# ACRS Submission to Inquiry into E-Mobility Safety and Use in Queensland

***About the Australasian College of Road Safety***

The Australasian College of Road Safety was established in 1988 and is the region's peak organisation for road safety professionals and members of the public who are focused on saving lives and serious injuries on our roads.

The College Patron is Her Excellency the Honourable Sam Mostyn AC, Governor-General of the Commonwealth of Australia.

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## Introduction

The Australasian College of Road Safety is the region's peak membership association for road safety with a vision of eliminating death and serious injury on the road. Our members include experts from all areas of road safety including policymakers, health and transport professionals, academics, community organisations, researchers, federal, state and local government agencies, private companies and members of the public. The purpose of the College is to support our members in their efforts to eliminate serious road trauma through knowledge sharing, professional development, networking and advocacy. Our objectives include the promotion of road safety as a critical organisational objective within government, business and the community; the promotion and advocacy of policies and practices that support harm elimination; the improvement of relative safety outcomes for vulnerable demographic and user groups within the community; the promotion of post-crash policies and practices; and the promotion of a collegiate climate amongst all those with responsibilities for and working in road safety.

The College believes that we should prevent all fatal and serious injuries on our roads; the road traffic system must be made safe for all road users; system designers should aim to prevent human error and mitigate its consequences; life and health are not exchangeable for other benefits in society; and that all College policy positions must be evidence-based.

## ACRS Response to the Terms of Reference

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

There are various asserted benefits of e-mobility devices, including greater mobility choices, reduced traffic congestion, environmental benefits and for some devices (such as e-bikes), health and fitness benefits.(1) However, e-mobility devices (excluding e-bikes that still require pedalling), while presented as active transport options and solutions for 'last kilometre' travel, do not require any physical activity or action from the rider to travel. Also, the benefits of e-mobility devices in terms of reducing car use have been shown to be limited as they tend to more often replace walking or public transport.(2,3)

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

Despite the identified benefits of electric personal mobility devices, there are significant safety issues that influence the current and anticipated future usage of e-mobility solutions, including electric scooters, electric bikes and electric skateboards, as well as other electric mobility devices. The adoption and use of private and shared e-mobility presents therefore a particular challenge, not only within QLD but across Australia and internationally.

E-scooters are significantly different from pedal cycles and e-bikes, and this results in different risks and trauma outcomes. This is influenced by their smaller wheels, electric power that can be fully controlled by the throttle and the higher and further forward position of the rider's centre of gravity.

Extensive and detailed publications on micromobility provide insights into the multifaceted challenges to safely implement legislation, regulation and devices globally. Key safety issues for e-scooter riders identified by the European Transport Safety Council (ETSC) were(4):

- 20-50% of casualties attending hospital suffer head injuries
- Very few riders wore helmets
- More riders fall in single-vehicle collisions than by colliding with other road users and
- Intoxication and blood alcohol concentration is a problem

Australian research found that during the research period, alcohol use was reported by 34% of people suffering e-scooter injuries and helmet use by only 33%.(5) Data on e-scooter and e-mobility device usage is poorly recorded and underrepresents current trauma outcomes. Injury surveillance and safety outcomes require improved data standardisation and sharing nationally.

The ETSC found that the design of e-scooters places the rider at risk of falls and head injury because "loss of control when navigating defects or changes in surface level is more likely at higher speeds and results in more severe head injuries" and that "surface defects caused half of the falls in a study of e-scooter casualties".(4)

A 2023 American study found that e-mobility devices represented a 117% increase in emergency department treatments between 2017 and 2021, and that the largest share of these were for e-scooter related injuries.(6) Between 2020 and 2021 the study found that e-scooter injury treatments increased by 66% and the literature review conducted demonstrated that a large proportion of "injuries result from single-vehicle crashes and falling off on roadways, sidewalks, and bike lanes (page 4). Conflicts with motor vehicles accounted for 72% of e-scooter crashes, demonstrating the importance of safe, separate infrastructure and intersections for e-micromobility users. Helmet use was also a significant safety risk identified in this research. ACRS highlights recommendations from the Royal Australasian College of Surgeons that outline:(7)

- The need for e-mobility legislation providing nationally consistent laws to ensure the safe use of personal mobility devices while being aligned with appropriate law enforcement measures to be implemented; and
- Nationally consistent data collection is a critical system component to enable the impact of e-mobility devices to be measured consistently and accurately and to allow any emerging issues to be identified and addressed.

ACRS supports continued research into safety issues facing all e-mobility options, including e-scooters and e-bikes. Nationally consistent definitions and data would be a significant enabler of this research.

