## Inquiry into e-mobility safety and use in Queensland

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# Inquiry into e-mobility safety and use in Queensland: Comments

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[redacted]

## Contents



## 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;

E-scooters and e-bikes—public or private—have been beneficial to many people. Public e-scooters and e-bikes that can be hired at transport node are a very viable last mile option for many. Private e-scooters and e-bikes are a useful first and last mile option for public transport journeys.

Research indicates that e-scooters and e-bikes have disproportionately benefitted people who are on low income or who have certain types of

disabilities[1],[2],[3]. This is particularly the case when public e-scooter and e-bike operators offer subsidies, for example Lime Access[4].

> Lime Access in Brisbane[5],[6]
> Lime Access is our global equity program that provides discounted rides to eligible residents. It is part of our core mission to provide sustainable transportation options to all. In Brisbane, eligible residents get 50% off rides.

E-scooters and e-bikes have a minor benefit in reducing greenhouse gas emissions in that they sometimes reduce private vehicle travel, but their major impact is social[7].

> Carless households tend to have lower income and lack mobility options. E-bike incentives can make travel more affordable and give people better access to jobs, health care, child care, shopping and other destinations. Such benefits likely far exceed any nominal greenhouse gas accounting from these transportation users.

Tourists and visitors to cities find that e-scooters and e-bikes provide a useful transport option[8].

Ultimately, public e-scooters and e-bikes are very useful addition to the public transport ecosystem. Regulation is necessary, but as beginning not an end point. Delbosc (2024) [9] makes this point succinctly:

> In Australia, local and state governments should be moving beyond how to regulate these programs to also focus on how to better integrate them into our transport system. With the right incentives in place, we can maximise the benefits of micro-mobility for people who are most in need of affordable and accessible transport solutions.

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

### Dangers for riders

Riders of e-scooters seem to be the cohort most at risk of injury. Numerous studies have highlighted the various risk factors. Speed and

[1] https://theconversation.com/e-for-equity-e-scooter-and-e-bike-schemes-can-help-people-on-low-incomes-and-with-disabilities-224844
[2] https://doi.org/10.1016/j.jcmr.2024.100016
[3] https://www.sciencedirect.com/science/article/pii/S2590198223001872?via%3Dihub
[4] https://www.li.me/why/community/lime-access
[5] https://www.li.me/en-au/locations/brisbane
[6] https://web.fountain.com/apply/limebike/opening/lime-access-australia
[7] https://theconversation.com/e-bike-incentives-are-a-costly-way-to-cut-carbon-emissions-but-they-also-promote-health-equity-and-cleaner-air-224312
[8] https://theconversation.com/five-years-on-brisbanes-e-scooters-and-e-bikes-are-winning-over-tourists-and-residents-as-they-open-up-the-city-212464
[9] https://theconversation.com/e-for-equity-e-scooter-and-e-bike-schemes-can-help-people-on-low-incomes-and-with-disabilities-224844

alcohol seem to be the chief cause of accidents with lack of a helmet contributing to injury severity.

Private e-scooters and e-bikes can be modified to allow speeds well in excess of the 25 kph permitted maximum. This is a serious issue that must be addressed in any regulatory regime that is imposed by the States or Commonwealth.

Clanfield et al (2025)[10] analysed paediatric e-scooter injuries presenting to the Sunshine Coast University Hospital between January 1, 2023, and December 31, 2024. They evaluated trauma severity and compliance with safety regulations and found:

> A total of 176 cases were identified, with a median age of 14 years and 71% were male. Falls accounted for 78% of crashes, while 13% involved motor vehicles. Helmet non-compliance was documented in 42% of the presentations, 12% involved doubling, and36% exceeded the 25 km/hr speed limit. Fractures occurred in 37% of cases, 18% required computerised tomography scans and 11% sustained life-threatening or potentially life-threatening injuries.
>
> This study highlights the high-risk e-scooters pose to Queensland's youth. It is our belief that minimum age limit for e-scooters should be raised to 16 years old until improved safety measures prove effective.

