstrating the number of journeys taken from that particular area in a year. Note: this does not show where those journeys ended. Each hotspot has a number correlating with those shown in Figure 33.

The following figures have been removed as they do not contain aggregated data:

- Figure 34 Britomart (hotspot 9117) rental e-scooter journey starts October 2018 to October 2019.
- Figure 35 Queen St / Shortland St (hotspot 8813) rental e-scooter journey starts October 2018 to October 2019.

Britomart shows a peak of journeys starting between 8am and 9am, as well as a slight lunchtime peak and usage at what appear to be after work times. Additionally, steady usage is demonstrated across the day at this site.

The Queen Street intersection with Shortland St sites show the highest number of journeys starting in the middle of the day, potentially indicating these hotspots are popular across the day as ways to move around the city, perhaps for business purposes.

Figure 36 and Figure 37 show journey starts and ends within Tier 2. Far fewer journeys are recorded overall outside of the central city area. Journeys both starting and ending within Tier 2 are generally clustered around either key arterials or areas of interest such as Mission Bay.



Figure 36. Rental e-scooter trip starts Tier 2



Figure 37. Rental e-scooter trip ends Tier 2

Figure 38 and Figure 39 show rental e-scooter journey starts and ends within Tier 3, the outermost tier for rental e-scooter service in Auckland. Again, this shows fewer journeys than in other tiers. The greatest numbers of journeys within this tier are clustered toward the edge of the next tier, on the edge of the central city.



Figure 38. Rental e-scooter trip starts Tier 3



Figure 39. Rental e-scooter trip ends Tier 3

### **Summary of ridership**

The ridership data indicates that rental e-scooters are primarily being used for short trips within the city centre and adjacent suburbs. The number of trips beginning at Britomart during the morning peak travel times indicates that they are sometimes being used as the last leg of public journey trip either by ferry, train or bus. The spread of most journeys interpeak suggests that they are also used for incidental journeys within the CBD. Lower Queen Street, downtown and the viaduct have the highest number of trips which also have some of the highest pedestrian traffic in Auckland.

The current geographic usage patterns are predicated to some extent by the location where operators have chosen to deploy. While the operators have deployed e-scooters in Tier 3, the uptake has been considerably lower than the CBD.

# 2.6 E-scooter users

Results of a representative survey of Tāmaki Makaurau / Auckland residents (aged 15 plus) undertaken by KANTAR during the trial period provide some information about users of rental e-scooters and the purpose of their trips (further information on the KANTAR survey is contained in section 2.1 and in Appendix 4 and 5).

- About one quarter of respondents have used a rental e-scooter during the past year.
- Four per cent of people report using a rental e-scooter at least once a week<sup>22</sup>. This differs markedly by gender with 8 per cent of males and one per cent of females reporting doing so.

<sup>&</sup>lt;sup>22</sup> This does not marry up with the data received from the e-scooter rental companies and as such seems likely to be over reported to some degree. Four per cent of the Auckland population aged over 15 is ~51000 people, this is more than the weekly number of trips taken on e-scooters over recent months.

- Rental e-scooter use decreases with age 48 per cent of those below 24 years old and under have tried a rental e-scooter versus only one per cent of those 65 years old and above.
- 60 per cent of users reported having used rental e-scooters purely for fun. This was particularly the case with one-off and occasional (less than monthly) users.
- Regular users (monthly or more) are more likely to have used rental e-scooters for functional trips:
  - about a third of regular users reported using rental e-scooters to travel to or from cafes, restaurants or bars; public transport; or work; and
  - a quarter reported travelling to or from specific sites such as parks; shopping or running errands; or a work meeting / appointment.
- 20 per cent of users report accessing public transport as one of their main uses of rental e-scooters, with 53 per cent interested in doing so.
- On their most recent trip, 53 per cent of users report that if a rental e-scooter had not been available they would have otherwise walked; seven per cent would have taken public transport; 21 per cent would have travelled by car (either driven, passenger or via ride hail); six per cent would have travelled by bike; and eight per cent wouldn't have made the trip.

# 2.7 Licence compliance, fees and charges

# Licence compliance

In using public space for a rental e-scooter scheme all operators were required to comply with the requirements of:

- Their license conditions.
- The E-scooter Shared Services Code of Practice version 2.
- The additional initiatives each operator agreed to which were outlined in their license covering letter.

A summary of their performance against key requirements is listed below:

- E-scooter allocation: each operator was allocated a maximum number of escooters to be deployed in each tier.
- E-scooter parking: 27 issues were reported to the council regarding where/how users had parked scooters or bunching (too many scooters in one place). All issues were resolved by the operators once they were informed of the issue.
- Customer experience and engagement: each operator ran ambassador programmes to provide their users with information and safety advice throughout the trial.
- Reporting: all operators provided their weekly reports each week following our prescribed format.
- Investigations: all operators undertook investigations where required.

### Licence fees and charges

For the full report see Appendix 12.

Rental e-scooter operators are currently charged as mobile vendors and outdoor dining and drinking licensees under the bylaw.

The table below summarises existing trading license and 'rent' fees.

The existing street trading fees have been adapted and cover two areas:

- renting public land, at a charge of 2 e-scooters per m<sup>2</sup>
- an annual license fee.

Lime			Wave			Flamingo		
Tier charge	# Deployed	Total	Tier charge	# Deployed	Total	Tier charge	# Deployed	Total
\$73	500	\$18,250	\$73	200	\$7,300	\$73	200	\$7,300
\$44	250	\$5,500	\$44	200	4400	\$44	150	\$3,300
\$11	200	\$1,100	\$11	0	\$0	\$11	175	\$962.50
License fee		\$314	License fee		\$314	License fee		\$314
		\$25,164			\$12,014			\$11,877

#### Table 4. Licence fees per operator

### **Private e-scooters**

While not the focus of this decision, it is useful to understand the differences, if any, in the use of rental and private e-scooters.

Auckland Transport undertook an observational survey of e-scooter riders in five city centre locations, covering three time periods (AM and PM weekday peak and weekend mid-day) over two weeks (see Appendix 13). While this sample is not wide enough to provide a comprehensive understanding, it does allow some insight into some differences in usage patterns. Some of the most notable results of the survey are described below.





About 75 per cent of the observed e-scooters were rental (Fig. 40), and 25 per cent were private. This varied by time and location. For instance, on weekday mornings the split was more even (56 per cent rental, 40 per cent private, four per cent unidentified), while on Saturday, e-scooter use is more rental focussed, with 87 per cent of observed e-scooters being used (Fig. 41). Spatially, up to 35 per cent of e-scooters spotted on Quay Street were privately owned, while in Wynyard Quarter and on Queen Street this was around 15-20 per cent.
The wearing of helmets was recorded during one week of surveys (see Appendix 14). From this smaller sample size, over 50 per cent of riders of privately-owned e-scooters wore a helmet while only four per cent of rental e-scooter riders were observed wearing a helmet. Footpath riding was also recorded during this same week. The main result of note was that about 86 per cent of users used the footpath rather than the road when these were the only two options.





Figure 41. E-scooter type counts by time of day



On Quay Street, where there was a protected cycle path 86 per cent of users used this space with only 12 per cent observed riding on the footpath (Fig. 42).

As part of the KANTAR survey, respondents were also asked questions about private escooter ownership. Of note, it was found that:

- Four per cent of respondents said they owned a private e-scooter. If this is representative of the Tāmaki Makaurau / Auckland population and can be scaled, then there would be approximately 51,000 owners of e-scooters in the Tāmaki Makaurau / Auckland region.
- Ownership differs by age, with the highest proportion of ownership (nine per cent) being in the 25 -34 year old age group.

Note: The scale of ownership of private e-scooters is unknown and sales and import data for e-scooters was not available for this report.

# 3 Evaluation

This section contains an evaluation of the results of the rental e-scooter trials between 15 October 2018 and late October 2019 for the purpose of making decisions regarding the future of licensing rental e-scooter schemes in Tāmaki Makaurau / Auckland.

While Auckland Transport / Auckland Council may grant or refuse any application at its discretion; any decision must consider specific matters outlined in the bylaw under clause 10<sup>23</sup>. Therefore, it is important to consider those matters when considering whether to continue to grant licences. These are listed below with the matters relevant to the high-level evaluation of e-scooter ride share highlighted in bold<sup>24</sup>:

# *"(a) the location of the activity and whether it is likely to cause a nuisance, obstruction or a hazard to pedestrians or vehicular traffic;*

(b) the specifications of any furniture, structures, equipment, vehicles and other items to be used for the activity;

(c) the impacts on the surrounding environment and users as a result of noise, smell, glare, light spill, appearance or any other effects and; whether these impacts have been appropriately mitigated;

(d) the suitability of a person to hold an approval taking into account any

known past operational issues and the applicant's experience and track record;

(e) where applicable, whether an applicant is a registered charity or a member

of a registered organisation;

(f) whether the activity has an approved waste plan, for example under the Auckland Council Waste Management and Minimisation Bylaw 2019;

(g) whether the activity is consistent with Auckland Council policies and plans, including but not limited to, the Auckland Plan, Smokefree Policy, Waste Management and Minimisation Plan, local alcohol and gambling policies."

Assessment against clause 10 (a) **the location of the activity and whether it is likely to cause a nuisance, obstruction or a hazard to pedestrians or vehicular traffic**, includes a review of accident and incident information gathered, complaints and feedback received, e-scooter parking surveyed and Auckland Transport parking initiatives.

<sup>&</sup>lt;sup>23</sup> Ibid

<sup>&</sup>lt;sup>24</sup> Noting that these same matters may need to be considered again in the other steps of the process as well as other matters less relevant to the general consideration.

# 3.1 Consideration of clause 10(a)

### Hazard to pedestrians or vehicular traffic

The conclusions of both the KANTAR and stakeholder surveys highlight concerns regarding pedestrians feeling unsafe for reasons including rider behaviour, risk of injuries and speed. This is reflected in feedback received from the public to the e-scooter programme inbox; with *safety concerns for non-users*, the most common feedback theme.