QLD is not the first jurisdiction to consider issues around e-mobility. The United Kingdom Parliamentary Advisory Council (PACTS UK), the International Transport Forum, the NSW legislative council and ETSC have produced reports and recommendations to improve e-mobility safety, especially for e-scooters and their riders.(4, 8, 9,10)

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

The QLD Road Safety Strategy 2022-31 is the strategic direction for reducing road trauma in QLD.(11) The document contains QLD Government targets to reduce road trauma which apply to all road users and industries. The Roads Minister's Foreword (Page 3) describes the plan:

> *we have developed the Queensland Road Safety Strategy 2022–2031, which pushes our thinking beyond the traditional transport sector to consider the broader health, social and cultural factors that contribute to road trauma.*

There is a range of risks that e-mobility devices pose to their users, pedestrians and other users of similar devices. The current legislative, regulatory and operating environments do not sufficiently protect these groups from the risks of experiencing trauma when using these devices or from others using these devices.

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

The adoption of e-mobility devices presents challenges for enforcement and the safety of riders and other road users. Several rideable vehicle configurations are already prohibited in QLD and cannot be registered or used on roads or road-related areas.(12) Ten years ago, petrol-powered bicycles, perhaps the forerunners to modern e-bikes, were deemed unsafe and defined as motor vehicles. They present a road safety issue, in part because of their use by disqualified drivers.(13)

E-bikes and e-scooters currently being sold and ridden are not immune from unlawful tampering and modifications which make the devices go faster. A high-profile case in the Australian Capital Territory involved a disqualified driver who rode a speed-tampered e-scooter on a path along the Majura Parkway at speeds of up to 105 km/h. The presence of illicit drugs (methamphetamine) was also a factor in the incident.(14) The use of speed-tampered e-mobility devices can undermine public support for safe e-mobility usage and take-up. Anti-tampering devices should be installed directly from the factory to minimise (and ideally negate) the ability of end-users to tamper with devices.

Where criteria for maximum weight, speed and wattage are prescribed in legislation, evidence from speed measuring devices and, in the case of wattage, mechanical examination, might be required to prove an offence beyond a reasonable doubt. Legislators could look for standards such as “e-bikes must not have a hand-throttle” which are more easily identified by the riding public, the police, and the courts.

Finally, there are competing demands for police resources. There is an opportunity cost in tasking police resources away from highway speed and alcohol enforcement, for example, to monitoring e-bike and e-scooter riding on footpaths, shared paths etc. It is best to design a system where enforcement is part of the solution, not the only solution.

## 5. Gaps between Commonwealth and Queensland laws that allow illegal devices to be imported and used

As e-mobility devices are permissible to be ridden in private off-road environments regardless of their performance requirements, Commonwealth legislation allows for the importation and sale of these devices, even if they are prohibited for use on Queensland roads. Either members of the public are unaware that the product that they are purchasing is not legal for use on Queensland roads, or they choose to disregard this knowledge and ride the devices anyway. The discrepancy between Commonwealth and Queensland law therefore allows for a large increase in the availability and use of devices that are not safe for use on our roads.

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

The current road rules describing where e-scooters can be ridden on roads are too complex. E-scooters may be ridden on streets, provided the speed limit is 50 km/h or lower, and the street doesn't have a centreline. They can be ridden on streets with a centreline, if they have bike lanes, but only if the speed limit is 50 km/h or under. They can be ridden on streets with a separated cycling facility. The placement of centrelines is not consistent on roads and this is often not a good gauge of safety.

E-scooters are likely to pose more risk to pedestrians than bicycles, and face similar risks to bicycles on roads. The rules for where they can ride on roads should be the same. This would help to address conflicts on paths. There should also be more focus on implementing lower speed limits (such as 30-40 km/h) on low-volume streets to create safer environments for shared use on roads.

### 7. Broad stakeholder perspectives, including from community members, road users groups, disability advocate, health and trauma experts, academia, the e-mobility industry, and all levels of government

The ACRS NSW Chapter hosted a public forum on 6 August 2024 to present various expert perspectives on e-mobility safety challenges and experiences. In this forum, Dr John Crozier, vascular and trauma surgeon, provided extensive insights into the types and extent of trauma that e-mobility users face, especially e-scooter riders. Dr Crozier highlighted the life-altering trauma experienced by e-scooter users involved in crashes, the most common type of which are falls from the e-scooter. In particular, he emphasised the disproportionate risk of facial (e.g., maxillofacial injuries) from e-scooter riders, which can be life-changing. He also noted that despite data collection challenges, there is an increasing trend of emergency department presentations for e-scooter-related injuries in Queensland and across Australia.

## Recommendations

The information contained in this submission and the topics covered are by no means exhaustive. Issues such as funding, battery safety, rider and point-of-sale education, insurance ramifications, importation requirements, Australian design rules, consumer law, work health and safety, and infrastructure standards are also relevant to e-mobility. This highlights the importance of a systems-based approach as decisions made with one outcome in mind can have wide-ranging consequences.