In a study of emergency department admissions in Brisbane, Vallmuur et al (2023)[11] found:

> This study reports on the first phase of the E-MODES study, proactive injury surveillance initiative to examine the incidence and nature of injuries, their circumstances, contributing factors, and treatment, presenting to three hospital emergency departments (EDs) in Brisbane, the first Australian city to trial shared e-scooters.
>
> During the 31-month study period, there were 1048 ED presentations related to e-mobility, the vast majority (90.8%) involving e-scooters, with males accounting for 64.3% of cases, the most common age group being 25–34 years, and weekends being the most common period of the week for presentations. The most common injury was fractures (37%), and the upper extremities and head/face were the most commonly injured body regions.
>
> Contributing risk factors of alcohol use, not wearing a helmet, and speeding, were prevalent, though poorly recorded and only alcohol use proportions varied by age and gender, with males being more likely than females to have alcohol use reported. Recommendations

[10] https://www.sciencedirect.com/science/article/pii/S1326020025000263?via%3Dihub
[11] https://www.injuryjournal.com/article/S0020-1383(23)00378-9/abstract

> to support e-mobility-related injury surveillance and safety outcomes include improved data standardisation and sharing.

The Jamieson Trauma Institute (2024)[12] conducted research for the RBWH Foundation and RACQ and found that:

> More than one-third of private e-scooter riders presenting to emergency admitted to travelling at speeds over 25km per hour and 58% were triaged at the second highest urgency response, according to new nation-leading research.
>
> RACQ's Head of Public Policy Dr Michael Kane said it showed reform was needed to address the seriousness of life-changing facial and head injuries on private and hired e-scooters. "It's clear many riders on privately owned e-scooters are speeding, and sustaining more severe injuries, but riders on hired devices are still getting seriously injured," Dr Kane said.
>
> Patient interviews, now being conducted at five Queensland major emergency departments, found 64% were injured on a private device compared with 36% on hired e-scooters, which is consistent with a surge in the popularity of owning an e-scooter.
>
> "What's worrying is 65% of all riders said they were wearing a helmet which suggests standard helmets are not always protecting against facial injuries," Dr Kane said.
>
> "We're seeing terrible results when people on standing scooters crash forwards and injure their face on roads or other hard surfaces like cars."

These studies accurately report the number of accidents that involve hospital presentations, but must be taken in context and not sensationalised. A European study conducted in 2020 by the International Transport Forum reported in *Safer Micromobility*[13]

> Micro-mobility is becoming safer. But, an increase in severe injuries from e-scooter crashes is cause for concern. Overall, shared e-scooter crash risk is decreasing as their usage is increasing faster than injuries.
>
> Safe infrastructure and vehicle design matter. A focus on rider behaviour and safety equipment must be complemented by better infrastructure and improved vehicle design – especially for e-scooters.
>
> Reinforcing existing policies improves safety. Road safety measures also make micro-mobility safer – managing speed, providing

[12] https://www.rbwhfoundation.com.au/blog/jti-research-finds-privateescooter-riders-now-most-at-risk
[13] https://www.itf-oecd.org/sites/default/files/docs/safer-micromobility.pdf

training to road users and enforcing rules against impaired driving and riding.

A similar scenario may be occurring in Queensland, with numbers of injuries rising but the proportion of riders injured decreasing. If so, this may indicate progress towards minimum to nil injuries.

### Issues facing pedestrians

While e-scooter riders are the cohort most at risk, pedestrians are sometimes injured or killed[14] by e-scooter riders. Once again, speed and alcohol appear to be the chief contributing factors.

People who have vision impairments mostly use memory to navigate along a series of known landmarks. They therefore benefit from access paths that are static and predictable. If items such as public e-scooters and e-bikes are placed randomly in access paths the vision impaired pedestrian will be at risk of colliding with the items or falling over them.

People with vision impairments are particularly disadvantaged if their 'shore-lines' are blocked or obstructed. *AS 1428.4.2-2018 Design for access and mobility Part 4.2 Means to assist the orientation of people with vision impairment - Wayfinding signs* describes shore-lining in its Appendix B:

> B.5.3 Shore-lining
> Many people who are blind or have low vision will use the edge of a pavement, a shop front, fence-line or other physical clues to guide them, a technique called shore-lining. People will use different techniques dependent on their ability, amount of residual vision and the complexity of the environment through which they are moving.