As referenced in section 3.2, the perception of e-scooters as unsafe with pedestrians is understandable when we consider the speed differential between walking speeds and e-scooters. A total of 18 accident and 27 incident reports were made to the council between 1 April 2019 and 21 October. These numbers paired with the ACC data seem to indicate that actual collisions are occurring in low rates.

Both the KANTAR and stakeholder surveys posed questions around imposing conditions on rental e-scooter operations. KANTAR respondents expressed high level support (82 per cent) for a Code of Practice with stronger demand (94 per cent) for a Code of Practice which includes requirements on maintenance, speed, safety reporting and user-safety campaigns. Conditions proposed by the key stakeholders were also primarily focussed on safety.

The Code of Practice states 'Operators will run ambassador programmes to provide their users with information that includes but is not limited to, good user behaviour, safety advice and incident reporting education'.

E-scooters and their use on land traditionally occupied by pedestrians, represents a new state for users of this now-shared space. Engaging with riders to inform and educate is an approach to develop this new relationship between rider and pedestrian. These efforts, alongside a short campaign by Auckland Council at the beginning of Trial 1.0 have not been assessed to determine their impact.

Cooperation between the council, Auckland Transport and any operators to create a joined-up approach targeting those concerns most frequently raised, would provide an opportunity to share resources, insight and expertise to help drive behaviour change.

#### Likely to cause a nuisance, obstruction

As described in section 3.3, during the trial period Auckland Transport parking officers undertook a survey of 573 parked rental e-scooters within Tier 1 to provide some understanding of the levels of parking compliance. This found that a majority of 70 per cent of rental e-scooters were parked in full compliance.

While it should be noted that this was a small and limited survey, this did mean that 30 per cent were found to not meet the criteria.

Outside of the parking survey, Auckland Transport and the council have undertaken limited monitoring of parking compliance with responsibility resting with the operators to respond to parking complaints. While some complaints have come through to the council, this has

been relatively small in number (compared to the number of rental e-scooters, rides and riders).

The Code of Practice has not outlined a way to reduce the number of e-scooters allocated to an operator (outside of total license suspension or cancellation) if non-compliant parking was found to have consistently occurred.

As such, enforcement action or the possibility of enforcement action has not been a readily available tool to encourage operators to push for behaviour change in their riders.

Late in the trial, Auckland Transport implemented four parking corrals in the CBD. Two of which are located on Queen Street, which has experienced some of the highest numbers of journey starts and trip counts. During the trial, Auckland Transport also created e-scooter parking locations at the following transport hubs:

- Britomart
- Downtown ferry
- Parnell
- Kingsland
- Smales farm
- Newmarket

Detailed analysis of corral usage has not been undertaken by the council or Auckland Transport; however, each operator incorporated the four CBD corrals into their deployment zone locations.

# 3.2 Consideration of clause 10(g)

"Whether the activity is consistent with Auckland Council policies and plans, including but not limited to, the Auckland Plan, Smokefree Policy, Waste Management and Minimisation Plan, local alcohol and gambling policies."

Under clause 10(g) consideration must be given to whether the activity is consistent with Auckland Council policies and plans, including the Auckland Plan 2050 (the Auckland Plan).

The Auckland Plan is the council's principal strategic document and sets the direction for how Auckland will grow and develop over the next 30 years. As the overarching guiding document for council, the Auckland Plan provides a convenient framework within which to evaluate the effects of e-scooter ride share and its alignment with council plans and policies.

There are four main areas of the Auckland Plan which are particularly relevant to assessing the impact and desirability of e-scooter rental schemes. These areas of the Auckland Plan also conveniently cover the more detailed matters covered in 10(a) and 10(c) of the bylaw. Table 5 clearly identifies under which area, or strategic direction, of the Auckland Plan each of these matters falls.

Fable 5. Auckland Plan				
Strategic directions	Aspects to be considered			
Transport and Access				
<ul> <li>Auckland Plan (AP) Outcome: Transport and Access</li> <li>Direction 1: Better connect people, places, goods and services; and</li> <li>Direction 2: Increase genuine travel choices for a healthy, vibrant and equitable Auckland</li> <li>Direction 3: Maximise safety and environmental protection</li> <li>Focus Area 1: Make better use of existing transport networks</li> <li>Focus Area 3: Maximise the benefits from transport technology</li> <li>Focus Area 4: Make walking, cycling and public transport preferred choices for many more Aucklanders</li> </ul>	<ul> <li>Increase in travel choice</li> <li>Accessibility</li> <li>Replacement of car trips</li> <li>Impact on use of public transport, walking and cycling</li> <li>Efficiency of use of space</li> <li>Safety: <ul> <li>Actual and perceived</li> <li>Users and non-users</li> <li>Equitable access</li> </ul> </li> <li>Specific matters from s10 of the bylaw: <ul> <li>whether the activity is likely to cause a hazard to pedestrians or vehicular traffic</li> </ul> </li> </ul>			
The Natural Environment				
AP Outcome: Transport and Access Direction 3: Maximise safety and environmental protection	<ul><li>Air quality and greenhouse gas emissions</li><li>Vehicle efficiency</li></ul>			

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AP Outcome: Environment and Cultural Heritage	<ul> <li>Life cycle of vehicles and batteries</li> </ul>				
Direction 1: Ensure Auckland's natural environment and cultural heritage is valued and cared for	<ul> <li>Vehicle collection, charging and distribution process</li> </ul>				
Urban Form and Communities					
AP Outcome: Belonging and Participation	<ul> <li>Support for a quality compact urban form</li> </ul>				
Pocus area 1: Create safe opportunities for people to meet, connect, participate in, and	Quality of life				
enjoy community and civic life	<ul> <li>Accessibility of public spaces</li> </ul>				
AP Outcome: Homes and Places	<ul> <li>Enjoyment of the city</li> </ul>				
Focus area 5: Create urban places for the future	<ul> <li>People-focused and universal urban design</li> </ul>				
	Specific matters from s10:				
	<ul> <li>whether the activity is likely to cause a nuisance or obstruction to pedestrians</li> </ul>				
	<ul> <li>the impacts on the surrounding environment and users as a result of noise or any other effects</li> </ul>				
Economically Successful City					
AP Outcome: Opportunity and Prosperity	Changes in accessibility for				
Direction 1: Create the conditions for a resilient	different sections of society				
economy through innovation, employment growth and raised productivity	Increased spending     Time savings				
Ecour area 1. Hernoos amerging technologies					
and ensure equitable access to high quality digital data and services	Medical costs				

## 3.3 Transport and access

The main strategic theme that rental e-scooter schemes will have an impact on is transport and the transport system; the way people get around and their ability to access jobs and other opportunities. Rental e-scooter schemes could impact these matters in many ways and as such this section is broken down into sub-sections aligned with the directions and focus areas of the Auckland Plan.

#### Direction 1: Better connect people, places, goods and services

Improving people's ability to access opportunities and undertake activities is a key goal of the Auckland Plan and other relevant strategic documents. Greater wellbeing and economic growth are both facilitated by increasing people's access to jobs, recreation activities and each other.

Rental e-scooter schemes have contributed in several ways to an increase in accessibility during the trial.

- 1. They increased the speed that people could travel without a car, allowing them to travel further and access more opportunities.
- 2. The median speed of trips was around 8kph, this is approximately 50-100 per cent faster than the average person's walking speed (4-6kph) meaning people could access an area two to four times larger than if they had walked for that same length of time.
- 3. While the bike, as a mode of transport, already offers transport at this speed, it is clear from the level of demand for e-scooters (to buy for private use and rent) that they offer something that privately-owned and rental bikes don't. The primary reasons for this are most likely:
  - Less effort than cycling (at least on level ground);
  - Not having to wear a helmet;
  - Less intimidating than bikes/e-bikes to people that haven't ridden a bike for a while, or ever;
  - A safer perceived riding environment for the rider as they are allowed on the footpath. This last point is supported by the results of the KANTAR survey which found that riding on the road was the least preferred place to ride for users.
- 4. The rental model itself is also an important component making these micro mobility devices more accessible to people, with relatively low costs for use (at least compared to purchasing one or taking a taxi/uber) and easy accessibility allowing for spur of the moment decisions.

The KANTAR survey appears to support this increase in accessibility with eight per cent of users claiming that they would not have undertaken their last trip if a rental e-scooter wasn't available. Induced demand such as this is seen when travel is made easier in some way, enabling a trip to be made that previously wouldn't have been worth it. This suggests that some form of barrier to travel was removed or reduced thereby increasing the level of accessibility.

*Summary*: Rental e-scooters have improved accessibility for the general population by providing an alternative to walking which is around 50-100 per cent quicker. Their rental model, of having e-scooters readily available, also enables spur of the moment trips.

# Direction 2: Increase genuine travel choices for a healthy, vibrant and equitable Auckland

As the Auckland Plan notes:

*"Many of us lack reliable, safe and affordable choices about how we travel. This means we often depend on using private vehicles for most trips."* 

A key direction of the Auckland Plan and Central Government's Policy Statement on Land Transport (**the GPS**)<sup>25</sup> is increasing the range of transport choices people have to reduce reliance on the private motor vehicle.

As a non-car mode of transport, rental e-scooters have the obvious potential to contribute to achieving this goal. The rental model itself, which seeks to ensure an e-scooter is available when required, also reduces the need to plan ahead and provides greater flexibility and choice for the way people travel.

Evidence from the trial suggests this is the case, though maybe not to as great a degree as one would expect.

In the KANTAR survey when asked about their most recent ride 21 per cent of users would have otherwise made the trip in a motor vehicle (be it a privately-owned car or a taxi/ride share). This figure is not dissimilar from the figures Lime itself has stated publicly from their own surveys<sup>26</sup>.

