



INQUIRY INTO E-MOBILITY SAFETY AND USE IN QUEENSLAND

RACQ SUBMISSION TO THE STATE DEVELOPMENT, INFRASTRUCTURE AND WORKS COMMITTEE

20 JUNE 2025



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INTRODUCTION

E-scooters have grown from relative obscurity a decade ago to becoming a common feature of Queensland's transport landscape. Many urban residents have embraced e-scooters and other e-Personal Mobility Devices (PMDs), as well as e-bikes, as a practical solution to everyday challenges - saving time, reducing costs, cutting congestion, and leaving a smaller mark on the planet.

Queensland has been a trailblazer for e-mobility in Australia. Brisbane became the first local government to introduce e-scooter hire schemes in 2018, setting the stage for increased private ownership across the state. RACQ, alongside the vast majority of our members, recognises their value. Many riders have been able to ditch their cars for work, education or social outings, with high repeat usage demonstrating user satisfaction and the lasting benefits these devices provide.

Today, one in five Queenslanders have ridden an e-scooter or e-bike, and nine in ten active users ride at least once a week. Even among non-riders, e-mobility is widely supported, with more than 80% of RACQ members acknowledging its role in improving transport options and affordability.

Queenslanders have been one of the biggest users of these devices over the longest period in Australia. Brisbane now regularly records more than 11,000 hire e-scooter trips per day. Australia has an estimated 350,000 privately owned e-scooters, with Queensland likely accounting for at least 70,000, based on population share. The actual number could be higher, given Queensland's longer history of e-mobility adoption compared to other states.

However, alongside this success, serious public safety issues have emerged, demanding attention from all levels of government and road users, particularly in high-density urban areas where e-mobility has rapidly expanded. The darker side of e-mobility in Queensland includes devastating collisions. Riders are dying from falls from the devices or colliding with objects and, in some cases, are causing pedestrian deaths. Many more have sustained life-altering injuries, impacting their quality of life, ability to work, and financial stability. Some have suffered severe facial trauma and disfigurement.

Since November 2022 (when TMR started reporting on PMD crashes separately to pedestrians) fifteen people have died (three in 2023, eight in 2024 and four in 2025) and thousands more have been injured in e-PMD collisions in Queensland. Beyond the tragedy of unexpected loss of life, the growing number of injured riders passing through emergency departments is placing increasing strain on the state's healthcare system, with treatment costs exceeding \$50 million in major hospitals since 2019. RACQ is deeply concerned that the 'status quo' approach is failing to protect road and pathway users. Without urgent action, more avoidable deaths and serious injuries will occur.

Many riders use illegal devices, either purchased under the premise of off-road use only, or tampered with to reach excessive and unsafe speeds. Others engage in reckless behaviour on legal devices, violating road rules by riding without helmets, riding while underage, carrying passengers, or riding under the influence of alcohol and or drugs.

There are also some who are riding legally on legal devices who simply make mistakes and pay the price through injury. A number of these riders are not being protected well enough by traditional bike or scooter helmets or the relatively low stability of 'stand-up' devices.

For Queensland to continue growing as a modern, functional society and economy, with safe, affordable, and efficient transport, we must ensure e-mobility integrates seamlessly and safely alongside other modes of transport. While the benefits are clear, the risks remain too high. At the moment, too many Queenslanders are being put in harm's way.

Given Queensland's advanced stage of e-mobility adoption, the state is in a prime position to become a national, even global, leader in managing the safe and sustainable use of e-PMDs. We have the data, experience, and public appetite, and we now need the cooperation and will from all stakeholders to build a system that works for everyone.

RACQ presents a strategy to improve e-mobility safety covering four key themes:

1. Crack-down on dangerous and illegal devices
2. Strengthen enforcement of rules for legal devices
3. Reduce injury by improving rider protection
4. Improve education and accountability, including targeted messaging for riders and parents of young users.

By acting now, Queensland can set the standard for e-mobility safety in Australia and internationally.

About RACQ

RACQ is one of Australia's most trusted brands owned by and working for the benefit of our more than 1.7 million members. Our purpose 'to drive a positive future for all Queenslanders' is at the core of everything we do. It guides our strategy, operations, products and the way our people show up every day to support our members and Queenslanders.

In 2025, RACQ celebrates 100 years of roadside assistance and 120 years of supporting Queenslanders through advocating for the issues that matter to our members and communities. While much has changed over this time, our team's commitment to helping our members move and live safely, securely and sustainably remains steadfast.

Advocating for safe and secure mobility is at the heart of our advocacy.



FULL LIST OF RECOMMENDATIONS

Term of Reference 1

1. The Committee should acknowledge the importance and benefits of legal e-mobility and active transport to the whole community, particularly among seniors who can prolong their riding and remain physically active with e-bikes.
2. All levels of government should further embed e-mobility into long term transport infrastructure planning.
3. The Queensland Government should commit to greater investment and delivery of high quality, connected and accessible pathway networks.

Term of Reference 2

4. The Queensland Government should require all stand-up e-scooter riders to wear full-face helmets to protect against facial injuries if they crash.
5. The Queensland Government should require all hire e-scooter devices to have a seat which the rider must use.
6. The Queensland Government should enforce the seating and helmet requirements.
7. The Queensland Government should enforce existing device requirements and speed limits.
8. Local governments with hire schemes should require and support geofenced, dedicated parking in CBDs and busy urban areas once the technology is proven effective.

Term of Reference 3

9. The Queensland Government should lead greater education to owners on the fire dangers of devices and how to correctly and safely charge and store these devices to reduce the incidence of fires.
10. The Queensland Government should match the newly adopted NSW requirements and raise the prescribed safety standards of e-mobility devices batteries before they can be sold.

Term of Reference 4

11. The Queensland Government should update all communication to focus on 'non-street' legal devices being considered as unregistered, uninsured illegal motorcycles.
12. The Queensland Government should significantly increase the use of existing enforcement laws relating to defective vehicles, unregistered, uninsured motorcycles on Queensland roads and road-related areas.
13. The Queensland Government should significantly increase enforcement of unlicensed riding of motorcycles (registered and insured or otherwise) on Queensland roads and road-related areas.

Term of Reference 5

14. The Queensland Government should increase the police-led road-rule and vehicle safety enforcement approaches, including targeted enforcement blitzes with tougher enforcement and impounding of illegal e-mobility devices (which are classed under the law as illegal motorbikes).
15. The Queensland Government should expand enforcement of vehicle requirements through Department of Transport and Main Roads Transport Inspectors.
16. The Queensland Government should engage with industry and key stakeholders to investigate the potential of technology-led solutions, such as Artificial Intelligence, to enhance enforcement of the lawful use of hire e-mobility devices.

Term of Reference 6

17. The Queensland Government should consider requiring any party selling new higher-powered e-mobility devices (not legal for road use) to hold a motor dealers' licence.

Term of Reference 7

18. The Queensland Government should develop and launch awareness campaigns leading to tougher enforcement and impoundment through the issuing of defective vehicle notices. Campaigns could be run in partnership with local governments.
19. The Queensland Government and local governments should continue to educate road users about road rules and device requirements.

20. The Queensland Government should lead a public education campaign on any changes regarding road rule and device requirements as they are made.
21. The Queensland Government should proactively engage with retailers, industry, agencies and other stakeholders to ensure the legal and appropriate use of e-mobility devices is effectively promoted user groups.

Term of Reference 8

22. The Committee, and in turn the Queensland Parliament, should recognise the diversity of mobility preferences and needs among Queensland communities and continue to work on supporting an ecosystem that enables different options while improving safety for all road and pathway users.
23. The Queensland Government should undertake a detailed study on the cost of all e-mobility-related crashes in Queensland.