One of the most effective shore-lines is a trail of directional tactile ground surface indicators (TGSIs). E-scooters and e-bikes are sometimes parked on or beside directional TGSI trails. This poses a risk to the vision impaired pedestrians who are following the trails with their white canes.

[14] https://www.abc.net.au/news/2025-06-03/thanh-phan-dies-after-being-hit-by-e-scooter-in-perth-cbd/105370284

E-scooter obstructs directional TGSIs, George St, Brisbane.


Fallen e-scooter obstructs shore-line and access path, George St, Brisbane.

Bus stop TGSIs blocked by e-scooter, Adelaide St, Brisbane.

Fence shore-lene obstructed by e-scooters, Boundary St, Spring Hill.

Garden bed shore-line blocked by e-bikes, Adelaide St, Brisbane.

Handrail shore-line obsucted by e-bike, Mangrove walk, Brisbane.

People using wheeled mobility aids depend on clearways at critical access points such as kerb ramps and narrow sections of footpaths. If these are blocked by inappropriately parked e-scooters and e-bikes it may not be possible to cross a street or proceed along an access path.

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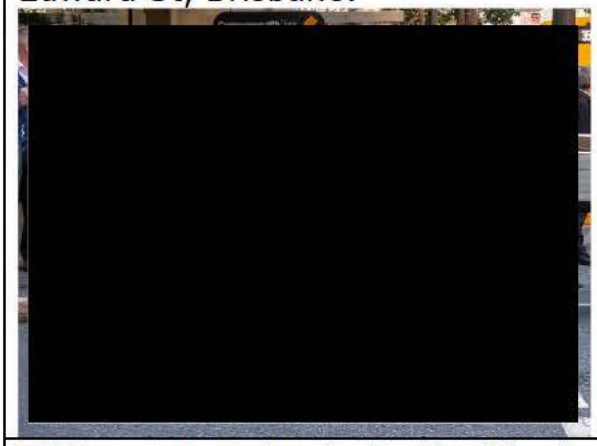
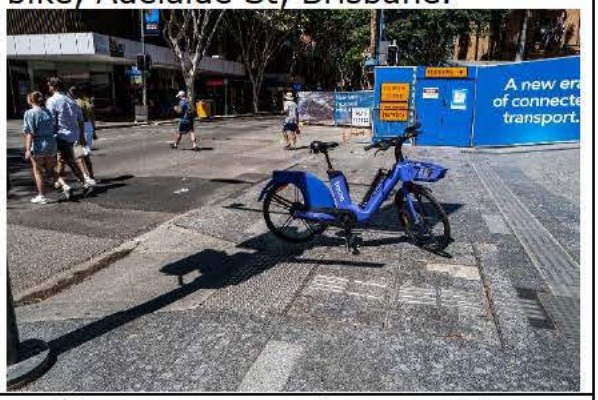
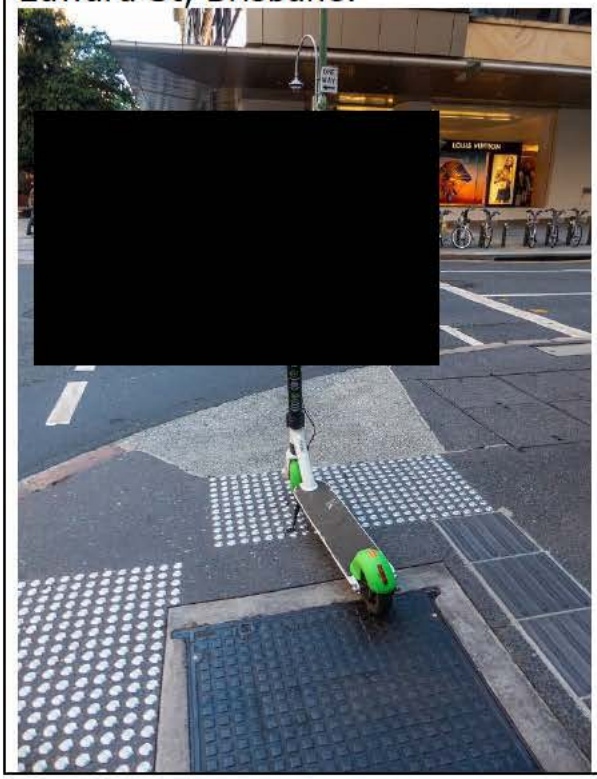
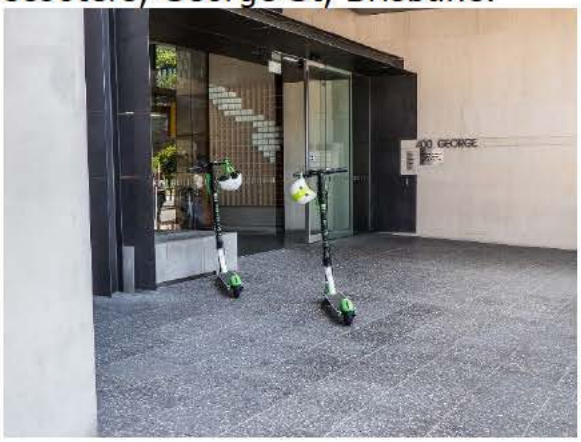
| Kerb ramp blocked by e-scooter, Edward St, Brisbane.<br>  | Stair obstructed by e-scooters, George St, Brisbane.<br>  |
| E-bikes narrowing footpath, Albert St, Brisbane.<br>  | Kerb ramp partly obstructed by e-bike, Adelaide St, Brisbane.<br>  |
| Kerb ramp blocked by e-scooter, Edward St, Brisbane.<br>  | Building entrance obstructed by e-scooters, George St, Brisbane.<br>  |