This figure is also backed up by the general usage data. Most short trips are, and without e-scooters would be, made on foot. More than almost 50 per cent of rental e-scooter trips under 1000m (10-12 minutes' walk) and many of the ~18 per cent of trips under 1500m (15-20 minutes' walk) are likely to have replaced walking trips rather than use of a motor vehicle. Beyond this distance (the remaining approximately 30 per cent) it is more likely that these e-scooter trips are replacing private vehicle trips<sup>27</sup>.

These figures (both of walking trips replaced and trip lengths) may in part reflect the city centre focus of the trial. Given the relative inconvenience of using a car in the city centre most trips are made on foot, and therefore it is unsurprising to see that these are the majority of trips replaced. In the suburbs where driving is easier and more frequent, this result may not be replicated.

Rental e-scooter schemes then are contributing to reducing motor vehicle trips to some degree and providing a genuine transport alternative for certain trips.

However, it is less clear if they are contributing to the healthy, vibrant and equitable aspects of this goal. Healthiness and vibrancy are addressed below under the Focus Area 4 heading, and in the sub-section on Urban Communities; this section will look a little more at the equitability of this increase in travel choices.

https://www.nzherald.co.nz/business/news/article.cfm?c\_id=3&objectid=12206910 retrieved 05.03.2019)

<sup>27</sup> It is not clear from the trial why rental e-scooters are proving most appealing for these short trips. Presumably at a certain point beyond 1500m the characteristics of other options, such as comfort and cost, prove more attractive. Further work could consider this, including whether a change to charging rates could better target car trips.

<sup>&</sup>lt;sup>25</sup> Ministry of Transport. 2018.Government policy statement on land transport. Retrieved from https://www.transport.govt.nz/assets/Uploads/Our-Work/Documents/c6b0fea45a/Government-Policy-Statement-on-landtransport-2018.pdf

<sup>&</sup>lt;sup>26</sup> 22 per cent in one case (Lime Year-End Report); and around one third of trips in a second instance (Lime executive: We apologise - and our scooters are safe'

#### Equity of accessibility

Given the primary geographic focus of the trial on the city centre and fringe, there has been limited chance to observe the popularity or effectiveness of rental e-scooter schemes in less central, more suburban areas. Some rental e-scooters have been tried in other areas such as along Tamaki Drive, around Onehunga, Mt Albert and Ellerslie and on the lower North Shore, yet these were not deployed in enough numbers and/or consistently enough to provide sufficient understanding of how well they perform in those locations.

Likewise, the trial area has been focused on some of the more affluent areas of the region, which are also some of the best served by public transport. This has not provided the chance to see how well the scheme would contribute to an increase in travel choice for lower-socio economic areas, and in particular those which have a poorer level of travel choice.

Questions therefore remain about how affordable and accessible rental e-scooters are for those with less money or without a debit/credit card or mobile phone. Measures to address these issues have been trialled in cities overseas and could be considered for Auckland if rental e-scooter companies are allowed to continue to operate.

**Summary:** As a new and different transport mode rental e-scooters have increased travel choice in those areas in which they have been trialled. This increase though has been limited to these areas. Even if expanded geographically, given their cost and reliance on technology to access, they could still exclude many portions of the population.

#### **Direction 3: Maximise safety and environmental protection**

Improving the safety of the transport system is one of the principal strategic goals of both Auckland Council and Central Government. It has also been the primary focus of concerns raised as part of the public discussion and media reporting on the trial.

In evaluating the safety outcomes of the trial, the **actual** and **perceived** safety of both **users** and **non-users** needs to be considered.

As with all data it is also useful to consider some of these absolute figures in a wider context to ensure a considered perspective.

## **Deaths and Serious Injuries (DSIs)**

As mentioned in section 3.2, DSIs are the standard measure of road safety and under the 'Vision Zero' approach adopted by the council and Auckland Transport these life-ending, or changing, crashes are the primary focus of safety activities.

There have been three recorded e-scooter related DSIs in the Auckland region during the trial<sup>28</sup>. Comparatively, during this same time there were approximately 40 cycling and 80 pedestrian related DSIs. Nevertheless, there are some limitations in using DSI data for this evaluation, primarily the under reporting of non-vehicle related crashes and the small

<sup>&</sup>lt;sup>28</sup> It is not known if they were rental or privately-owned e-scooters.

number of recorded incidents. For this reason, and despite the problems caused by its limitations some further understanding can be gained by looking at ACC data of claims received.

#### Actual safety of users

It has not been possible to estimate accident rates from the most recent trial period. Nevertheless, information from the first trial period is useful in that regard.

During the first trial period there were 745 claims made to ACC between the 14 October 2018 and 23 February 2019 for e-scooter crashes in the Tāmaki Makaurau / Auckland region.

Discounting a portion of these injuries for private use, the rate of ACC claims works out to be about one claim every 1450 rides<sup>29</sup>. At the average ridership rate from the trial period of 0.2 rides per rider per week, an average user could expect to have an accident on an e-scooter (resulting in an ACC claim) every 136 years. Even if taking one ride a week at this rate a user would only have an accident every 27 years. In saying this however, at this rate a frequent user of shared e-scooters, who uses them twice a day, could expect to have an accident requiring an ACC claim every three years.

It is difficult to compare these figures to other activities and transport modes given the limitations of the ACC data which have already been mentioned, as well as the trouble with comparing modes which can be used both recreationally and for transport.

With these caveats in mind though when compared to the accident rates for similar modes this is a relatively small number. The 745 e-scooter related claims made in the Auckland region during the trial period compares to 1079 skateboarding claims, 1646 foot-scooter claims and 4413 cycling claims for the same period.

From what little information is available for cycle claim rates, cycling appears probably about 10-20 times safer on a per minute basis and 3-7.5 times safer on a per trip basis than rental e-scooter use during the trial period<sup>30</sup>. However, it remains almost as safe as horse riding and considerably safer than other popular and socially acceptable activities such as skiing and playing rugby<sup>31</sup>.

Given the lack of experience many users would have with rental e-scooters, an elevated level of accidents was anticipated during the initial trial. Accident rates have reduced since their early peak. This may be due to some degree to people's familiarity with the devices and their own ability improving. However, it could also be all, or in part, due to other

<sup>&</sup>lt;sup>29</sup> Depending on the assumptions made the range of claim rates is 1 per 1100 to 1700 trips.

<sup>&</sup>lt;sup>30</sup> Based on figures in the Christchurch City Council 'Draft micro-mobility discussion paper'; Chieng, M., et al., How dangerous is cycling in New Zealand? Journal of Transport & Health (2017), http://dx.doi.org/10.1016/j.jth.2017.02.008i; and Tin Tin et al., Completeness and accuracy of crash outcome data in a cohort of cyclists: a validation study', BMC Public Health 2013, 13:420

<sup>&</sup>lt;sup>31</sup> Chieng, M., et al., How dangerous is cycling in New Zealand? Journal of Transport & Health (2017), http://dx.doi.org/10.1016/j.jth.2017.02.008i

reasons such as a reduction in the number or length of trips. It is not possible to determine any level of causality from the information available.

## Hospitalisations

During the trial period, two studies have been released by medical professionals and researchers based at Auckland City Hospital and the University of Auckland on the impact of e-scooters on the medical system<sup>32</sup>.

Both studies add to our level of understanding of e-scooter injuries and the impacts of these on the medical system, which they claim is significant:

"The burden of injuries secondary to e-scooters in this short period of time since the release of these devices reflects a significant cost to the patients and the Auckland District Health Board"

And

"The overall burden of care due to the introduction of e-scooters to New Zealand has had significant impact both on the primary urban trauma center as well as community care facilities"

However, their usefulness is hindered to some degree by the lack of context they provide on the impact of e-scooters relative to other modes of transport. While it is not questioned that any increase in demand on often stretched hospital resources is undesirable, it is useful to understand it in the context of levels of use, as well as compared to other similar and socially acceptable activities, as has been attempted above.

Nevertheless, there are some further specific noteworthy matters raised in the papers:

- Campbell et al, found (in their admittedly small sample size):
  - that most e-scooter injuries were sustained between 8–9am and after 6pm
  - 29 per cent of the patients in the study were over the age of 50 (a far higher proportion than ridership would suggest)
- Behkit, Le Fevre and Bergin:
  - found that 27 per cent of accidents were thought to have alcohol use as a contributing factor; and
  - estimated that the ACC injury rate was around 60 injuries per 100,000 trips, and 20.5 injuries requiring hospital treatment per 100,000 trips. This rate of ACC injuries from e-scooters falls within the range estimated above from the first period of the trial (which was 59-91 per 100,000 trips).

## Actual safety of non-users

While not using e-scooters, pedestrians are exposed to potential safety risks from the use of e-scooters.

<sup>&</sup>lt;sup>32</sup> Campbell A, Wong N, Monk P, Munro J, Bahho Z. The cost of electric-scooter related orthopaedic surgery. The New Zealand Medical Journal (Online) 2019;132(1501):57-63

Mark Nagy Zaky Bekhit House Officer M.B., James Le Fevre Emergency Physician J.L.F., Colleen J. Bergin Associate Professor C.B., Regional Healthcare costs and burden of injury associated with electric scooters, Injury (2019), doi: <u>https://doi.org/10.1016/j.injury.2019.10.026</u>

As set out in section 3.2 there have been few accidents in Tāmaki Makaurau / Auckland serious enough to require treatment under ACC and even fewer requiring hospitalisation. The number that has required hospitalisation for a serious injury is somewhere between two<sup>33</sup> and eleven<sup>34</sup> during the trial period.

### **Perceived safety**

KANTAR survey results showed that 71 per cent of regular users said they felt safe using an e-scooter, with that dropping to 61 per cent of less than monthly users and 53 per cent of one-off users. From the sample of the general population, 72 per cent of pedestrians felt unsafe when sharing footpaths with e-scooters and 22 per cent safe.