Benefits of e-mobility (including both Personal Mobility Devices (PMDs), such as e-scooters and e-skateboards, as well as e-bikes) for Queensland

E-mobility devices have emerged as a viable and valued form of modern urban transport, providing a practical and efficient alternative for short trips between 400 metres and 10 kilometres. Ongoing research and surveys, including those conducted by RACQ, consistently indicate a growing recognition of their benefits among Queenslanders. The RACQ Annual Road Safety Survey found 84% of respondents agreed that e-scooters and other e-mobility devices increased mobility options and improved travel affordability. However, there was also a high proportion (85%) who felt the presence of these devices resulted in an unsafe road and pathway environment¹.

Devices such as e-scooters can save journey time, save money on fuel and other transport costs, offer flexibility, improve health and wellbeing, reduce our environmental footprint, and ultimately ease congestion and boost productivity. Importantly, the technological advancement of e-bikes is supporting 'active ageing' or 'sustained physical activity' for seniors.

The availability of these devices provides significant benefits and enable the older demographic of our communities to maintain an independent and active lifestyle. Given their substantial advantages, prioritising the integration of active transport – such as cycling and walking – and e-mobility into Queensland's long-term transport plan is imperative. However, safety remains the biggest challenge to greater adoption and public confidence.

Extensive research from government agencies and academic institutions worldwide underscores the importance of e-mobility and active transport in building safe, healthy, and sustainable urban environments.² Australian capital cities, particularly their inner urban centres, face significant congestion issues that negatively impact economic productivity, environmental sustainability, and social well-being. These high-density zones accommodate a large proportion of professional and tertiary services, major hospitals, and universities, making efficient transport solutions essential.

A shift towards active transport, e-mobility, and public transport could substantially reduce reliance on private vehicles and improve urban mobility. RACQ's own research and insights reveal that those who use mobility devices are doing so more frequently. The 2025 Two Wheel Survey of e-scooter and e-bike riders showed 92% of respondents use a device once or more a week³ a surge from 38% only 3 years ago. This can be attributed to e-mobility providing an affordable and viable option for an increasing number of Queenslanders, particularly those that live in urban areas within relative proximity to their place of work or education.⁴

Further, a comparison of 2023 and 2025 surveys found a 5% year-over-year increase in Queenslanders using e-scooters. While younger males remain the predominant users, the demographic is expanding, with adoption among those aged 35+ increasing from 43% in 2023 to 70% in 2025. This trend suggests e-mobility is becoming widely recognised for its benefits and is increasingly embraced across age groups. RACQ's Safer Pathways Survey⁵ also reinforces the importance of high-quality pathway infrastructure to support and incentivise e-mobility and active transport and enable people of all ages and ability to safely complete their journeys.

¹ RACQ, *Annual Road Safety Survey 2024*

² World Bank, *The Case for Cycling Infrastructure Investments*

<https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099215103062536502>

³ RACQ, *Two Wheel Mobility Survey 2025*

⁴ RACQ, *E-Scooter Mobility Study 2023*

⁵ RACQ, *Safer Pathways Survey*

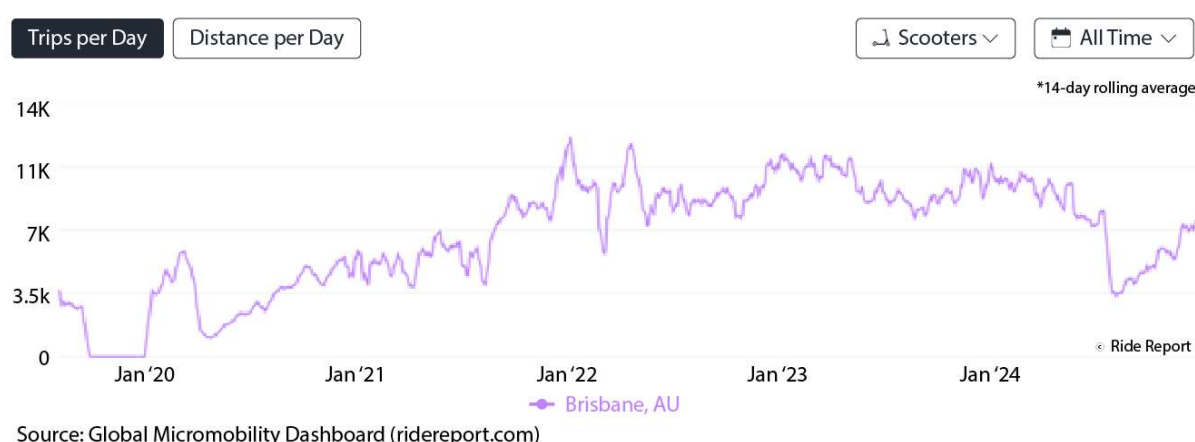
<https://www.racq.com.au/about-us/advocacy/member-and-community-surveys/saferpathways>

Specifically, the survey results have consistently shown separated pathways provide the safest, most low-stress environment for all users. Fewer than 2% of survey respondents reported safety issues when using dedicated pathways, making them the preferred option for e-mobility users.

The rapid growth of e-mobility devices presents significant challenges for urban areas, particularly in city centres and high-traffic zones. As shown in Figure 1, the daily trips for hire e-scooters in Brisbane have been trending upwards since the launch of hire schemes in 2018. Both private and hire-scheme e-scooters have gained popularity across Queensland cities and globally.

However, this surge in usage has led to rising conflicts among pedestrians, vehicles, and e-scooter riders, especially in congested areas. While the flexibility of e-mobility devices makes them a valuable part of modern transport systems, their integration into pedestrian-heavy spaces requires greater investment in pathway infrastructure and allocation. Without these improvements, conflicts will continue to increase, creating risks for all road users.

Figure 1 – snapshot of hire e-scooter trips in Brisbane ([Global Micromobility Dashboard](#))



Having quality separated pathway infrastructure enables safe, connected and accessible journeys for all users and a smart use of taxpayer revenue. The return on investment from active transport (and, by virtue, e-mobility) infrastructure is widely accepted to be in the magnitude of five times the expenditure⁶.

An analysis of Seville, Spain's protected cycle lane network, installed in 2006 for approximately €17 million, estimates a net value of €557 million and an internal rate of return exceeding 130% by 2032. Similarly, Copenhagen, Denmark's cycle superhighway network is projected to achieve an internal rate of return of up to 23%, reinforcing its economic viability.⁷ Meanwhile, Lima, Peru's cycling infrastructure plan, with an estimated implementation cost of \$313,000, is expected to generate \$5.56 million in benefits by 2050. These returns far exceed those of large road projects, which typically yield an internal rate of return between 8% and 10%, highlighting the economic advantage of investing in cycling infrastructure.⁸

E-mobility is also becoming popular in regional Queensland. RACQ's Two Wheel Survey has shown e-scooter use in rural areas has increased from 2.8% in 2022 to 22.5% in 2025⁹. This increase in usage highlights the viability of e-mobility devices to compete with private vehicle travel in areas where public transport is not always readily available.

⁶ Department of Transport and Main Roads, *Cycling Investment in Queensland*
<https://www.tmr.qld.gov.au/Travel-and-transport/Cycling/Cycling-investment-in-Queensland#why>

⁷ Jeppe Rich, Anders Fjendbo Jensen, Ninette Pilegaard, Martin Hallberg, *Cost-benefit of bicycle infrastructure with e-bikes and cycle superhighways*
<https://www.sciencedirect.com/science/article/abs/pii/S2213624X21000353>

⁸ Hyewon Shin & Euijune Kim, *Meta-analysis of rate of return on road projects*
<https://www.sciencedirect.com/org/science/article/abs/pii/S1942786722003216>

⁹ RACQ, *Two Wheel Mobility Study 2025*

This result is further reflected by RACQ's Public Transport survey¹⁰, which showed regular e-scooter usage in Townsville (17.5% of respondents) was proportionally higher than other major population areas outside Brisbane. The affordable use of devices can make everyday trips more attractive than traditional public transport or private vehicle journeys. In 2024, the cost per passenger trip to run government-contracted passenger transport services in Queensland was \$19.21¹¹. In comparison, the average cost of a hire scheme's e-scooter trip is between \$2 to \$5, depending on trip length (\$1 unlocking fee, plus ~\$0.40 per minute).

