

Inquiry into e-mobility safety and use in Queensland

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Inquiry into e-mobility safety and use in Queensland

Submission to the Queensland State
Development, Infrastructure and Works
Committee

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This report has been developed through
Engineers Australia's member-delivered policy
and advocacy by the Transport Australia
Society (Queensland).

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Introduction

Engineers Australia welcomes the opportunity to provide feedback to the Queensland State Development, Infrastructure and Works Committee for the 'Inquiry into e-mobility safety and use in Queensland'. This submission outlines risks and opportunities for e-mobility in Queensland identified by Engineers Australia with contributions and lead advice provided by the Transport Australia Society (Queensland) and the Society of Fire Safety.

This submission highlights the opportunities for e-mobility in helping to address Australia's major transport challenges around safety, network efficiency, emissions and climate change, liveability and equity. It also identifies practical responses to improve the way e-mobility is managed in the Safe System framework¹ consistent with the strategic directives of national and state government guidance, and leading practices in road safety.

The paper draws on previously published work by Engineers Australia including the 'Urban Transport Systems' discussion paper² and the 'Towards safer and more liveable urban streets' discussion paper³.

About Engineers Australia

As Australia's national body for engineering, Engineers Australia is the voice and champion of our 130,000-plus members. We provide them with the resources, connections, and growth they need to do ethical, competent and high-value work in our communities. A mission-based, not-for-profit professional association, Engineers Australia is constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community.

This submission has been informed by members of the Transport Australia Society (Queensland), a technical society of Engineers Australia. The Queensland branch brings together professionals with diverse expertise in transport systems, infrastructure, and mobility. A focused group of members with multidisciplinary experience in transport planning, engineering, and policy have reviewed the issues relevant to this inquiry and provided informed feedback. Their insights aim to support the Queensland Government in advancing the safe, efficient, and sustainable integration of e-mobility solutions across the state.

Contact details

For a discussion about the issues raised in this submission, please contact Darren Beattie, General Manager for Queensland Division, at [REDACTED]

¹ Commonwealth of Australia. (2021). *National Road Safety Strategy 2021–2030*. Department of Infrastructure, Transport, Regional Development and Communications. <https://www.roadsafety.gov.au/sites/default/files/documents/National-Road-Safety-Strategy-2021-30.pdf>

² Engineers Australia (2021) 'Urban Transport Systems: A Transport Australia Society Discussion Paper' Engineers Australia. <https://www.engineersaustralia.org.au/publications/urban-transport-systems-discussion-paper>

³ Engineers Australia (2024). 'Towards Safer and more liveable urban streets' Engineers Australia. <https://www.engineersaustralia.org.au/publications/towards-safer-and-more-liveable-urban-streets>

1. Importance of e-mobility for addressing future transport challenges

Australia's urban transport systems are under enormous pressure to find ways to provide efficient, affordable, sustainable and liveable transport solutions in towns and cities that are expected to experience enormous population growth over the next three decades⁴.

E-mobility presents a significant opportunity to incorporate popular and more efficient modes of transport into existing networks, providing for more trips with the same infrastructure network capacity. The rapid uptake of these devices represents a challenge, but it emphasises a once in a generation opportunity to embrace new and innovative ways of travelling around cities that people in our communities are embracing. These modes can help support the large number of people in Australia who are unable to drive themselves.

'In Melbourne, the RACV⁵ showed that over one third of people aged 18-24, 17% aged 25-29 and 23% aged 70-90 do not have a driving licence'⁶

E-bikes and e-scooters are compact, efficient, and accessible, helping to reduce private vehicle use, lower emissions, and expand transport options. They provide affordable and accessible transport solutions for many users (see Figure 1). These devices are not just used by a small minority of the population but can ultimately replace a significant number of car journeys, that governments and businesses are funding with increasingly expensive road upgrades.