As set out above, this high level of a perceived lack of safety for pedestrians may have a real impact on some residents, especially the more vulnerable.

#### Vision Zero context for e-scooters

In September 2019, Tāmaki Makaurau / Auckland became a Vision Zero region with the Auckland Transport Board approval of *Vision Zero for Tāmaki Makaurau: A Transport Safety Strategy and Action Plan to 2030.* The goal of the Vision Zero strategy is to eliminate all transport deaths and serious injuries in Tāmaki Makaurau / Auckland by 2050.

Vision Zero is an ethics-based transport safety approach that prioritises safety and places responsibility to provide a safe system (through safe speeds, safe infrastructure, safe vehicles and safe users) on people who design and operate the transport network. It accepts that people make mistakes and are vulnerable and that a system response is needed to ensure safe outcomes.

*Vision Zero for Tāmaki Makaurau* says these principles apply to all modes of transport, so it is essential for Tāmaki Makaurau / Auckland to understand e-scooters and micromobility in a Vision Zero context. E-scooters are a very new vulnerable mode of transport that present some additional safety challenges to the personal user including instability (due to small wheels), speed, and the requirement for smooth hard surfaces to be safely ridden on. This has implications for injury management, principally for ACC and ADHB. Currently available data regarding hospitalisations and ACC claims point to rates for e-scooters being similar to other personal mobility modes such as skateboarding and non-motorised scooters.

The Vision Zero Strategy identifies micromobility as a research task, including the collection of additional data to better understand safety issues. At this early stage the following observations can be made with existing data sets.

#### Advantages and disadvantages

Our current death and serious injury statistics (DSI) reported by NZ Police suggest escooters are a very low risk within the Vision Zero context, particularly when compared to

33 Ibid

<sup>&</sup>lt;sup>34</sup> Previous figures contained in section 3.2

motor vehicle, cycling, pedestrian and motorcycling death and serious injuries. This DSI data has large limitations because it only includes on-road e-scooter crashes with motor vehicles, and it is too early to establish exposure rates (crash risk per kilometres travelled by e-scooter).

The recent KANTAR survey suggests that rental e-scooter schemes are contributing to mode shift. The results showed that rental e-scooters are helping to reduce motor vehicle and ride share trips with 22 per cent of users claiming to make fewer trips by these modes. There is also opportunity for e-scooter use to contribute to public transport use with 20 per cent of users saying they ride rental e-scooters to/from public transport<sup>35</sup>. The biggest road safety challenge we face is death and serious injuries from motor vehicles, and an integral part of creating a safe system is supporting mode shift away from private motor vehicles towards public transport. In this respect, rental e-scooters could be a valuable addition to the transport network.

There is potential to increase the safety of other vulnerable modes through "safety in numbers" (increasing e-scooter use and cycling use) by providing safe, separated infrastructure for vulnerable modes travelling at similar speeds (e.g. cycling, e-bikes, e-scooters). This would require specific infrastructure build and legislative change to allow e-scooters in these separate lanes.

We do know that rental e-scooters are perceived as unsafe when sharing footpaths and other pedestrian areas with slower vulnerable transport users (people walking or those with vision or mobility impairments). 35 per cent of people feel that e-scooters sharing with pedestrians on footpaths or other areas is very unsafe (37 per cent say it's a bit unsafe), rising to over 50 per cent when sharing with disabled or elderly pedestrians<sup>36</sup>. While only 4 per cent of pedestrians reported being hit or colliding with a rental e-scooter<sup>37</sup>, the perception of safety is important when weighing the benefit of mode-shift out of cars, particularly if it leads to fewer walking journeys or reduced access for disabled people, who typically have fewer transport choices.

At the present time, with the data sources available, e-scooter mobility benefits appear to be larger than the social costs, relative to the total social cost of transport injury in Tāmaki Makaurau / Auckland. However, Vision Zero aspires to no road death or serious injury and in this context, e-scooters are not at a Vision Zero state and more work and monitoring is required.

<sup>&</sup>lt;sup>35</sup> Public response to rental e-scooters in Auckland, KANTAR, 2019, pg49.

<sup>&</sup>lt;sup>36</sup> Public response to rental e-scooters in Auckland, KANTAR, 2019, pg42.

<sup>&</sup>lt;sup>37</sup> Public response to rental e-scooters in Auckland, KANTAR, 2019, pg38.

**Summary**: Insufficient safety and usage data makes it difficult to compare the risks of rental escooters to other activities and transport modes. There is some risk associated with using escooters. However, they appear to remain safer than some other socially acceptable activities.

For non-users there appears a relatively small level of actual risk of injury, but there is anecdotal evidence of near misses. There is a strong perception of risk and a feeling of lack of safety amongst some people, especially the more vulnerable.

## Focus Area 1: Make better use of existing transport networks

Most of Tāmaki Makaurau / Auckland's future transport footprint already exists today. Growth in travel demand will need to be accommodated within this footprint. To move more people and more trips in the same amount of space we need to be much smarter about how we get around.

Given their size e-scooters are relatively efficient forms of transport. Sharing many similar characteristics with the bicycle (particularly their general size and speed) they are likely to be able to move a similar number of people in the same amount of space. This would mean they are approximately seven times as space efficient as the private motor vehicle, but less efficient than moving by foot or in dedicated public transport space (fig. 43).



Corridor Maximum capacity of urban transport modes, in persons per hour in both directions

In addition to this, rental e-scooters appear in theory to be complementary to other space efficient modes, such as walking, cycling and public transport. As is covered in more detail below in Focus Area 4, rental e-scooter schemes have the potential to support public transport, as well as less directly walking and cycling.

The most important time for the transport network to be used efficiently is during peak times when demand to travel is highest. While usage of rental e-scooters shows a clear

Figure 43. Corridor capacity by mode

increase at peak times, they are still used more frequently during the middle of the day suggesting they may not be contributing to this objective as much as they could.

In saying this, routes in high density locations such as the city centre can experience levels of congestion throughout the day and the temporal and spatial extent of this will likely only increase over time as Tāmaki Makaurau / Auckland continues to grow and demand for space intensifies. The types of trips that are likely being taken on rental e-scooters during this time, such as running errands and getting between meetings, are also often poorly served by existing transport options and this option likely helps fill a gap. Figure 44, below shows the most popular e-scooter routes in September 2019, many of which have little additional capacity for cars.



Figure 44. Most popular rental e-scooter routes in September 2019

Feedback received from the public during the first trial period described a number of ways in which rental e-scooters were being used including providing an alternative to the "inefficient" public transport system, the car or 'Uber' trips, and being used as part of a daily/ regular commute. Likewise, feedback from the KANTAR survey included comments such as "Good for reducing traffic, congestion and for those who work / study in the city to get around easily" and "Less cars on the road and good for little trips that's too far for walking".

**Summary**: E-scooters are a relatively space efficient mode of transport and they have the potential to move large numbers of people in a limited amount of space. During the trial, they have not been heavily used during the times when efficient movement is most important but have been most used in the locations where this is important.

#### Focus Area 3: Maximise the benefits from transport technology

Technological changes bring with them great opportunities, but also carry risks that may either prevent some of the potential benefits from being fully realised or else create negative effects.

This trial period has been a good example of the approach set out in the Auckland Plan of encouraging innovation and supporting the testing of new transport ideas.

The trial and its evaluation has improved our understanding of the possible role rental escooter schemes could play in Tāmaki Makaurau / Auckland's transport system, as well as identifying a number of possible changes to the licensing scheme (in the short term), land transport rules (in the medium term) and to infrastructure (in the medium and longer term) that could address some of the adverse effects and help realise the positives.

There remains a lack of certainty around some of the impacts and the best approach to take in managing any possible future schemes. Given this lack of certainty, if it is decided to issue longer licences then review points set out in the licence agreement could be appropriate.

This especially applies to matters which have not been able to be fully covered in the trial to date, such as the impact in outer suburbs and lower socio-economic areas, and to any interventions or changes to the licenses which may be made, such as the number of rental e-scooters in more suburban areas.

**Summary**: This trial period has been a good example of encouraging innovation and supporting the testing of new transport ideas. However, this is a young and evolving area and as the licensing framework, operating model and physical infrastructure change so to might some of the results. As such, if it's decided to continue with e-scooters some form of review point/s during the licence should be considered.

# Focus Area 4: Make walking, cycling and public transport preferred choices for many more Aucklanders

While the Auckland Plan sets a strategic direction of increasing travel choice, it also identifies a specific focus of increasing the popularity of walking, cycling and public transport. The reasons for this are manifold but include the efficiency and effectiveness of both modes at moving large numbers of people and, in particular for walking and cycling,

the considerable health benefits which result from incorporating exercise into day-to-day routine and activity<sup>38</sup>.

For these reasons these modes must remain the priority for the region, and new interventions should not undermine this focus and the benefits this emphasis is expected to achieve.

As summarised above, over 53 per cent of respondents in the KANTAR survey stated that their most recent e-scooter trip would have otherwise been made on foot. While some of these trips may have been new trips which otherwise would not have been made, it is likely that a significant proportion of rental e-scooter trips have replaced walking trips. While replacing a 10-12 minute walk (the median rental e-scooter trip distance) may seem relatively harmless, it is one third of the recommended minimum daily amount of physical activity<sup>39</sup>. Short bouts of exercise, such as this, built into a day are also one of the most effective methods of staying active and maintaining good health.

Rental e-scooters may then at first glance seem to have a negative association with rates of active travel, however the situation may not be quite so clear cut. Firstly, e-scooters are at least a partially active mode as they require some level of activity to use - unless going up a hill, this is unlikely to be at the level of walking or cycling but is more than sitting in a car.

Rental e-scooters could also play a role in reducing an individual's car reliance, allowing them to reduce the number of vehicles they own and/or car trips they take. People's daily travel choices are often heavily influenced by their single most difficult trip leg. While it may be the case that four out of five trip legs could be made without a car, if the fifth does require it, for instance because it's longer or must happen quickly, then they will often use the car for all five. Rental e-scooters can fill some of the gaps in the (car-free) transport system allowing more people to live with fewer cars.