The challenge for Governments at all levels is to preserve (or even enhance) these benefits so e-mobility continues to make a valuable contribution to the network while introducing new measures that ensure devices are being used in a safe and sustainable way.

Recommendations:

1. The Committee should acknowledge the importance and benefits of legal e-mobility and active transport to the whole community, particularly among seniors who can prolong their riding and remain physically active with e-bikes.
2. All levels of government should further embed e-mobility into long term infrastructure planning.
3. The Queensland Government should commit to greater investment and delivery of high quality, connected and accessible pathway networks.



¹⁰ RACQ, *Public Transport Survey 2023*

<https://www.racq.com.au/-/media/project/racqgroup/racq/pdf/advocacy/member-and-community-surveys/public-transport-survey-2023---fy23.pdf?rev=bd2d7114aee14982bab3cd2b98b9713f&hash=E53AC350F754CC91FB543D0F83D9D249>

¹¹ Statista Research Department, *Cost of administering statewide public transport services per passenger trip in Queensland, Australia from 2022 to 2024*

<https://www.statista.com/statistics/1472972/australia-queensland-cost-of-administering-statewide-public-transport/>

TERM OF REFERENCE 2

Safety issues associated with e-mobility use, including increasing crashes, injuries, fatalities, and community concerns.

RACQ has identified significant safety concerns surrounding e-mobility, which fall into two key categories: legal and illegal devices. To address these challenges effectively, we propose a range of solutions tailored to each. For legal e-mobility devices, we advocate for targeted adjustments rather than a complete overhaul of existing regulations. Strengthening education and refining rules can enhance safety and ensure the benefits outweigh the risks.

However, illegal devices used on roads pose an unacceptable threat, greatly increasing the risk of severe injury or death. RACQ is concerned about the lack of enforcement needed to remove high-powered electric motorbikes from footpaths and roads—vehicles that endanger all road users. Another critical issue is the tampering of legally purchased e-scooters to reach illegal speeds, further compromising rider safety and public well-being.

The safety risks associated with both legal and illegal e-mobility devices stem from four key factors:

- Excessive travel speeds, particularly among illegally modified or high-powered two-wheel vehicles, which increase crash risk and severity.
- Interaction with vulnerable road users, such as pedestrians.
- Interaction with larger vehicles, including cars, trucks, and buses.
- Minimal protection in the event of a crash, aside from a helmet (if worn as required by law).

Additionally, these risks vary depending on vehicle design. Stand-up e-scooters are inherently more hazardous, whereas legal e-bikes (or power-assisted bicycles) present safety risks comparable to traditional bicycles. Therefore, RACQ offers no recommendations specifically addressing legal e-bikes.

However, illegal e-devices—including e-bikes and e-scooters that exceed the 25km speed limit—are significantly more dangerous, with an increased likelihood of crashes and severe consequences. RACQ remains committed to advocating for stronger enforcement, practical solutions, and public awareness to make e-mobility safer for everyone.

Injuries

In 2024, eight people lost their lives while riding e-mobility devices in Queensland. As of 8 June 2025, there have been three fatalities this year. Beyond these tragic deaths, non-fatal crashes and injuries have surged, particularly since the introduction of e-scooter hire schemes in Brisbane in 2018. As an early adopter of e-scooters, Queensland initially had minimal regulation, leading to a rapid increase in crash rates, especially as privately-owned devices became more common.

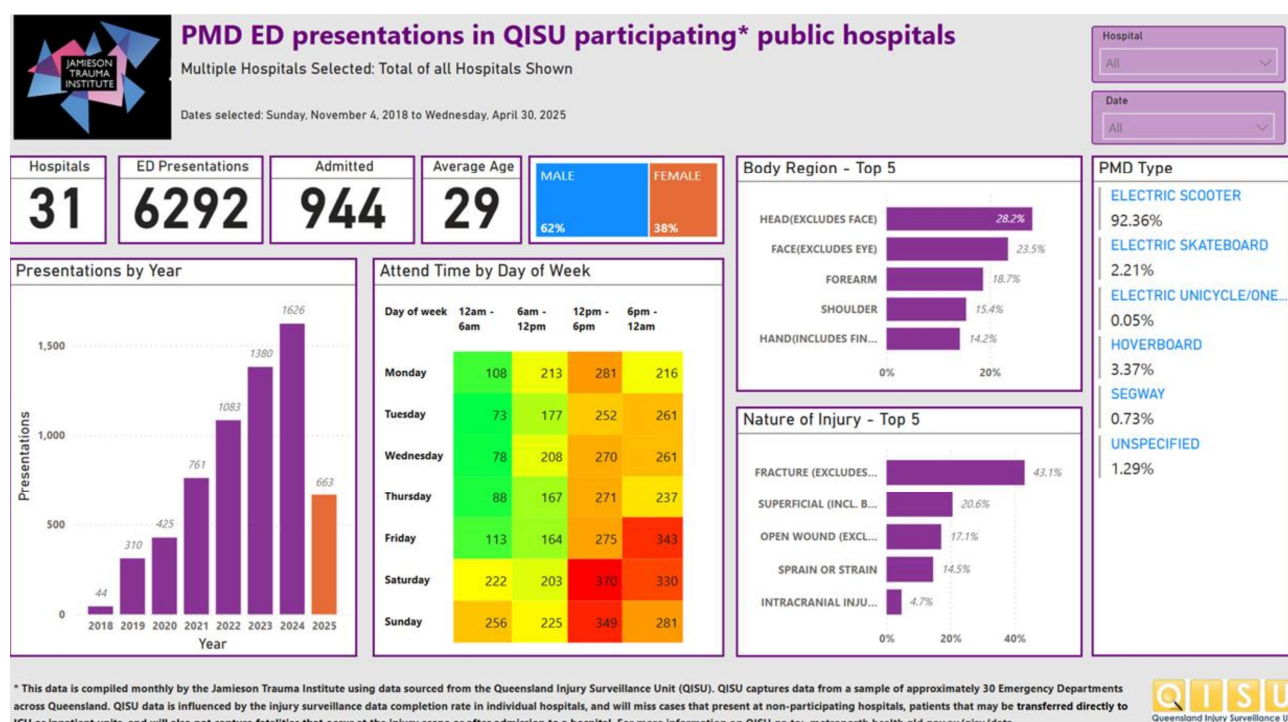
Many e-mobility crashes go unreported, particularly single-vehicle incidents, and therefore rarely appear in official crash statistics from the Department of Transport and Main Roads. Recognising the need for better data, RACQ partnered with the Royal Brisbane and Women's Hospital Foundation in 2022 to fund the Jamieson Trauma Institute in collecting and reporting e-mobility crash data—most of which involves e-scooters. This partnership has helped fund key research and the development of the e-personal mobility device dashboard, which is now used by several government stakeholders and researchers.

As shown below, between 4 November 2018, and 30 April 2025 (just under six and a half years of data), the JTI captured 6,292 Emergency Department (ED) presentations across 31 participating hospitals. On average nearly one in seven (6.6) ED presentations resulted in hospital admissions due to serious injury.

In November 2024, RACQ, RBWH Foundation, and the Jamieson Trauma Institute (JTI) publicly revealed two concerning findings from their research:

- More than one-third of private e-scooter riders admitted to traveling at speeds exceeding 25km per hour before their emergency room visit.
- Over half (58%) of emergency department presentations were classified as second-highest urgency, indicating serious injuries.

Figure 2: E-mobility (personal mobility device - PMD) Emergency Department presentations in Queensland hospitals - 4 November 2018, and 30 April 2025



RACQ has advocated for stronger safety reforms to address the life-altering facial and head injuries suffered by both private and hired e-scooter riders. The data highlights that privately owned e-scooter riders are more likely to speed—and sustain more severe injuries in crashes.