FIGURE 1: E-BIKE CONTAINING A WEEK'S WORTH OF GROCERIES SHOWS THE PRACTICALITY OF THESE MODES FOR FAMILY TRANSPORT



Source: Prue Oswin, Sidelines Traffic

⁴ Engineers Australia (2021) 'Urban Transport Systems: A Transport Australia Society Discussion Paper' Engineers Australia. <https://www.engineersaustralia.org.au/publications/urban-transport-systems-discussion-paper>

⁵ RACV (2017) Young Adult Licensing Trends. <https://www.racv.com.au/content/dam/racv/images/public-policy/reports/2015%20-%20young-adult-licensing-trends-and-travel-modes-report.pdf>

⁶ Engineers Australia (2024). 'Towards Safer and more liveable urban streets' Engineers Australia. <https://www.engineersaustralia.org.au/publications/towards-safer-and-more-liveable-urban-streets>

2. Priorities for addressing safety challenges with e-mobility

Engineers Australia welcomes this opportunity to gather information from stakeholders on ways to improve how e-mobility is provided for and regulated in Queensland. Below we highlight four guiding principles for improving guidance. Section three of this report highlights how safety issues could be addressed and improved.

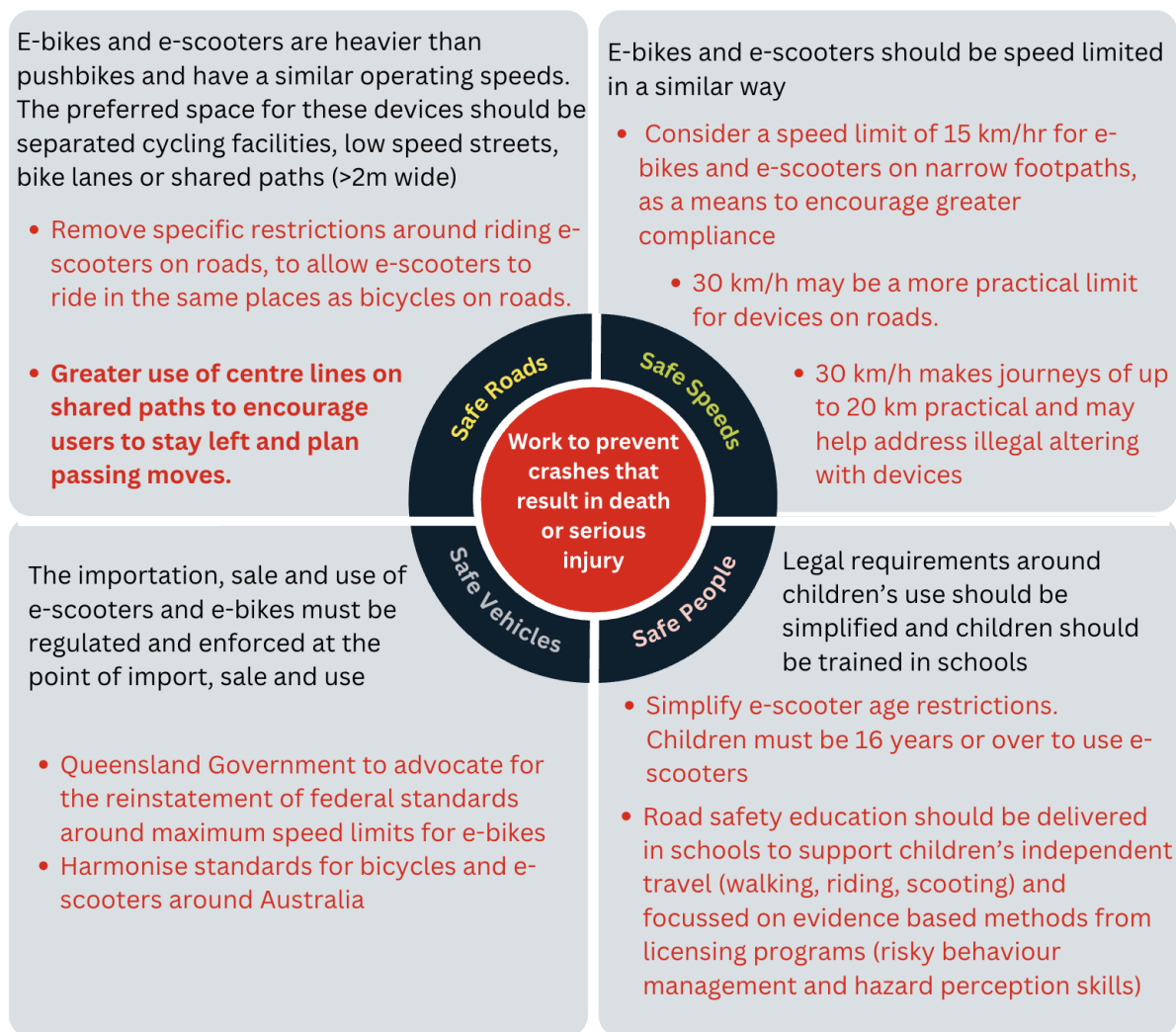
- 1. Continue to support transport innovations to improve capacity and efficiency of transport**
E-bikes and e-scooters are supporting people in Queensland to transition to more space and energy efficient modes of transport. They appeal to a broad range of users and create opportunities to improve the capacity and efficiency of our transport networks.
- 2. Address road safety issues in a systematic way**
Road safety challenges with e-mobility should be addressed in accordance with Safe System principles, ensuring measures are in place to implement, regulate and enforce processes and standards to address fire safety and vehicle safety concerns. See Section 4 for further information.
- 3. Harmonise regulation where possible with other states and territories**
Where guidance differs between states and territories it creates confusion and inefficiency for importers, sales, users and education. Where possible, states should seek to adopt the same standards around vehicle regulations, laws for where and how fast you can ride, and age limits.
- 4. Simplify governance and regulations around road user behaviour and support education for users**
The current e-scooter laws are complex and difficult for users to understand. There is a need to simplify guidance around use on roads and align with bicycle road rules.