Regulation of micro-mobility services and education of micro-mobility customers, will help to keep access paths clear. Delineating appropriate micro-mobility parking spaces will also assist customers. Liaison with local authorities will assist in local laws that regulate the parking of e-scooters and e-bikes.

Parking instructions on Neuron e-scooter, William St, Brisbane.


Designated e-scooter and e-bike parking, Adelaide St, Brisbane.


Designated e-scooter and e-bike parking, City Botanic Gardens, Brisbane.

Designated e-scooter and e-bike parking, City Botanic Gardens, Brisbane.


Designated e-scooter and e-bike parking, Ann St, Brisbane.

Signs prohibiting e-scooters and e-bikes, Queen Street Mall, Brisbane.

## 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;

The Queensland Fire Department provides clear information on Lithium-ion battery safety[15]. This information covers safe battery charging and disposal of damaged or undamaged lithium-ion batteries. How well known this information is must be debateable as lithium-ion batteries continue to ignite due to inappropriate charging and treatment. A public awareness campaign may increase awareness of battery safety.

The New South Wales government has introduced regulations to improve battery safety.[16]

> Under the new rules announced on Thursday, e-bikes, e-scooters, hoverboards and e-skateboards will become "declared electric devices". The battery-powered devices will need to meet a set of internationally accepted product standards, including appropriate tests and certification. Vendors of non-compliant devices will face fines of up to $825,000 from February 2025.

This approach might be considered for Queensland and certainly be part of any national standards.

Sodium-ion batteries may offer safety benefits over lithium-ion batteries. A recent BBC article[17] reported that:

> Some industry insiders believe that sodium-ion batteries are safer. They are less prone to overheating and burning compared to lithium-ion ones because sodium's chemical traits are more stable, according to some studies. But others warn that it is still too early to be certain about their safety due to a lack of relevant research.

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

The current regulatory approach in Australian and European jurisdictions is best described as 'fragmentary and uncoordinated'.

In Australia, for public and private e-scooters and e-bikes there is considerable variation in regulations between states and even between local authorities within states. This fragmentation has prompted Coulter

[15] https://www.fire.qld.gov.au/safety-education/battery-and-charging-safety/lithium-ion-battery-safety
[16] https://www.theguardian.com/australia-news/article/2024/aug/09/nsw-closes-loophole-to-stamp-out-fires-caused-by-substandard-lithium-ion-batteries-in-ebikes-and-scooters
[17] https://www.bbc.com/future/article/20250530-how-electric-scooters-are-driving-chinas-salt-battery-push

(2025)[18] to call for national standardisation or regulations and requirements. Coulter points to work recently carried out in the European Union by the Transport Research Laboratory as a template for Australian national regulations.

The nations of the European Union have often widely diverging regulations for both e-scooter riders and e-scooters[19]. This has prompted the European Union via its Transport Research Laboratory (TRL) to assess the viability standardisation of requirements and regulations for e-scooters and e-bikes[20].