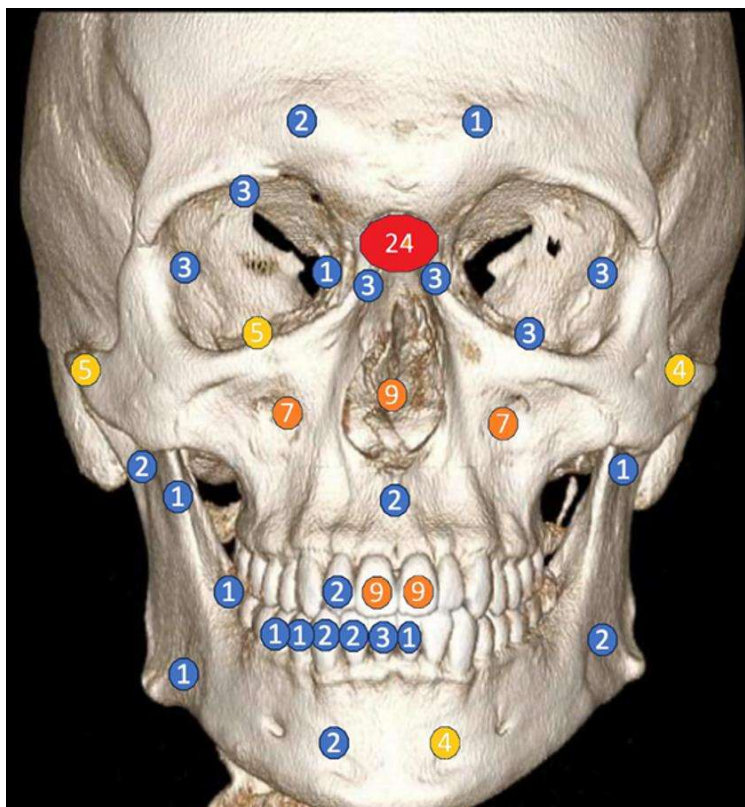
Interviews with patients across five major emergency departments—Royal Brisbane and Women’s Hospital, Princess Alexandra Hospital, Townsville Hospital, Gold Coast University Hospital, and Robina Hospital—revealed that 64% of injured riders were using privately owned e-scooters, compared to 36% on hired devices, mirroring the rising e-scooter ownership in Queensland.

The study also raises concerns about helmet adequacy, as 65% of injured riders reported wearing a helmet at the time of their crash. This suggests that standard open-face bicycle helmets may not provide sufficient protection against facial injuries.

The design of stand-up e-scooters further increases facial injury risks. Basic physics dictates that riders are more likely to fall forward over the handlebars if their scooter suddenly stops or collides with an obstacle. This often results in severe facial trauma upon impact with roads, footpaths, cars, or other hard surfaces.

Figure 3 represents a smaller-scale study of patients who had facial scans after presenting to a Brisbane hospital emergency department following an e-scooter collision. CT scans covered significant head, face or neck trauma. The numbers on the image represent the number of fractures at a specific site of the skull from the sample analysed.

Figure 3. Head, face and neck injury (fracture) patterns for electric scooter collisions identified on computed tomography scanning.



Source: Head, face and neck injury patterns for electric scooter accidents identified on computed tomography scanning: Does legislative change enforcing safer riding practices have an impact on morbidity for significant head, face and neck trauma? Published in October by [Nicholas Watson](#), [Brett Droder](#), [Gary Mitchell](#), [Craig Hacking](#). The results were from data obtained from RBWH between 1 May 2022 and 30 April 2023.

The same study found the following:

- Brisbane has one of the highest observed helmet usage rates globally, with up to 46% of riders wearing helmets, compared to around 2% in many other jurisdictions.
- Despite this, 14.4% (n = 64) of e-scooter crash victims sustained significant head, face, or neck injuries.
- Among facial fractures, the most common injury sites were the nasal bones, followed by dental trauma and maxilla fractures (as shown in Figure 3).
- This pattern highlights the forward momentum mechanism of e-scooter crashes, where riders are frequently injured by direct facial impact in collisions.
- 27.8% (n = 15) of cases involved complex facial fractures, often requiring maxillofacial surgery.
- Facial fractures occur more frequently in e-scooter riders than in bicycle users, reinforcing concerns about rider vulnerability and the adequacy of standard helmet protection.

In RACQ's 2025 Two Wheel Mobility Survey, e-scooter riders were asked about their use of personal safety equipment. The data revealed a significant increase in knee pad usage since 2023, while other forms of protective gear—elbow pads, eye protection, and wrist guards—have also risen.

Importantly, 74% of e-scooter users recognise that full-face helmets provide better protection, citing two key reasons:

- Greater coverage of the face in the event of a crash.
- Stronger design, built to withstand higher impacts.

Given this widespread awareness, implementing regulations for full-face helmets among stand-up e-scooter is unlikely to face strong opposition from the riding community. As previously noted, speed remains a major crash factor. Alarming, over one-third of private e-scooter riders who presented to Queensland emergency departments admitted to travelling above 25km/h at the time of the crash. This not only violates legal speed limits but also suggests that many of the vehicles involved are not compliant with existing safety regulations. E-scooter injuries are becoming a significant business cost.

The Queensland Office of Industrial Relations (OIR) Workers Compensation Regulator provided the Jamieson Trauma Institute with Workers Compensation claims data involving e-scooter-related injury, taken state-wide between December 2018 and October 2022. Researchers examined the descriptive analysis of overall claim patterns and trends and concluded:

- E-mobility is an increasingly popular way of commuting to work.
- Claims for e-scooter crashes tripled over three years (to October 2022).
- E-mobility brings implications for workplace safety policies and risk management.
- Collisions were more likely to occur during the morning commute.

Extensive research has documented the sharp rise in e-scooter crashes, along with the severity of injuries, the strain on trauma care systems, and the broader societal impacts. The findings make it clear: e-scooter use poses a serious community safety challenge that requires urgent intervention from the Queensland Government to enhance regulations and improve public safety.

Stability

Stand-up e-scooters naturally have lower stability and are highly sensitive to road and path surface conditions. These vulnerabilities become even more pronounced at higher speeds, increasing the risk of loss of control and crashes.

The design of stand-up e-scooters creates a high centre of gravity, as the rider's body mass sits above the handlebars on most models. This, combined with a small-diameter front wheel, results in a low pivot point, increasing the likelihood of losing control. If a rider brakes suddenly or the scooter strikes an obstacle—such as a tree root, pavement crack, pothole, or curb—the risk of being thrown over the handlebars is significantly heightened.

Crash injury data from the RBWH Foundation, Jamieson Trauma Institute, and RACQ collaboration confirms this effect, showing high rates of upper limb, head, and facial injuries among e-scooter riders. To further investigate the safety risks associated with e-scooter design, RACQ, in collaboration with QUT, is conducting tests comparing the forces experienced by stand-up e-scooters, sit-down models, and devices with larger front wheels.

RACQ argues that riders of private stand-up e-scooters should be required to wear a full-face helmet that provides greater protection to the forehead, nose, jaw and teeth. Understanding the need for full face helmets on stand-up e-scooters to avoid face and full-frontal head injuries can be determined from the following social media post which RACQ produced with support of our colleagues at the Japan Automobile Federation (JAF). JAF conducted testing under different speed scenarios (including what are legal speeds for e-scooters in Queensland) to highlight the dangers of stand-up e-scooter crashes. The video can be viewed here: <https://www.youtube.com/watch?v=K2-Ainm1Auo>

Figure 4: Japanese Automobile Federation – stand up e-scooter crash test dummy



A likely argument against mandating full-face helmets for e-scooter riders is that motorcycle riders are not required to wear them. However, motorcycles are sit-down vehicles, whereas stand-up e-scooters present a unique risk, with the rider's weight positioned above the handlebars—making them more prone to face-first falls in accidents. Additionally, motorcycles are registered vehicles covered by Compulsory Third Party Insurance, meaning their riders contribute financially to injury-related costs, unlike e-scooter users.