Furthermore, as is clear from the trial the best location for e-scooter use is in separated "cycle" facilities, with modes of a similar speed, size and weight, and away from pedestrians and motor vehicles. While it is unclear at the moment how this trend will translate into funding decisions, it is clear there is supressed demand for this type of mode. If this demand supports the case for more and better cycleways it could, by creating a safer environment for cyclists, indirectly encourage greater cycle use.

In relation to public transport, ten per cent of regular users reported (in the KANTAR survey) replacing a public transport trip with their most recent e-scooter trip and 19 per cent have used public transport less due to rental e-scooters. On the flip side though, 12

<sup>&</sup>lt;sup>38</sup> Celis-Morales Carlos A, Lyall Donald M, Welsh Paul, Anderson Jana, Steell Lewis, Guo Yibing et al. Association between active commuting and incident cardiovascular disease, cancer, and mortality: prospective cohort study. BMJ 2017; 357 :j1456

Shaw C, Keall M, Guniey H. What modes of transport are associated with higher levels of physical activity? Crosssectional study of New Zealand adults. Journal of Transport & Health 7 (2017) 125–133

She Z, Kimg D M, Jacobson S H. Is promoting public transit an effective intervention for obesity?: A longitudinal study of the relation between public transit usage and obesity. Transportation Research Part A 119 (2019) 162–169 <sup>39</sup> https://www.health.govt.nz/your-health/healthy-living/food-activity-and-sleep/physical-activity/how-much-activityrecommended

per cent of people claimed to have used public transport more and 20 per cent claimed that one of their main uses of rental e-scooters was to get to or from public transport.

As these results suggest, and as claimed by the companies themselves, rental e-scooter schemes should support public transport by providing a first and/or last leg service. As a result of their speed and reduced effort (compared to walking) they effectively increase the catchment of stations allowing people from further away to connect to public transport.

There are some challenges to this role however, as the current rental e-scooter model works best when serving trips <u>from</u> busy nodes such as bus stations and other activity centres (such as town and shopping centres). Trips <u>to</u> these centres from less dense locations are much more difficult to serve. The current model then serves last leg connections (from public transport stations) and first leg trips from busy locations (such as the city centre and employment centres around the city fringe) to public transport well, but less so from the suburbs to these areas.

This appears to be reflected to some degree in usage patterns from the trial. The greater number of trips in the evening peak than the morning peak may reflect the fact that more trips from work will start in denser locations than morning trips from home<sup>40</sup>. While trip start and end locations are broadly similar, it is notable, if not conclusive, that Smales Farm and Kingsland stations are some of the few locations with notably more trips starting in these locations than ending.

#### Summary:

- There is some evidence of rental e-scooter trips replacing walking trips and public transport trips.
- E-scooters require some level of effort to use and are likely to indirectly support car free (or light) living and the case for more protected cycle infrastructure.
- They may also support public transport by enabling first and last leg trips; however, for this to reach a significant level it is likely to require some adjustments to the operating model and/or an increase in residential density.

#### **Overall alignment with transport and access**

Based on evidence from the trial period to date, e-scooter rental schemes appear broadly aligned with the council and Auckland Transport's strategic transport objectives.

During the evaluation period e-scooters appear to have improved accessibility, especially by non-car modes; increased travel choice; and served as a relatively efficient mode of transport. While there is some evidence of rental e-scooter trips replacing walking trips, more broadly and longer-term the situation is likely more nuanced.

<sup>&</sup>lt;sup>40</sup> Alternatively it may be for other reasons, such as people being in more of a rush to get home in the evening than they are to get to work in the morning.

These positive and neutral outcomes are countered by concerns with the safety of the devices and users. Compared to other transport modes the level of serious incidents has been low, although the rate of more minor incidents requiring some form of medical treatment is likely higher. The actual physical safety of non-users has been ok, but there remains a strong perception amongst at least part of the population that their level of safety has been reduced.

# 3.4 The natural environment

Minimising the harmful environmental and health impacts of the transport system is a key direction of the Auckland Plan.

Auckland Council is committed to doing its part in limiting the increase in temperature from climate change to within 1.5 degrees Celsius above preindustrial levels and reducing our emissions to net zero by 2050. This commitment, and the council's recent declaration of a Climate Emergency, highlights the urgency required to transition Tāmaki Makaurau / Auckland towards a net zero carbon future.

Road transport related emissions make up 37.6<sup>41</sup> per cent of Tāmaki Makaurau /





Auckland's total emissions (Fig. 45) with private cars and light commercial vehicles responsible for the majority of this. This makes the transport sector the largest contributor to greenhouse gas emissions in the Tāmaki Makaurau / Auckland region.

Reducing these emissions is therefore essential for meeting our climate goals and likely to be the most significant way we can contribute.

As explained above, of the trips taken on rental e-scooters during the trial 20-25 per cent of trips replaced a car trip. With Aotearoa / New Zealand's largely renewable electricity supply and the light design of the e-scooters (meaning that whatever the power source is they will be much more efficient to move than a car), this mode shift will have contributed to a reduction in vehicle emissions.

Conversely though, the 50 per cent of trips which replaced a walking trip, and to a lesser degree the seven per cent which replaced a public transport trip, probably contributed to

<sup>&</sup>lt;sup>41</sup> Xie, S (2019). Auckland's greenhouse gas inventory to 2016. Auckland Council technical report, TR2019/002

an increase in emissions once the full life cycle emissions of rental e-scooters are taken into account.

Furthermore, rental e-scooters have a limited lifespan. Reports from overseas have suggested lifespans of 2-3 months are not uncommon<sup>42</sup> for rental e-scooters, with one report even suggesting an average lifespan of under 30 days<sup>43</sup>. Lime's release of their new model earlier this year (yet to reach Tāmaki Makaurau / Auckland) trumpeted "prolonging its lifecycle up to six months"<sup>44</sup>, suggesting this current 2-3 month figure may not be far off.

This is backed up by the data from the initial trial period. Of the rental e-scooters launched in October 2018, 50 per cent operated for under 90 days, although 20 percent were still in operation on 22 February 2019 (114-131 days later).

The above evidence from the trial is in line with a recent study from North Carolina State University examining the environmental life cycle impacts of rental e-scooters in Raleigh, North Carolina<sup>45</sup>.

This study found that that the majority of life cycle emissions of rental e-scooters are generated from materials and manufacturing (about 50 per cent of total life cycle emissions per passenger-mile), as well as collection and redistribution of rental e-scooters at night (about 43 per cent of life cycle emissions). The high manufacturing and material emissions are due to the short lifespans of e-scooters, caused by high usage and mistreatment of vehicles.

This level of life-cycle emissions was about double that of bus travel and half that of personal car travel (fig. 46). This suggests that the environmental benefits of rental e-scooters can differ considerably depending on the trips they replace. If trips are not replacing a personal car trip, within the operating current model, they are likely to be increasing the level of emissions.

However, there are many ways that rental e-scooter companies could reduce emissions levels with the current operating model. In addition to increasing the proportion of car travel replaced the paper identifies "increasing scooter lifetimes, reducing collection and distribution distance, using more efficient vehicles, and less frequent charging strategies" as ways to reduce adverse environmental impacts significantly.

<sup>&</sup>lt;sup>42</sup> https://www.wsj.com/articles/scooter-startups-cool-fundraising-wheels-1544356923

<sup>&</sup>lt;sup>43</sup> <u>https://qz.com/1561654/how-long-does-a-scooter-last-less-than-a-month-louisville-data-suggests/</u>

<sup>&</sup>lt;sup>44</sup> https://www.li.me/blog/lime-s-gen-3-electric-scooter-transform-micro-mobility, accessed 10.03.19

<sup>&</sup>lt;sup>45</sup> Hollingsworth et al., 2019: Are e-scooters polluters? The environmental impacts of shared dockless electric scooters. Environmental Research Letters, Volume 14, Number 8. URL: <u>https://iopscience.iop.org/article/10.1088/1748-9326/ab2da8</u>





If it is decided to continue to issue rental e-scooter licences the council and companies should work to increase e-scooter lifetimes, reduce the emissions of cars used, and improve charging, collection and distribution coordination.

**Summary**: There has been some evidence of emissions benefits though this is offset, at least in part, by emissions increases for trips which have replaced walking trips. This is due to the emissions relating to their collection and redistribution via cars and the limited lifecycle the escooters have.

The emissions impact of rental e-scooters in Tāmaki Makaurau / Auckland is likely similar to the status quo, but there is the clear potential to reduce this with improvements to device design and operations.

## 3.5 Urban form and communities

The Auckland Plan envisages a future Auckland with a quality compact urban form and vibrant, accessible and people-focused urban spaces.

Rental e-scooters support the council's goal of a quality, compact urban form. They are a space efficient mode of transport that is particularly complementary of a more compact urban form where more activities and opportunities are available in closer proximity. They also support the ability for car free living, reducing the need for carparking and freeing up that land or floor area housing, or other more productive uses.

For users as well, they can improve the experience of urban life adding a layer of fun to the city. In the KANTAR survey, that it was "more fun to take an e-scooter" was given as the reason for using a rental e-scooter on their most recent trip for 50 per cent of users.

As a space-efficient, quiet and low polluting mode of transport, rental e-scooters conceptually support the council's focus on well-designed public places and spaces. They get people out of their cars creating a friendlier, people focussed public realm and improve the case for separated "cycle" infrastructure which in turn would help achieve the same result.

However, in the absence of this "cycle" infrastructure and with no proven solution to consistently ensure safe parking, unsafe use on footpaths and inconsiderate parking can undermine these benefits. As already covered, e-scooter use on footpaths can lead to perceived/real safety risks for pedestrians and incorrectly parked e-scooters can reduce

access for pedestrians and increase perceived/real clutter of rental e-scooters, negatively affecting the image/experience of urban areas.