Key Recommendations from the TRL report are:

1. Introducing a Dedicated PMD Vehicle Category

- Establish a distinct category for PMDs, separate from the L-category for motor vehicles.
- Define PMDs by safety-critical factors such as a maximum speed of 25 km/h and a maximum laden weight of 250 kg.

2. Future-Proofing Through Flexible Classifications

- Avoid rigid classification systems that could stifle innovation.
- Implement a universal approval mechanism to streamline the acceptance of new PMD designs across the EU.

3. Performance-Based Standards

- Shift away from feature-based evaluations and instead focus on safety performance metrics.
- Replace outdated power limits with a maximum acceleration threshold of 2 m/s² under all load conditions.

4. Enhanced Technical Requirements

- Develop detailed standards for critical areas like structural integrity, battery safety, and anti-tampering measures.
- Build on existing benchmarks such as EN 17128 and 15194 for comprehensive coverage.

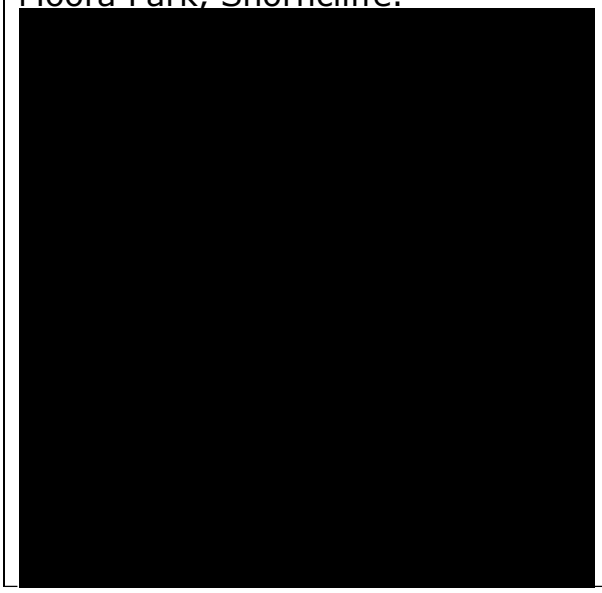
POLIS is the leading network of European cities and regions advancing transport innovation. Its 2025 *Careful what you wish for: Practical implications of rules & requirements for shared micro-mobility*'[21] detailed

[18] https://www.linkedin.com/pulse/australias-e-mobility-regulation-boom-call-national-harmony-coulter-v9ssc/
[19] https://electrotraveller.com/regulation-guide-to-riding-electric-scooters-in-the-eu/
[20] https://op.europa.eu/en/publication-detail/-/publication/4286a092-a55f-11ef-85f0-01aa75ed71a1/language-en
[21] https://www.polisnetwork.eu/wp-content/uploads/2025/03/Shared-Micromobility-Regulations-Report.pdf

various incentives that have been given to local authorities in return for e-scooter and e-bike parking. Incentives for local authorities should be considered in Queensland.

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

If accident statistics are taken into account the current regulatory and education regime in Queensland is inadequate. Most riders of e-scooters and e-bikes seem to do so responsibly. Unfortunately not all riders are responsible or informed. A wider education program may increase awareness but will probably not eliminate some irresponsibility.

| | |
|---|---|
| Unsafe use of a public e-scooter by underage, unsupervised riders, Moora Park, Shorncliffe.  | Underage unsupervised rider of a public e-scooter, Grey St, South Brisbane.  |

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

While efforts in Queensland to improve the regulation of public and private e-scooters and e-bikes are commendable, a national approach is required. National consistency on what constitutes a safe product that is fit for purpose will allow the commonwealth to set import restrictions on unsuitable devices. Without this national approach Coulter (2025)[22] foresees:

- Unsafe products can be diverted from regulated states to less-regulated ones.

[22] https://www.linkedin.com/pulse/australias-e-mobility-regulation-boom-call-national-harmony-coulter-v9ssc/

- Online marketplaces remain porous, offering non-compliant devices to all.
- Riders are left uncertain about what's legal or safe, depending on which border they've crossed.