RACQ believes all hire e-scooters should be sit-down versions to reduce traumatic and often life-changing head and facial injuries. Manufacture Varla notes sit-down e-scooters ([Sit-Down Electric Scooters Ensure a Stable Ride - Varla Scooter](#)) as being 50% more stable than stand-up designs, and therefore less likely to crash. This increased stability on sit-down e-scooter devices is also supported by manufacturer iENYRID (<https://ienyrid.com/blogs/blogs/everything-you-want-to-know-about-the-sit-down-electric-scooter>). Sit-down e-scooters are also more accessible for people with disabilities or reduced physical capability.

Hire schemes already provide sit down e-scooters. Neuron released its new N4 sit down e-scooter in Brisbane in May 2025¹². The seated N4 e-scooter according to Neuron 'includes a padded seat, a shorter handlebar stem, and a lower centre of gravity to provide better ergonomics, greater stability, and a smoother, more enjoyable ride — especially on longer trips.'

¹² Neuron, *Neuron launches seated e-scooter in Brisbane to improve accessibility*
<https://www.rideneuron.com/neuron-launches-seated-e-scooter-in-brisbane-to-improve-accessibility/#:~:text=The%20first%20of%20up%20to%20500%20of%20our,N4%20is%20enhanced%20to%20improve%20comfort%20and%20accessibility>

Figure 5: Neuron N4 sit down e-scooter introduced into Brisbane



RACQ's 2025 Two Wheel Mobility Survey asked e-scooter users to self-report whether they had been involved in a crash while using the devices. 39% of e-scooter users reported that they had been involved in a crash while riding, and one quarter said that they had been involved in an e-scooter crash more than once. Almost half (48%) of users involved in an e-scooter crash reported simply losing balance/falling off.

RACQ is currently conducting a research project, in collaboration with the Queensland University of Technology, testing the stability of different e-scooter devices. The study will examine the extent to which riders of stand-up e-scooters are more susceptible to rotational forces propelling them over the handles more easily than sit-down e-scooter models. Once the project is complete, RACQ would welcome the opportunity to provide the results to the Committee.



Parking

The lack of a co-ordinated and orderly plan for e-scooter parking has also imposed an added risk to pedestrians. The option for 'drop and go' parking has clearly contributed to the popularity of hire scheme devices providing great flexibility. However, sporadically and improperly parked e-scooters are shown to clutter urban environments, impede access to services and infrastructure, and create significant hazards for other path users, particularly those most vulnerable with mobility or vision impairment. With limited regulation and a lack of global best-practice, e-scooter parking presents a significant challenge for planners and local authorities.

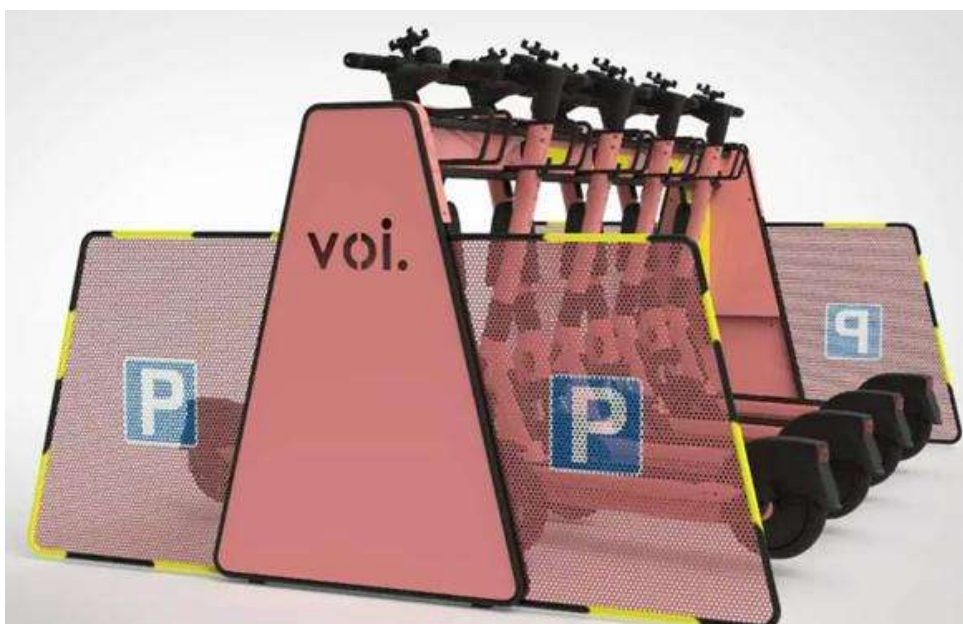
RACQ proposes the implementation of a regulated parking system for hire-scheme e-mobility devices in city CBDs and busy urban areas to enhance safety and convenience. Our proposal aims to establish dedicated parking locations for hired e-scooters, ensuring they are stored in an orderly manner without obstructing pedestrian pathways or creating hazards.

To achieve this, RACQ recommends the following measures:

- Physical barrier e-scooter parking racks should be installed in high-traffic urban areas to improve safety and accessibility.
- State and local governments, along with industry partners, should co-fund the deployment of low-cost barrier parking racks for hire-scheme e-scooters.
- Parking decals introduced to serve as a transitional solution or be used in locations where the risk of trip hazards is minimal.
- Existing geofencing technology should remain in use and be integrated with physical parking solutions as they evolve beyond the proof-of-concept stage.

This approach ensures that hired e-scooters are parked safely and efficiently, reducing clutter and improving accessibility in high-demand areas.

Figure 6 - Preferred standard of dedicated parking for hire e-scooters – example of high visibility VOI e-scooter parking racks (UK Tech News, 2021)



Recommendations:

4. The Queensland Government should require all stand-up e-scooter riders to wear full-face helmets to protect against facial injuries if they crash.
5. The Queensland Government should require all hire e-scooter devices to have a seat which the rider must use.
6. The Queensland Government should enforce the seating and helmet requirements.
7. The Queensland Government should enforce existing device requirements and speed limits.
8. Local governments with hire schemes should require and support geofenced, dedicated parking in CBDs and busy urban areas once the technology is proven effective.



TERM OF REFERENCE 3

Issues associated with e-mobility ownership, such as risk of fire, storage and disposal of lithium batteries used in e-mobility, and any consideration of mitigants or controls

There is a very low risk of fire and thermal runaway related to lithium-ion batteries if owners follow proper precautions. Notwithstanding, lithium-ion battery fires burn at much higher temperatures than a standard house fire and resulting toxic smoke inhalation can be fatal.

Fire departments worldwide are reporting an increase in fires involving personal devices. As these fires typically occur at the owner's home, the risk of extensive damage and injury is great. Some of the main issues which lead to these fires are:

- Tampering with the battery
- Aftermarket low quality batteries and chargers
- Overloading of electrical circuits
- Aftermarket chargers and batteries with incorrect power ratings and lacking battery management systems
- Worn or damaged plugs and connectors
- Leaving the battery charging unattended overnight
- Water ingress into the battery pack
- Physical damage to the battery pack.

Greater education and awareness campaigns should be focussed on the following advice:

- Never leave charging devices unattended
- Never use an aftermarket charger that is not specifically designed for the device
- Never use cheap batteries that do not match the original OEM ratings or Australian standards
- Never charge a damaged battery
- Never charge a battery that has been submerged or has possible water ingress
- Never charge a device that has worn or damaged electric connections
- Where to charge devices so they are not blocking the exit to a property if a fire does occur.

In NSW, new requirements for devices and their lithium-ion batteries are now 'declared electrical articles' under the Gas and Electricity (Consumer Safety) Act 2017, meaning these products need to comply with the prescribed safety standards before they can be sold. These requirements have been introduced to ensure that only safe and compliant products are available in the market, reducing the risk of fires.