**Summary**: Short-term effects of rental e-scooter use are likely to have some negative impacts on urban spaces and communities, as the lack of designated lanes compromises real/perceived safety for both pedestrians feeling unsafe sharing footpaths with e-scooter users, and e-scooter users feeling unsafe to share road space with cars.

While most rental e-scooters are parked appropriately, inconsiderate parking remains an issue. There are however a range of short-term efforts that could be made by the council, Auckland Transport and operators to improve parking performance.

Over time as infrastructure improves, e-scooter use is likely to have more positive effects on urban space and communities.

## 3.6 Economically successful city

The Auckland Plan foresees a prosperous future Tāmaki Makaurau / Auckland that creates conditions for a resilient economy, through innovation, employment growth and raised productivity.

While it hasn't been possible to collect definitive evidence of the economic effects of the rental e-scooter trial it seems likely to have had some benefits.

As covered in Direction 1, it appears that rental e-scooters are enabling a number of trips which wouldn't have otherwise been made. Given the discretionary nature of these additional trips many of these will have been for social activities, potentially increasing spending on shopping and hospitality. This is backed up by:

- responses to the KANTAR survey where the main specific destination mentioned was 'Cafes, restaurants or bars or other social activities';
- public feedback during the first trial period which made mention of trips to visit local cafes, restaurants and shops, which would not have been made without escooters; and
- media reports<sup>46</sup>.

Also as described in Direction 1, rental e-scooters have increased travel speeds, compared to making the trip by foot, potentially improving access to employment opportunities and the ability of businesses to interact face to face. This is supported by:

- responses to the KANTAR survey where 34 and 28 per cent of regular users identified 'work' and 'a work meeting / appointment' (respectively) as main types of trips; and
- mention in the public feedback during the first trial of regular use of rental escooters to get to and from work, and to get between work-related meetings as a more reliable transport alternative to public transport or the car.

<sup>&</sup>lt;sup>46</sup> NZHerald: 'How Lime scooters have impacted retail and shopping around Auckland CBD' <u>https://www.nzherald.co.nz/business/news/article.cfm?c\_id=3&objectid=12208262</u>

In a similar vein to the above point, the faster travelling speed of e-scooters will have saved people time. This saved time will have had value, especially when it was saved as part of a business trip.

Rental e-scooters have also acted as a fun and convenient mode for tourists. While likely less so over the winter months, during the first trial period user feedback mentioned using e-scooters to explore the city as a tourist or part of a group of tourists, combining tourist activities across the city.

Conversely the costs appear to consist primarily of:

- Some increase in ACC claim and medical costs. Payment for ACC claims as well as health funding is the purview of central government and to date they have not shown any concern at the level of claims.
- The inability of some people (including the disabled and elderly in particular) to make trips due to safety concerns.
- There may be some increased long-term health costs as a result of the reduction in walking trips but, as covered in Focus Area 4, the actual impact of e-scooters on active travel rates is unclear.

*Summary*: The economic effects of the trial appear modestly positive, given the increase in trips enabled and improved accessibility due to increased travel speeds, although there is limited data, and subsequent certainty, on the extent of this.

# 3.7 Evaluation Summary

The scale of all benefits and costs have been quite small, in part due to the limited geographic scale and duration of the trial and as such the ratings below are all relatively neutral. It is also clearly the case that the rental e-scooter business model is young and still being developed and refined. There are many ways in which the e-scooter operation model can improve, though this may not happen immediately and/or be an iterative process. If the decision is made to continue with rental e-scooter schemes the council and Auckland Transport should continue to work with operators to improve their operations.

The results are summarised below in Table 8.

#### Table 6. Auckland Plan evaluation summary

	Rating	Comments
Transport and access <sup>47</sup>		
Better connect people, places, goods and services	<b>~</b>	Positive for the general population
Increase genuine travel choices for a healthy, vibrant and equitable Auckland	~	<ul> <li>Reducing motor vehicle trips and providing a genuine transport alternative for certain trips</li> <li>Financial and technical barriers may exist for lower socio-economic sectors of society, though overseas examples show possible ways to alleviate this</li> </ul>
Maximise safety and environmental protection		Users – Some risk. Less safe than alternative transport modes, but more safe than other socially acceptable activities
		• Non-users –Small level of actual risk; but perception of risk amongst some people, especially the more vulnerable, remains.
Make better use of existing transport networks	~	<ul> <li>Light weight and small. Similar road capacity to a bike which is approximately 7 times better than cars.</li> <li>Peak time of rental e-scooter use doesn't match period of general peak demand for travel/road space.</li> </ul>
Make walking, cycling and public transport preferred choices for many more Aucklanders		<ul> <li>Directly replaces walking trips</li> <li>Some level of effort still required so slightly 'active'</li> <li>Could indirectly support active modes and public transport by assisting car free living, supporting the case for dedicated cycle and e-scooter space and serving first and last leg PT trips</li> </ul>
The natural environment		<ul><li>Modest emissions benefits at best</li><li>Unclear potential lifecycle costs</li></ul>
Urban form and communities		<ul> <li>Supports compact urban form</li> <li>Immediate impact on public places is mixed – fewer cars and more people, but safety concerns exist while e-scooters share pedestrian spaces and are parked inconsiderately</li> <li>Parking concerns could be reduced with</li> </ul>
Economically successful city	~	<ul> <li>Modestly positive due to:         <ul> <li>Additional trips (more money spent shopping etc)</li> <li>Improved accessibility (able to access more jobs in same time, make more meetings etc)</li> </ul> </li> </ul>
Scale: $\checkmark \checkmark \checkmark$ , $\checkmark \checkmark$ , $\checkmark$ , $\checkmark$ , $\checkmark$ , $\checkmark$ , $\checkmark$		

<sup>&</sup>lt;sup>47</sup> Focus Area 3: Maximise the benefits from transport technology, has not been included as part of this overall evaluation summary. As it relates to this project this Focus Area 3 is more concerned with the process followed (i.e. a trial) rather than the strategic outcome desired. By virtue of being a trial of a new transport technology, the trial is aligned with the approach described in this focus area. Including a rating based on this risks distorting consideration of the long-term strategic alignment with short-term process based considerations.

# 4 Ride Report: best practice and benchmarking

Ride Report; a micromoblity data management company, was commissioned by the council to undertake a review of the trial. The aim of the review was to:

- 1. Identify practices, procedures and controls ("emerging best practice") associated with the management of rental e-scooters in selected international and local cities.
- 2. Compare ("benchmark") Auckland's practices, procedures and controls in the management of rental e-scooters with the practices, procedures and controls used by international and local cities.
- 3. Provide recommendations to inform any future improvements in the management of e-scooter share schemes in Auckland.

The report is in Appendix 15. Of particular note, Ride Report commended the framework that the council had established during the trial and commented that the council has undertaken "one of the most rigorous and thorough evaluations of any city who has overseen a shared e-scooter programme." Ride Report also confirmed that "there is ample data and conclusions to inform decisions around an ongoing programme."

Below is a summary of Ride Report's findings and recommendations.

## 4.1 Safety

#### International findings

- Portland, Oregon requires users to wear helmets regardless of age, but it was found that 90 per cent of riders did not comply with helmet requirements. These findings are consistent with bikeshare helmet compliance rates in literature.
- Literature has also found that requiring operators to provide helmets may not be effective in reducing injury or death than other initiatives, particularly when balanced against the resource required to implement such a requirement.
- Slow zones have been implemented internationally. Successful slow zones must take into account the broader context of the road. For example: a slow zone in a high-speed road area is likely to encourage e-scooter use on the footpath, which in turn, may increase e-scooter-pedestrian conflicts.
- Vehicle standards for share e-scooters are being considered by experts. In the absence of international standards, most cities are requiring product specifications to determine suitability.
- In the United States, it was found that e-scooters crashes were most likely to involve a motor vehicle or alcohol/substance use. In response to this, Atlanta invested in infrastructure improvements, e.g. more bike lanes, and other initiatives, e.g. night-time curfew. Austin, Texas also found that newer riders were more likely to sustain an injury.

#### Tāmaki Makaurau / Auckland approach and recommendations

• E-scooter riders are not required to wear helmets, and a low proportion of private e-scooter riders use helmets.

- Slow zones were implemented in areas with high pedestrian foot traffic. High use was still observed in these areas, indicating that reduced speed is not a deterrent to use.
- Reporting schedule included a requirement for operators to inform the council of accidents and incidents.

It is recommended that the council:

- Should not seek to implement a mandatory helmet law in isolation of other safety efforts.
- Standardize safety reporting.
- Require operators to develop in app training for first time users.
- Require operators to provide equipment designed for the extensive use in a shared rental scheme.

# 4.2 Licensing and permitting

#### International findings

• Most cities used a permitting approach, which allowed for staff to outline and change requirements to achieve outcomes.

#### Tāmaki Makaurau / Auckland approach and recommendations

• Auckland used a licensing approach, which includes a Code of Practice with requirements relating to safety, vehicle caps, distribution areas, parking and behaviour, reporting, data sharing.

It is recommended that the council:

- Continue using a licensing approach with a Code of Practice that is revised to reflect strategic goals and operating requirements.
- Have a plan to measure compliance and performance.
- Have a flexible licensing scheme based on performance and further understanding of e-scooter programmes.

## 4.3 Initiatives to improve rider behaviour

#### International findings

- Operators worldwide inform users of road rules, often including local rules.
- Marketing campaigns have been used, but there is little evaluation of effectiveness.
- There are varied rules regarding sidewalk riding. Portland, Oregon found that sidewalk riding reduced on streets with protected bike lanes.
- As technology improves, there may be increased opportunity to improve rider behaviour e.g. technology that detects footpath riding and reduces speed accordingly.