The ACRS therefore recommends:

| Recommendation | Details |
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| Apply a Safe System lens to unsafe e-scooter use | Immediate action is taken to address unsafe private and shared scheme e-scooter use at all levels of government by applying a Safe System lens. |
| Connected, separated infrastructure delivery | E-mobility devices should, as much as possible, be provided with dedicated, protected and connected infrastructure for their use. A well-connected, safe micromobility network would support transport using e-mobility devices and pedal cycles.<br>E-mobility devices should have the same restrictions as bicycles for on-road use. There is a greater need to provide 30 km/h streets in inner urban areas, and residential areas to provide safe conditions for mixing these types of devices with motor vehicles and separating them from pedestrians. |

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| | E-mobility devices should be allowed on footpaths at slow speeds, particularly where the alternative is high-speed roadways without protected bike lanes. Greater use of path centrelines should be considered as an interim measure otherwise improve safety on shared paths. NSW studies have shown centrelines encourage users to stay to the left and increase separation between users. |
| Improve micromobility-infrastructure safety through proactive programs | Micromobility users face unique risks, especially from surface defects, inadequate separation from traffic, and poorly designed intersections. Proactive models for improving infrastructure based around the application of risk models tailored to micromobility users (e.g., CycleRAP or similar tools adapted for local use) or engagement with users to identify and prioritise improvements should be adopted. |
| Anti-tampering | Tampering should be prohibited by legislation for e-mobility devices. This also requires importation legislation to be updated to ensure that devices are built and imported to Australia with anti-tampering built-in to all devices |
| Age limit of 16 years or older | There should be a minimum age limit of 16 years (or older) for e-mobility devices |
| Helmets requirements | Due to the risk of facial injuries, the use of full-face helmets should be mandated. |
| Speed limited devices | Where e-mobility users share space with pedestrians or shared zones, a 6-10km/h built-in speed limit could reduce conflicts between riders and pedestrians and provide significantly greater safety outcomes due to the impact that speed has on trauma outcomes in the event of a crash.<br>Private e-mobility devices must be speed-limited with anti-tampering devices from the factory to an absolute maximum speed of 20km/h. This speed is higher than the average speed of many pedal cyclists in urban areas and should be the maximum speed for e-scooters. |
| Drink and drug riding should be banned | These actions must be prohibited by legislation in QLD and enforceable to ensure the safety of e-mobility device users and others. |
| Rider education | Provide rider education for younger users in schools to encourage safer use of e-mobility options, encouraging helmet use and safe interactions with other road and shared path users. Existing education programs piloted in Queensland have incorporated training in risky behaviours and hazard perception skills, similar to motorcycle safety. |
| Mandatory design rules | Set universal standards for devices, including for e-scooters:<br>• maximum unladen device weight of 20kg<br>• maximum continuous rated motor power of 250W<br>• minimum wheel sizes (front 30.5cm and rear 25.5cm)<br>• independently controlled front and rear brakes<br>• front and rear lighting requirements and mandatory use at all times<br>• mandatory audible warning devices<br>• aligned technical standards when regulating devices permitted for sale on the Australian market<br>All e-mobility devices should be subject to universal design standards. |
| E-micromobility fleet operator responsibilities | Operators of e-mobility fleets should:<br>• support safe riding behaviour,<br>• implement mandatory training pre-first ride,<br>• geo-fence speed control where relevant,<br>• switch devices off if double riding and/or alcohol use is detected<br>• maintain devices in safe working condition with regular checks of and maintenance of brakes, lights and batteries, |

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| | • collect and report telematics data on speeding, acceleration/deceleration or distracted riding to provide users with post-trip feedback to promote safer riding. |
| Enforcement | QLD must retain or be equipped with the appropriate powers to police and enforce offences relating to all e-mobility devices, particularly around helmet use, phone use, and speeds.<br>Enforcement is a key part of road safety, with users more likely to engage in unsafe behaviour if enforcement is not occurring. Continue with enforcement and promotion of enforcement activities through education and advertising. |

## Conclusion

The ACRS appreciates the opportunity to make this submission and contribute to improving community safety. We are particularly keen to highlight that:

- Transport and mobility plans need to be integrated to promote a wide range of transport and mobility options;
- Commitments to reduce road trauma require legislative and regulatory measures that enable and provide the safe use of e-mobility devices for all road users, including device users, pedestrians and other road users; and
- ACRS supports continued research into safety issues facing all e-mobility options, including e-scooters and e-bikes. Nationally consistent definitions and data would be a significant enabler of this research.

Please do not hesitate to contact us should you need any further information.

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