¹³A recent study in the United Kingdom found there was a *"clear correlation between the price-per-unit-of-energy of personal light electric vehicle batteries and the safety outcomes"*, with tests showing that *"PLEV batteries with a higher price-per-unit-of-energy, which had better designed safety circuits, more sophisticated electronics and were better manufactured, successfully prevented thermal runaway by a combination of passive and active protection systems"*.

RACQ would support the Federal Government raising safety import requirements on devices and their lithium-ion batteries to a higher standard (as per NSW standards) will help address these issues and lessen the risk of fire for Australian consumers.

¹³UK Office for Product and Safety Standards, *Personal Light Electric Vehicle (PLEV) Battery Safety Research*
<https://www.gov.uk/government/publications/personal-light-electric-vehicle-plev-battery-safety-research>

Recommendations:

9. The Queensland Government should lead greater education to owners on the fire dangers of devices and how to correctly and safely charge and store these devices to reduce the incidence of fires.
10. The Queensland Government should match the newly adopted NSW requirements and raise the prescribed safety standards of e-mobility devices batteries before they can be sold.



TERM OF REFERENCE 4

Suitability of current regulatory frameworks for PMDs and e-bikes, informed by approaches in Australia and internationally

Existing legislation and regulations in Queensland largely sufficiently define and regulate the use of personal mobility devices and e-bikes, particularly as they relate to speed limits and age limits. According to RACQ's 2025 Two Wheel Survey, 78% of e-scooter users believe that 16 years is the most suitable minimum age for riding an e-scooter.

The key issue is enforcement of these rules and regulations especially those related to illegal e-scooters and e-bikes. Non-street legal e-scooters and e-bikes, that do not comply with the e-personal mobility devices regulations, are unregistered and uninsured motorcycles or mopeds being ridden illegally on Queensland's paths and roads.

Appendix 1 provides a summary of the relevant sections of Queensland legislation and regulations that make:

- e-Personal Mobility Devices (PMDs) a type of vehicle provided they comply with dimensions and weight specifications;
- e-PMDs a type of motorcycle if they are too large to meet requirements for being called an e-PMD;
- e-bikes or "power-assisted bicycles" a type of bicycle; and
- e-bikes or "power-assisted bicycles" a type of moped or motorcycle/motor vehicle (which require registration to be used in public places) if they exceed/deviate from the requirements.

Therefore, under current Queensland law, any e-scooter or e-bike/power-assisted bicycle that exceeds size or power limits or is powered by something other than a compliant electric motor, is legally classified as a motorcycle. Motorcycles (including mopeds) are required to be registered, be Australian Design Rules compliant and have Compulsory Third Party (CTP) insurance if used on Queensland roads. Riders must hold valid licences for the class of vehicle they are riding.

Over-powered e-bikes can be classified as compliant or non-compliant motorbikes, depending on whether they meet safety and vehicle standards—such as having lights, indicators, and mirrors. This is similar to petrol-powered motorbikes, which may either be unregistered for farm/off-road use or fully equipped to meet road regulations and be legally registered. Due to these varying classifications, federal agencies would face significant challenges in controlling the importation of non-compliant road device.

Figure 7: Different types of street legal e-motorbikes on the market





Source: <https://www.scootercentral.com.au/new-scooters/vespa/vespa-elettrica/>

Under the Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2021 in Queensland, authorised officers—such as police officers or transport inspectors—have the power to issue defect notices on light vehicles. These notices may also include specific conditions regarding the use or non-use of the vehicle.

In Queensland, if a vehicle is found to be defective—whether due to non-compliance with vehicle standards, an unlawful modification, or safety concerns—the owner may receive a defect notice and/or an on-the-spot fine. Depending on how unsafe the vehicle is, the police officer or transport inspector will determine if the vehicle is allowed to be driven before the defect notice is cleared.

If the officer or inspector considers the defective vehicle to be:

- dangerous, it can be ordered off the road immediately. This means the owner cannot drive the vehicle away from where they were stopped—a tow truck or trailer may be needed to move the vehicle
- not dangerous, the owner may be allowed to drive it to a specified location—like their home or a repair shop.

Furthermore, in Queensland, driving or riding an unregistered, uninsured vehicle—including mopeds and motorcycles—or operating a modified vehicle that fails to meet safety standards is classified as a Type 2 hooning offence. For a first-time Type 2 offence, the vehicle is not immediately impounded or immobilised. However, for subsequent violations, authorities can impound or immobilise the vehicle, reinforcing the seriousness of compliance with road safety regulations.

As stated by the Queensland Government (at [Hooning | Your rights, crime and the law | Queensland Government](#)):

“for the:

- *second offence, the vehicle will impoundment or immobilised for 7 days*
- *third offence, the vehicle will impoundment or immobilised for 90 days*
- *fourth offence, the vehicle will be impounded and may be confiscated at the end of any legal proceedings against you.”*

To be legally registered in Queensland, motor vehicles must meet strict compliance requirements, primarily aligned with Australian Design Rules. Some e-motorcycles meet these standards and can be classified as either mopeds or motorcycles, depending on their top speed specifications. These vehicles must adhere to regulations governing braking systems, instrumentation, lighting, mirrors, and horns.

RACQ advocates for legislation that clearly establishes that any motorcycle—whether electric or petrol-powered—that fails to meet minimum safety standards and remains unregistered or uninsured should be issued with a defective vehicle notice and impounded. If the vehicle is later modified to comply with safety requirements, registered, and properly insured, it should then be permitted for legal road use.

Furthermore, RACQ urges the Queensland Government to shift public understanding of non-compliant e-devices by correctly identifying them as unregistered, uninsured motorcycles—often ridden by unlicensed individuals, including those under 16 years old, who are too young to obtain even a learner’s licence in Queensland.

RACQ members do not wish to share the road with riders operating illegally on unregistered and uninsured motorcycles or mopeds. RACQ fully supports the Queensland Police Service and the Department of Transport and Main Roads in enforcing registration laws and removing non-compliant vehicles from public roads.

The Netherlands Government has announced a ban on e-bike and ‘fat bike’ performance modifications. The reforms give authorities the power to fine people and impound illegal devices. To identify illegal modifications, officials will use a portable motorcycle dynamometer, allowing precise testing of vehicle power and speed capabilities. Once an e-scooter or e-bike is confirmed to be exceeding legal speed limits, it is officially classified as a non-street-legal vehicle, due to its failure to meet compliance requirements.

Figure 8 Dutch Police checking maximum speed of an electric fat bike in 2024



<https://www.politie.nl/binaries/content/gallery/politie/stockfotos-beeldredactie/2024---beeldredactie/2024-02-06-rollerbank-fatbike-pm/2024-rollerbank-fatbike001.jpg><https://nltimes.nl/2024/03/29/dutch-cabinet-announces-ban-e-bike-fatbike-performance-modifications>Source: Dutch Cabinet announces ban on e-bike & fatbike performance modifications | NL Times Credit: Politie / Politie - License: All Rights Reserved

Recommendations:

11. The Queensland Government should update all communication to focus on 'non-street' legal devices being considered as unregistered, uninsured illegal motorcycles.
12. The Queensland Government should significantly increase the use of existing enforcement laws relating to defective vehicles, unregistered, uninsured motorcycles on Queensland roads and road-related areas.
13. The Queensland Government should significantly increase enforcement of unlicensed riding of motorcycles (registered and insured or otherwise) on Queensland roads and road-related areas.



TERM OF REFERENCE 5

Effectiveness of current enforcement approaches and powers to address dangerous riding behaviours and the use of illegal devices

RACQ believes there is generally insufficient police presence to enforce all Queensland road rules for all road user groups. Earlier this year, RACQ wrote to both the Minister for Transport and Main Roads and Police Minister calling for more enforcement as well as reforms to address extreme road user behaviour in Queensland.