#### Tāmaki Makaurau / Auckland approach and recommendations

- Operators implemented ambassador programmes.
- The council and NZTA both implemented marketing campaigns.

It is recommended that the council:

- Partner with operators regarding incentives for good rider behaviour
- Consider continuation of ambassador programmes, with focus on impacting rider behaviour.

# 4.4 Parking

#### International findings

- Operators in the United States require photo evidence to verify parking, however there is limited evidence of effectiveness.
- Some cities require parking in specified locations, while others encourage parking in corrals and zones.
- If corrals are used, they must be in locations and at a frequency that supports access.

### Tāmaki Makaurau / Auckland approach and recommendations

- Operators were required to incentivize good parking behaviour.
- Auckland Transport created parking corrals and worked with operators to encourage riders to use them.

It is recommended that the council

- Extend the use of parking corrals.
- Continue tracking parking behavior on a regular basis (at least annually) and set targets for improvement in the proportion of scooters parked correctly.
- Require operators to submit plans to meet parking targets as part of their license application.

# 4.5 Fleet and operator caps

#### International findings

- Many cities are experimenting with dynamic caps where good performance and compliance with rules could result in an increased fleet, while poor performance and non-compliance could result in reduced fleet.
- Cities were generally not prescriptive of geographic deployment (apart from equity schemes), allowing the operator to determine deployment based on demand.
- Permitting multiple operators enables competitive leveraging.

#### Tāmaki Makaurau / Auckland approach and recommendations

• Tāmaki Makaurau / Auckland's trial included 3 operators and a total cap of 1,875 vehicles, averaging five trips per day.

It is recommended that the council:

- Consider licensing three operators.
- Consider increasing the cap to 5,000 vehicles based on demand; however, there are numerous factors that must be considered when determining a cap.
- Consider implementing a dynamic cap, where a quarterly assessment may result in an increase or decrease in fleet cap per operator. Key measures should include trips / vehicle / day and trips taken to and from public transport locations.
- Implement a data management system to ensure consistent analysis.

# 4.6 Public perception

#### International findings

- It is reasonable to expect public perceptions will improve over time.
- One way to improve public perception is to ensure operators are responsive to complaints and issues. Some cities include timeliness requirements of 1-2 hours to reports from the public.

#### Tāmaki Makaurau / Auckland approach and recommendations

• Tāmaki Makaurau / Auckland is the only city with longitudinal survey results regarding the public perception of e-scooters. The results found that with some improvements, overall acceptance may improve over time.

It is recommended that the council:

- Include timeliness requirements for operators when responding to complaints.
- Continue to survey residents and adjust the e-scooter programme accordingly.

## 4.7 Mobility requirements

#### International findings

- Portland, Oregon found that a substantial number of users substituted driving or riding in motor vehicle for e-scooter trips (about 34 per cent).
- Most users of shared e-scooters are young, able bodied persons, raising concerns about who can access e-scooters. Portland, Oregon has provided additional permits to operators with increased accessibility schemes, and San Francisco requires operators to have an Adaptive Scooter programme.
- An Oregon panel found that the impacts of e-scooters on people with disabilities were relatively rare, however impacts were outsized for these communities.

#### Tāmaki Makaurau / Auckland approach and recommendations

• Survey results are consistent with international findings.

It is recommended that the council:

- Should include an adaptive e-scooter programme as a condition for a licence (potentially a trial).
- Conduct surveys and focus groups annually to help increase understanding of how people with disabilities can be best served by shared e-scooters and other forms of shared micromobility.

## 4.8 Equitable access

#### International findings

- Some cities impose distribution requirements, including minimum deployment into communities that may be underserved by public transport, car dependent, or have a high number of low-income households.
- Some cities also require low income fare programmes for people who don't have access to a smartphone or bank account.
- Outreach initiatives can ensure a better understanding and uptake of e-scooter programmes

#### Tāmaki Makaurau / Auckland approach and recommendations

- Auckland's trial did not include targets or efforts to address equity.
- It is recommended that the council:
- should develop an equity strategy for shared e-scooters and micromobility.

# 4.9 Data sharing

#### International findings

• Many cities use MDS format. Those who do not use MDS have developed a template to ensure consistency.

#### Tāmaki Makaurau / Auckland approach and recommendations

• Reporting requirements included periodic updates and data sharing via API

It is recommended that the council:

- Require micromobility behaviour data in MDS format, including a parking\_verification\_url field.
- Require an audit of operators' data feeds confirming completeness prior to launch.
- Develop standardized definitions and formats for data sharing not included in MDS, including safety, incident, and vehicle maintenance reporting.

## 4.10 Fees

#### International findings

• There is a wide variety of approaches to fees internationally, e.g. flat fee for reviewing an application, flat fee for permit granting, per device fee, per trip fee, parking duration fee.

#### Tāmaki Makaurau / Auckland approach and recommendations

• Fee structure based on rental of public space. Fees generated by trial have not covered cost of staff time to implement programme.

It is recommended that the council:

• Develop a fee structure that covers anticipated costs for staff time and other expenses related to e-scooter share programmes. Appropriate fees include fees for application review and licensing, and a per scooter or per-trip fee that reflects not just the cost of renting space, but also reflects anticipated costs.

# **5** Recommendations

The following section outlines the e-scooter project team's recommendations for improvements to licence conditions, the code of practice and additional initiatives for any future licensing of rental e-scooters under the bylaw. The recommendations are based on the information and evaluation outlined above.

## 5.1 General Provisions

#### **Assessment of Current Fees and Charges**

We have identified gaps in the recovery of costs associated with these types of licenses.

There is an ongoing requirement to monitor the operator's compliance to the license conditions and Code of Practice. Currently, the council is under-recovering actual costs, with license fees for street trading set at \$314 per annum.

#### Proposed changes for e- scooter fees and charges

#### FY 19/20

In order to address some of the gaps in the current financial year, the following approach is recommended:

- Implementation of an hourly charge of \$168, in line with other licensing and consenting activities of the council. This will include charges for the following activities:
- assessing an application;
- monitoring and compliance with the license conditions and Code of Practice requirements, including but not limited to;
- operator meetings;
- review of weekly reports;
- o review of operator dashboards;
- o review of Auckland Transport data platform;
- Investigation of incidents and complaints.

This revised approach will help to ensure that the council recovers fair and reasonable costs associated with managing these types of schemes.

#### FY 20/21

The council have started the process to review the tier pricing structure fees for rental escooter operators licensed under the bylaw. If such schemes continue, this may result in increased fees for FY20/21.

#### 5.1.1 Number of e-scooter operators

We consider that licensing three operators creates an opportunity for competitive leveraging without an undue burden on the council's resources. Note: this does not include operators of other modes of shared micromobility.

## **E-scooter allocation**

The current allocation has been set at a fixed cap of 1875 e-scooters across the three tiers.

Table 7. Allocation during trial				
	Tier	Fixed cap		
	1	900		
	2	600		
	3	375		

### Proposed changes for e-scooter allocation

We propose a flexible fleet cap, in which an operator initial allocation may increase or decrease from their initial licensing cap, based on the outcome of a quarterly performance review. The review will evaluate several factors, including but not limited to:

- Compliance with bylaw and code of practice;
- Utilisation and demand i.e. trips per vehicle per day (TVD);
- Performance e.g. delivery on safety initiatives.
- We also propose an increase in the number of e-scooter available at the start of licensing (see below), and the introduction of minimum performance standards, for example: a minimum deployment number or a minimum number of rides per day.

Proposed initial licensing cap (total number of e-scooters):

Table 8. Proposed allocation				
	Tier	Initial licensing cap		
	1	Between 1000 - 1200		
	2	Between 800 - 1000		
	3	Between 800 - 1000		

The above proposals reflect the opportunity to achieve transport related goals, particularly first and last leg of public transport and also provides an incentive for operators to comply with all requirements and put effort into safety enhancement and nuisance reduction initiatives. This scheme is consistent with international best practice.

## E-scooter deployment

With licenses issued for up to 1,875 rental e-scooters, operators requested many deployment locations; a total greater than the number of e-scooters allocated. Approving each location was a time-consuming process that required manual review of the information provided and assessment against the criteria within the bylaw and associated guidelines.

The following proposal will help reduce resource required from the council to assess deployment locations, and to help reduce the potential of nuisance associated with escooter parking,

#### Proposed changes to deployment requirements:

- Operators must comply with the *E-scooter deployment location requirements*.
- The council reserves the right to enforce a minimum and maximum number of deployed scooters per operator and per tier.
- The operator must only deploy in public locations approved by the council. Private deployment locations may be arranged independently.
- The operator must deploy e-scooters in Auckland Transport parking corrals each morning.

## Hours of operation

Given research findings regarding the rate of alcohol use in accidents involving e-scooters, we propose to reduce access to e-scooters in entertainment precincts.

### Proposed changes to hours of operation:

- We expect that all e-scooters are deactivated outside of licensed hours (1am 5am).
- All e-scooters are removed from certain locations by 10pm.

# 5.2 Safety and Nuisance

## Safety and risk management

Between the first and second trial, additional safety requirements were included in the code of practice. To continue improvement in this area we recommend the following:

#### Proposed changes to safety and risk management:

- The licensee is solely responsible for ensuring compliance with the HSWA;
- The council and Auckland Transport do not assume any responsibility for ensuring compliance with the any safety feature or other safety aspects of the licensed operation, and that responsibility for these remain solely with the licensee;
- The council and Auckland Transport have no influence or control over, and assume no responsibility for, the safety of riders or pedestrians once e-scooters are in use;
- The acceptance by the council and Auckland Transport of any documentation provided as part of the licence application or under any reporting obligations imposed under the licence does not release the licensee from its responsibilities and obligations under the HSWA;
- In monitoring ongoing compliance with any licence issued (including conditions regarding health and safety related reporting), the council and Auckland Transport are not endorsing the licensee's compliance with its obligations under the HSWA.
- Health and Safety (Risk Management) plans must be provided to the council.