3. Road Safety

The Safe System framework is the overarching framework for road safety in Australia. This framework adopts four pillars that are used to design system changes to improve road safety in Australia. This submission makes suggestions under each of these pillars.

Figure 2 describes the four pillars of the Safe System (safe roads, safe speeds, safe vehicles and safe people) and suggests responses under each of these pillars to improve regulation and management of e-mobility.

FIGURE 2: RECOMMENDED ROAD SAFETY RESPONSES AND RECOMMENDATIONS



4. E-mobility and fire safety

The increasing use of lithium-ion (Li-ion) batteries in e-mobility devices such as e-scooters and e-bikes presents significant fire safety risks. These batteries, while enabling efficient transport, are susceptible to thermal runaway and fire due to physical damage, overcharging, manufacturing defects, and improper storage or disposal.

Recent incidents in Queensland and other jurisdictions have highlighted the elevated risk profile of e-scooters in particular, with fires occurring in enclosed spaces such as apartments and lifts, leading to serious injuries and property damage. The high energy density of these batteries, combined with their mobility and use in occupied spaces, makes them more hazardous than smaller consumer electronics.

To mitigate these risks, Engineers Australia recommends:

- **National Compliance Standards:** Adopt a harmonised national approach to battery and device certification, following NSW's lead. A national compliance mark and public awareness campaign should also be implemented to support safe consumer choices. Devices should meet:
 - AS15194:2015, EN15194:2017, AS60335.2.114:2023, EN 17128 (electrical systems for e-bikes and e-scooter devices)

- EN50604, IEC 62133, AS/NZS60335.2.114:2023 (battery systems for e-bikes and e-scooters)
- **Building Design and Management:** Consider introducing fire-safe infrastructure such as battery containment rooms, designated charging zones with auto shut-off, and fire-rated enclosures. However, practical challenges must be acknowledged—residents may be reluctant to leave expensive or mobility-critical devices in common areas, feasibility of safe storage outside of residences may also be limited by legislative requirements, and devices must not be stored or charged in egress paths.
- **User Education:** Promote safe charging, handling, and maintenance practices. Encourage the use of manufacturer-approved chargers, regular battery inspections, and proper storage. Consumers should be informed of the signs of battery failure and the importance of not charging devices unattended or in unsafe locations.
- **Safe Disposal:** Establish certified collection points for end-of-life batteries with fireproof containment. Educate the public on safe disposal practices and discourage stockpiling or disposal in general waste.

The fire risks associated with e-mobility devices are real and growing. A coordinated national strategy—spanning regulation, infrastructure, education, and disposal—is essential to reduce the likelihood and consequences of fire incidents.

Engineers Australia's Society for Fire Safety is currently developing a national practice guide to support the safe integration of small battery-powered devices. The Queensland Government is encouraged to continue engaging with Engineers Australia as this work progresses and to adopt engineering-led recommendations to ensure community safety.