RACQ offers the following two key comments regarding enforcement and e-mobility in Queensland:

- Current police enforcement activities, when they have occurred, have been effective; and
- In expanding enforcement, police do not always need to carry out all activities.

Transport Inspectors have existing powers on defective vehicles and can be used to remove illegal devices and vehicles from the road and path network¹⁴. Given that non-compliant devices and e-bikes are unregistered and uninsured motor vehicles (as previously discussed in Terms of Reference 4), Transport Inspectors can enforce the impoundment of defective vehicles including illegal two devices.

RACQ's members do not accept illegal, unroadworthy cars, trucks, buses that are not registered or insured and should not be expected to share the road or the path with any other type of vehicle or device that falls short of requirements. Enforcement blitzes as well as issuing defective notices and impounding illegal vehicles or devices would have an immediate impact in highlighting this issue to the public and potentially remove a large number of dangerous hazards from our network.

RACQ has observed that many e-scooter offences involve the illegal use of legal devices, such as riding without helmets, carrying passengers (doubling), or operating under the influence of alcohol or drugs. To improve compliance within hire schemes, Artificial Intelligence (AI) cameras offer tremendous potential. Since hired e-scooters have unique identifiers linked to registered users with financial details, AI-powered enforcement could streamline monitoring and accountability. AI, with its ability to learn from data, perform complex tasks, and make informed decisions, could be integrated with device-based identification (such as displayed numbers or RFID tags) to enhance enforcement.

An AI-enabled system could:

- Identify the specific hire scheme device involved in an offence
- Detect the nature of the violation (e.g., speeding, helmet non-compliance, unlawful riding)
- Issue fines directly to the hire scheme operator for enforcement

RACQ acknowledges that public concerns exist regarding AI-powered enforcement, including among some of its own members. Ideally, traditional enforcement methods would be sufficient, but the scale of lawlessness on Queensland's roads and paths demands urgent action. Without exploring advanced solutions, the risk of avoidable e-scooter injuries and fatalities will continue to grow. Globally, AI is transforming enforcement, with the ability to process vast amounts of data in real-time, improving accuracy and response efficiency. AI camera systems can now be trained to detect specific actions—such as rider behaviour—and pinpoint locations tied to unique devices.

For hire schemes, radio-frequency identification (RFID) technology could help identify and track e-scooter devices. This approach would enable enforcement of speeding, helmet violations, and other offences. With human review, AI-detected offences could be verified, and fines accurately issued. A practical enforcement model could charge hire scheme operators with a new offence: "Allowing a device to be used in an unlawful way", referencing specific violations (e.g., riding without a helmet, running a stop sign). Operators could then recover fines from users via their accounts, using updated terms of service.

¹⁴Transport Operations (Road Use Management Act) 1995 gives various powers to "Authorised Officers". It describes who Authorised Officers are (which include all police officers) at section 20, and at section 31 gives them the power to stop private vehicles. They get the power to stop heavy vehicles at section 32. They can stop a private vehicle at checkpoints etc. or even "if the officer reasonably believes the vehicle does not comply with a transport Act;"

While implementing AI enforcement would require upgrading CCTV or monitoring cameras with new software, many local governments are already embracing 'smart' technology. The benefits of investing in AI-enhanced enforcement far outweigh the costs, as these solutions could be adopted in cities worldwide to improve road safety and compliance.

Recommendations:

14. The Queensland Government should increase the police-led road-rule and vehicle safety enforcement approaches, including targeted enforcement blitzes with tougher enforcement and impounding of illegal e-mobility devices (which are under the law illegal motorbikes).
15. The Queensland Government should expand enforcement of vehicle requirements through Department of Transport and Main Roads Transport Inspectors.
16. The Queensland Government should engage with industry and key stakeholders to investigate the potential of technology-led solutions, such as Artificial Intelligence, to enhance enforcement of the lawful use of hire e-mobility devices.



TERM OF REFERENCE 6

Gaps between Commonwealth and Queensland laws that allow illegal devices to be imported and used. Federal laws in Australia do not require import permits for e-bikes and e-scooters, though they may be subject to advisory notices. Importers can apply for these notices through ROVER, the government's online portal, to confirm that an e-bike or e-scooter is not classified as a road vehicle. These notices, which cost \$55 each, help facilitate customs clearance.

Currently, no national vehicle standards govern the importation of e-bikes and e-scooters. High-powered, non-compliant devices can be imported under the premise that they will only be used off-road, but many are later modified for illegal on-road use. RACQ is concerned that legally imported e-scooters and e-bikes are being tampered with to exceed speed limits, making them dangerous on roads and footpaths.

Owners can easily unlock their devices to increase speed and power, often using easily accessible online instructions that effectively guide them in breaking the law. In Queensland, the maximum legal speed is 25km/h for e-scooters and power-assisted e-bikes. However, research from the Jamieson Trauma Institute has found that many riders modify their devices beyond these limits, frequently resulting in serious head and facial injuries. RACQ is aware of cases where e-scooters have been altered to reach speeds over 90km/h.

To mitigate these risks, federal regulations should introduce fixed maximum speed restrictions for all e-bikes and e-scooters intended for pathway use. However, RACQ acknowledges that no global speed restriction standard currently exists.

Rather than banning non-street-legal devices, RACQ supports restrictions on their importation, recognising that some off-road applications, such as primary production, may be valid. Instead of prohibiting imports outright, RACQ recommends that only licensed motor dealers with proper accreditation and training be allowed to import these devices, helping to ensure they remain for off-road use only - similar to how off-road dirt bikes are permitted for import but cannot be registered for public road use.

Additionally, while non-compliant e-bikes may have legitimate uses on farms and private properties, they are widely sold across Queensland, raising safety concerns. RACQ suggests requiring any retailer selling high-powered e-mobility devices to hold a motor dealer's licence, just as motorcycle retailers are required to do.

Recommendation:

17. The Queensland Government should consider requiring any party selling new higher-powered e-mobility devices (not legal for road use) to hold a motor dealers' licence.



Communication and education about device requirements, rules, and consequences for unsafe use

Education plays a vital role in fostering a safer road and path-use culture for e-mobility. Despite extensive efforts from various stakeholders, Queensland has yet to achieve the desired safety outcomes. RACQ attributes part of the issue to a lack of awareness or disregard for existing rules, regulations, and safety guidelines among e-mobility device owners.

RACQ supports ongoing education initiatives aimed at improving rider behaviour and informed device selection. Community engagement and education will be key in ensuring effective adoption of the necessary regulatory and enforcement measures recommended in this submission. To reinforce these efforts, RACQ supports high-profile awareness campaigns to be rolled out before enforcement blitzes targeting illegal e-mobility devices—classified under the law as illegal motorbikes—which would then be impounded.

These awareness campaigns should focus on three key messages:

- Illegal, over-powered e-devices are classified as illegal motorbikes under Queensland law. If RACQ's recommendations are accepted, unregistered and uninsured illegal motorbikes will be impounded.
- Parents permitting children under 16 to ride e-scooters are enabling illegal activity, putting their child at serious risk of injury.
- Riders of stand-up e-scooters should wear a full-face helmet for better protection. If RACQ's recommendations are enacted, not wearing a full-face helmet on a stand-up e-scooter would become illegal.

Through stronger education, awareness, and enforcement, RACQ believes Queensland will enhance public understanding, improve compliance, and ultimately reduce e-mobility-related injuries and fatalities.

Recommendations:

18. The Queensland Government should develop and launch awareness campaigns leading to tougher enforcement and impoundment through the issuing of defective vehicle notices. Campaigns could be run in partnership with local governments.
19. The Queensland Government and local governments should continue to educate road users about road rules and device requirements.
20. The Queensland Government should lead a public education campaign on any changes regarding road rule and device requirements as they are made.
21. The Queensland Government should proactively engage with retailers, industry, agencies and other stakeholders to ensure the legal and appropriate use of e-mobility devices is effectively promoted user groups.