- Health and Safety (Risk Management) plans must be assessed by an independent accredited third party.
- Evidence of audit by independent accredited third party must be provided to council within three months of license issue.
- If the operator has previously operated or is operating in other jurisdictions, the operator must provide:
- o data showing a strong safety record across previous / current operations.

#### **Product requirements**

We are proposing clarified product requirements to ensure that we are satisfied that the product included in the license is fit for purpose. The addition of a unique identified for each e-scooter is aimed to assist in the reporting of issues by users and the public.

#### Proposed changes to product requirements

Previous provisions clarified:

- The operator must provide detailed specifications of the e-scooters to be deployed in Auckland from date of licence issued. This includes but is not limited to:
- A detailed diagram of e-scooter equipment
- o Brand
- o Model
- o Age
- Used or new
- The operator must provide evidence that:
- The e-scooter equipment complies with legal standards and requirements, including battery requirements.
- The e-scooter equipment is of sufficiently high quality to withstand constant public use and exposure to the Auckland elements.
- The operator must confirm that:
- The e-scooter equipment includes smart technology with active global positioning system (GPS) and wireless connectivity.
- The e-scooter equipment contains integrated location technology and on-board wireless diagnostics to identify mechanical failure and enable preventive maintenance.
- Any e-scooter reported or believed to be inoperable will be remotely locked, until the e-scooter is removed, repaired, and placed back into public service.
- Every e-scooter will be equipped with a unique identification number that is:
- Prominently displayed at all times
- Located in two places on the e-scooter equipment e.g. rear wheel guard and stem.

#### **Maintenance requirements**

The current code of practice requires each e-scooter to receive a full service at least once a week. This may or may not be necessary, depending on the manufacturer's requirements.

#### Proposed changes to maintenance requirements

• At a minimum, every e-scooter must be given a full service every week.

Or

• The operator must supply manufacturer's standards for maintenance requirements, and ongoing evidence to confirm their conformance to the standard.

And

- The operator must provide information regarding:
- how hardware (including checks for metal fatigue) and software/firmware checks are undertaken and recorded.
- o how any defects are reported, rectified and prevented.

#### Incident and accident investigations

To ensure that users can easily report an incident or an accident to an e-scooter operator we have recommended the following:

#### Proposed changes to incident and accident investigations:

- The operator must have in-app incident and accident reporting features on the home page of the app or within one click from the home page.
- The operator's Health and Safety (Risk Management) plans must include processes on the investigation of incidents and accidents and processes for the implementation of corrective or preventative measures based on the outcome of the investigation.

#### Poor or non-compliant parking

The proposal for regular, proactive monitoring of parking, and taking enforcement action if required, is intended to reduce nuisance associated with non-compliant parking and will encourage operators to implement effective initiatives to influence user behaviour.

#### Proposed changes to poor or non-compliant parking

- The operator must take reasonable steps to ensure that e-scooters are not parked or allowed to remain in inappropriate locations, as per:
  - The Trading and Events in Public Places Bylaw 2015, and
  - The Trading and Events in Public Places Guidelines 2015.
- The council will undertake monitoring of e-scooter parking to assess compliance. Operators are required to reach a minimum level of compliance.
- Unacceptable levels (below 85 per cent) of non-compliance will result in enforcement action, including but not limited to:
  - Serving a notice;
  - Reduction in e-scooter allocation (temporarily or permanently);
  - Suspension of licence.

#### Resolving instances of poor or non-compliant parking

In order to reduce any nuisance impact resulting from poor or non-compliant parking, as well as resource required from the council, we are proposing to reduce the time for resolving complaints related to parking. Information regarding the operator's level of responsiveness can form part of the quarterly performance review.

#### Proposed changes to resolving instances of poor or non-compliant parking

- The operator must resolve a report of a damaged e-scooter or an e-scooter parked in a non-compliant manner within 2 hours of notification by a member of the public or the council.
- The operator must resolve a report of an e-scooter out of zone or in a waterway within 24 hours (if reasonably practicable) of notification by a member of the public or the council.
- The council will recover, from the operator, any costs incurred for addressing or abating any instances of poor or non-compliant parking, including impound fees, costs to recover an e-scooter from a waterway, or other additional costs, including repair or maintenance of public property.
- The operator must provide data regarding their responsiveness to parking issues, which will be included in the quarterly performance review.

#### No riding, no parking, rebalancing zones

No riding, no parking and rebalancing zones would provide the council formal control over e-scooter operations during events and in circumstances where a certain risk in a particular location becomes apparent.

#### Proposed no riding, no parking, and rebalancing zones:

- The council may require the operator to implement one or more of the following zones in a specified area:
- No riding zone: remove all e-scooters and prevent e-scooters from entering the area.
- No parking zone: prevent parking of e-scooters in the area.
- Rebalancing zone: increased rebalancing of e-scooters in the area.
  - The above zones may be in effect permanently or for a certain period of time e.g. during an event.
  - The operator must provide and implement a plan detailing implementation of one or more of the above zones.

#### Influencing rider behaviour

Outcomes of plans to manage parking and ride behaviour can be assessed in the quarterly performance review.

#### Proposed changes to influencing rider behaviour:

- The operator must implement plans to manage parking and rider behaviour, which should include but is not limited to:
- incentivising good riding and parking behaviour and disincentivising poor or noncompliant parking and riding behaviour by users;
- Requiring users to take a photograph of how they have parked the e-scooter before ending the ride.
- Auditing an agreed sample of user-parking photographs through the app, and action to reduce poor/non-compliant parking;
- effective in app training.

• The operator will agree to collaborate with council on joint safety initiatives, including cost-sharing.

## Safety enhancements and nuisance reduction initiatives

Any initiatives that an applicant can provide, which goes above and beyond what the council can require under the bylaw and code of practice, will be a point of difference. This is an opportunity to leverage the competitive nature of this rental e-scooter schemes to achieve better safety outcomes and reduce any nuisance.

#### Proposed changes to safety enhancement and nuisance reduction initiatives:

The operators must have in-app training modules, including a 'new-rider' training module that must be completed prior to use.

The council encourages operators to introduce further initiatives to increase safety outcomes and reduce nuisance. This may include personnel, technology, hardware and software capabilities, such as:

- Speed reduction e.g. geofencing across the region or in slow speed zones agreed by the council.
- Provision of helmets. Note: helmets must meet Standard AS/NZS 2063.
- Bells or other warning devices.
- Tip detection.
- Wet or dangerous weather protocols.
- Age verification.
- Methods or processes to prevent users from riding e-scooters while intoxicated.
- Training requirements or events.
- Safety campaigns.
- Ambassador programmes e.g. staff on the ground are available to monitor and correct user behaviour; provide users with information, training and safety advice; rebalance or resolve parking issues.

The operator may also suggest improvements or changes to infrastructure, which the council may consider.

Any initiatives offered and timelines for their delivery will be confirmed in a cover letter accompanying the licence.

#### **Reporting requirements – Immediate**

The proposed refinements to the *immediate* reporting requirements are intended to ensure that a high quality of investigation is carried out for any event that requires this.

#### Proposed changes to immediate reporting requirements

- When the operator becomes aware of any event that affects the safety of employees, users or the public, they must report this to the council immediately.
- The operator must commence an investigation immediately, and information must be reported to the council as follows:
- An initial investigation report will be provided to the council within 48 hours.
- A final investigation report will be provided to the council within seven days.
  - Any issues with meeting the above timeframes must be discussed with the council as soon as reasonably practicable.
  - Further investigation:
- With just cause, the council may require an independent review of safety related systemic hardware or software faults or incidents related to the operator's operations.
- If the council commissions an independent review, all associated costs will be recovered from the operator.
- If the council commissions an independent review, the operator must not, in the council's opinion, unreasonably withhold information required for the completion of the investigation.

#### **Reporting requirements – Weekly**

In line with the proposed updates to the maintenance requirements and to reduce resource in the review of weekly report, we recommend the following:

#### Proposed changes to weekly reporting requirements:

- Maintenance reports must be provided in line with the agreed maintenance schedule.
- Operators to provide weekly reports in a format as specified by the council.

#### Data requirements

The proposed changes to data requirements are aligned with the Auckland Transport data system, which will be used to ensure compliance and future proof potential updates to compliance requirements.

#### Proposed changes to data requirements:

- Usage data must be provided in MDS format.
- The data feeds should include all required fields of the Provider API in MDS as well as the parking\_verification\_url field.

### 6 Conclusion

The provisional results of the trial indicate that, broadly speaking, the requirements of the bylaw have been complied with and the outcomes of the trial have been in line with the strategic goals of the council and Auckland Transport.

As such the conclusion of this report is to recommend the continued licensing of rental escooter schemes under the bylaw.

#### Short vs long term considerations

This analysis has been based on the trial period and the circumstances under which the trial was undertaken; in particular, the form of the transport network at the time and the legislative requirements within which the scheme and users were allowed to operate.

This evaluation has tried to restrict itself to consideration of the schemes within the current infrastructural and legislative environment to inform immediate licensing decisions, and not considered the longer-term potential of such schemes should different infrastructure or legislation be in place. This could be another piece of work.

This analysis has reflected on, and given some weighting to, possible solutions that could be implemented relatively quickly and are within the control of the council and Auckland Transport. These are outlined in Appendix 16.

It does not give any weighting to broader matters outside of the council and Auckland Transport's control, such as regulatory change, which would take a while to do, such as a completion of a comprehensive separated cycle network.

Nevertheless, it is clear that the most perceived negative impact of the trial is the safety impacts, in particular the perceived safety impacts to non-users, including the less physically able. Improved infrastructure, in the form of separated cycle (or micromobility) lanes is a longer-term priority. Immediate priorities should be advocating to central government on safety and using the lessons learned from both trials to ensure the continued improvement of the licensing regime of rental e-scooter operators under the bylaw.

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