TERM OF REFERENCE 8

Broad stakeholder perspectives, including from community members, road user groups, disability advocates, health and trauma experts, academia, the e-mobility industry, and all levels of government

RACQ has more than 1.7 million members making it the state's largest mutual. RACQ supports and advocates for Queenslanders with their mobility and transport needs, in their communities and homes. RACQ is committed to policies and initiatives to better manage population growth and congestion, improve our road and path network, support a cleaner and greener mobility ecosystem and foster safer communities and sustainable economic growth.

RACQ members walk, drive, scoot, and ride a range of two-wheel motor and bicycles. RACQ's submission seeks to address the diversity of our members needs and views. Our ongoing surveys of members show support for a range of transport modes, acknowledging the benefits to both transport movement and place/neighbourhoods.

When we engaged our members (and Queenslanders) on the kinds of legacies the 2032 Games should leave behind, improvements to local neighbourhood connections resonated strongly with respondents as well as creating vibrant walkable high-quality public spaces for the Games and beyond.

The Committee should also consider the impact and costs of e-mobility-related crashes on Queensland's health system. Based Jamieson Trauma Institute data, the average cost of an emergency department presentation in Queensland, across the three most recent reported years (2018-19 to 2020-21) of data was \$711. This means that the cost to Queensland, for e-PMD-related presentations recorded at 31 emergency departments between November 2018 and April 2025 (n=6,292) is \$4,473,612. The figure equates to an average monthly cost to the emergency departments in 2025 of \$117,848.

This does not represent the total cost of e-PMD crashes as many injuries include additional costs beyond initial treatment. Research by Droder et al. (2025)¹⁵ shows that e-scooter-related Worker's Compensation Claims in Queensland, from 2019 – November 2024 incurred a total cost of \$17,875,267.90, with an overall average of \$16,581.88 per claim.

With 43% of all e-PMD crash emergency department admissions recorded so far in Queensland involving a fracture (n= 2,711), we estimate that these injuries could incur a cost similar to the Average Workcover Claim. This would mean a cost to Queensland of more than \$45 million.

RACQ estimates a total cost of e-PMD injury crashes are more than \$50 million already and climbing each week. RACQ recommends that the Queensland Government undertake a detailed study which quantifies the true cost of e-mobility crashes in Queensland.

Recommendations:

22. The Committee, and in turn the Queensland Parliament, should recognise the diversity of mobility preferences and needs among Queensland communities and continue to work on supporting an ecosystem that enables different options while improving safety for all road and pathway users.
23. The Queensland Government should undertake a detailed study on the cost of all e-mobility-related crashes in Queensland.

¹⁵ Droder, Vallmuur, Stone, Bielen and Tucker, *e-Scooter-Related Workers Compensation Claims in Queensland: 2019-2024*

APPENDIX 1 – RELEVANT SECTIONS RELATING TO E-PMDs & E-BIKES IN QUEENSLAND

- “A vehicle includes— (a) a motor vehicle, trailer and tram; and (b) a bicycle; and (c) a personal mobility device; and (d) an animal-drawn vehicle, and an animal that is being ridden or drawing a vehicle; and (e) a combination; but does not include a motorised mobility device, a wheelchair, a train, a wheeled recreational device or a wheeled toy” (***Transport Operations (Road Use Management – Road Rules) Regulation 2009, section 15***).
- “For schedule 4 of the Act, definition personal mobility device, paragraph (b), a vehicle is a personal mobility device if the vehicle – (a) has 1 or more wheels; and (b) is propelled by an electric motor; and (c) is not more than – (i) 1,250mm in length by 700, in width by 1,350 in height; or (ii) 700mm in length by 1,250mm in width by 1,350mm in height; and (d) weighs 60kg or less when the vehicle is not carrying a person or other load; and (e) is none of the following— (i) a low powered toy scooter; (ii) a motorised mobility device; (iii) a vehicle with pedals” (***Transport Operations (Road Use Management – Road Rules) Regulation 2009, section 15A***).
- “(1) A rider is the person who is riding a motorbike, bicycle, personal mobility device, animal or animal-drawn vehicle. (2) A rider does not include— (a) a passenger; or (b) a person walking while pushing or pulling a bicycle or personal mobility device” (***Transport Operations (Road Use Management – Road Rules) Regulation 2009, section 17***).
- “Unless otherwise expressly stated in this regulation, a reference in this regulation (except in this division)— (a) to a driver, includes a reference to a rider; and (b) to driving, includes a reference to riding” (***Transport Operations (Road Use Management – Road Rules) Regulation 2009, section 19***).
- “moped means a motorbike that— (a) either— (i) is fitted with an electric motor; or (ii) has an internal-combustion engine with an engine capacity of not more than 50mL; and (b) has a top speed, as rated by its manufacturer, of not more than 50km/h; and (c) is not a bicycle” (***Transport Operations (Road Use Management – Driver Licensing) Regulation 2021, schedule 9***).
- “motorbike means— (a) a 2-wheeled motor vehicle, whether or not a sidecar is attached to it; and (b) a 3-wheeled motor vehicle that is ridden in the same way as a 2-wheeled motor vehicle” (***Transport Operations (Road Use Management) Act 1995, Schedule 4***).
- “motor vehicle means a vehicle propelled by a motor that forms part of the vehicle, and— (a) includes a trailer attached to the vehicle; but (b) does not include a low powered toy scooter, a motorised mobility device, a personal mobility device or a power-assisted bicycle” (***Transport Operations (Road Use Management) Act 1995, Schedule 4***).
- “scooter means a device that— (a) has 2 or more wheels and a footboard supported by the wheels; and (b) is steered by handlebars; and (c) is designed to be used by a single person; and (d) is propelled by any 1 or more of the following – (i) gravity; (ii) the user pushing 1 foot against the ground; (iii) an electric motor or motors; and (e) if it is fitted with an electric motor or motors (whether the motor or motors are part of, or attached to, the device), complies with the following requirements— (i) its maker certifies (either by means of a plate attached to the motor or each motor, or by means of engraving on the motor or each motor) the ungoverned power output of the motor, or each motor; (ii) the maximum power output of the motor, or the combined maximum power output of the motors, is not more than 200 watts; (iii) when propelled only by the motor or motors, the scooter cannot reach a speed of more than 10 km/h on level ground” (***Transport Operations (Road Use Management) Act 1995, Schedule 4***).

- “power-assisted bicycle— (a) means a vehicle— (i) described in paragraph (a) of the definition bicycle, if the vehicle has 1 or more auxiliary motors; and (ii) prescribed under a regulation to be a power-assisted bicycle; but (b) does not include a vehicle mentioned in paragraph (a)(i) prescribed under a regulation not to be a power-assisted bicycle” (***Transport Operations (Road Use Management) Act 1995, Schedule 4***).
- “Act, sch 4, definition power-assisted bicycle (1) This section prescribes, for the Act, schedule 4, definition power-assisted bicycle, vehicles that are, and vehicles that are not, power-assisted bicycles. (2) A vehicle mentioned in the Act, schedule 4, definition power-assisted bicycle, paragraph (a)(i) is a power-assisted bicycle if it— (a) is an electrically power-assisted cycle (EPAC); or (b) has 1 or more electric auxiliary motors with a maximum power output, or combined maximum power output, of not more than 200 watts. (3) A vehicle mentioned in the Act, schedule 4, definition power-assisted bicycle, paragraph (a)(i) is not a power-assisted bicycle if— (a) the vehicle has an internal-combustion engine; or (b) either or both of the following apply to the vehicle— (i) when propelled only by the motor or motors, the vehicle is capable of going faster than 6km/h; (ii) the motor or motors of the vehicle are capable of operating when the vehicle is going faster than 25km/h. (4) In this section— electrically power-assisted cycle (EPAC) has the meaning given by the Vehicle Standard (Australian Design Rule—Definitions and Vehicle Categories) 2005 (Cwlth)” (***Transport Operations (Road Use Management – Road Rules) Regulation 2009, section 353B***).