Coulter recommends national standards based on recommendations developed in Europe by the Transport Research Laboratory (TRL). These recommendations include:

- Harmonised safety specifications for all light electric vehicles;
- Mandatory third-party certification for vehicles, batteries and charging systems;
- Clear frameworks for shared and private use; and
- National data strategies and education campaigns.

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

The Department of Transport and Main Roads TMR[23], Lime[24] and Neuron[25] all provide information on the regulations and expectations of pertinent to e-scooter and e-bike riders. No doubt most public and private riders heed the information provided. A significant minority seem to either ignore the information[26] or be unaware of it.

An education regime for schools and for purchasers of private e-scooters and e-bikes would assist those riders who wish to behave responsibly to do so. Better promotion of existing online material would also help.

## 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.

Sucha et al (2023)[27] details community attitude to e-scooter riders in five countries (including Australia). The article covers many of the issues confronting riders and pedestrians in some detail. Its findings may be instructive.

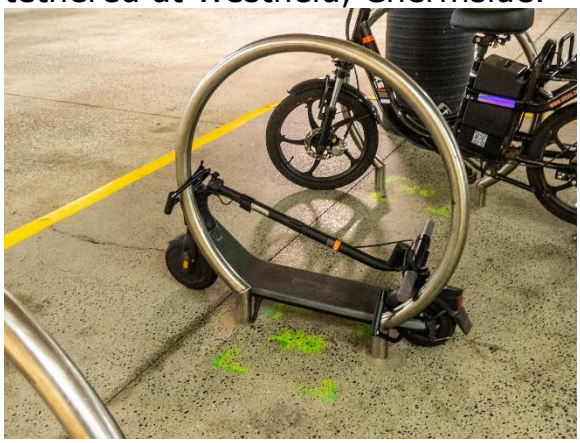
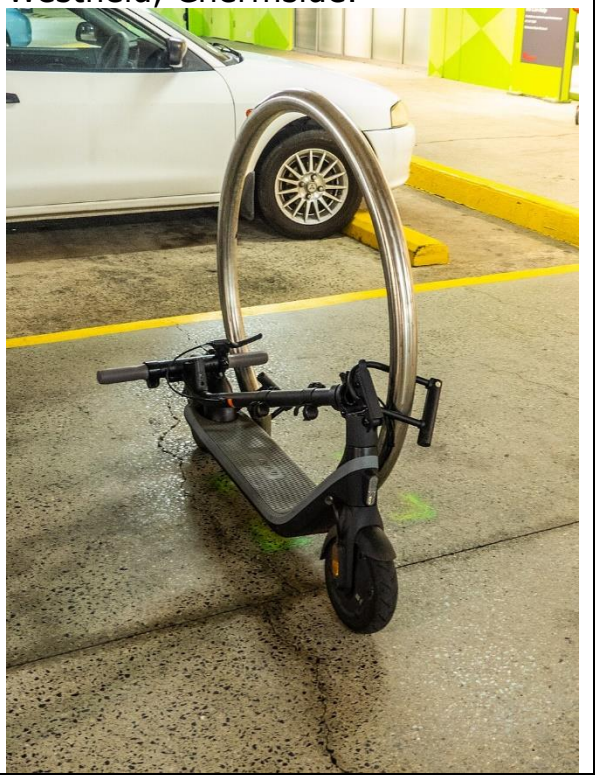
While some people who have physical, cognitive or vision impairments are unlikely to use micro-mobility options such as e-cycling or e-scooters,

[23] https://www.qld.gov.au/transport/safety/rules/wheeled-devices/personal-mobility-devices
[24] https://www.li.me/en-au/locations/brisbane
[25] https://www.scootsafe.com/learn/start_riding
[26] https://region.com.au/helmet-wearing-just-not-the-norm-for-majority-of-canberras-young-e-scooter-riders-study-finds/872656/
[27] https://www.cell.com/action/showPdf?pii=S2405-8440%2823%2902656-7

many other people who have disabilities may be enthusiastic e-cyclists or e-scooter riders[28],[29]. People who have hidden disabilities that cause fatigue or pain, people who are Deaf, neurodiverse, hard of hearing or who have disabilities that do not impair them physically or cognitively may well able to make use of various active transport and micro-mobility options to access precincts and transport nodes within precincts.

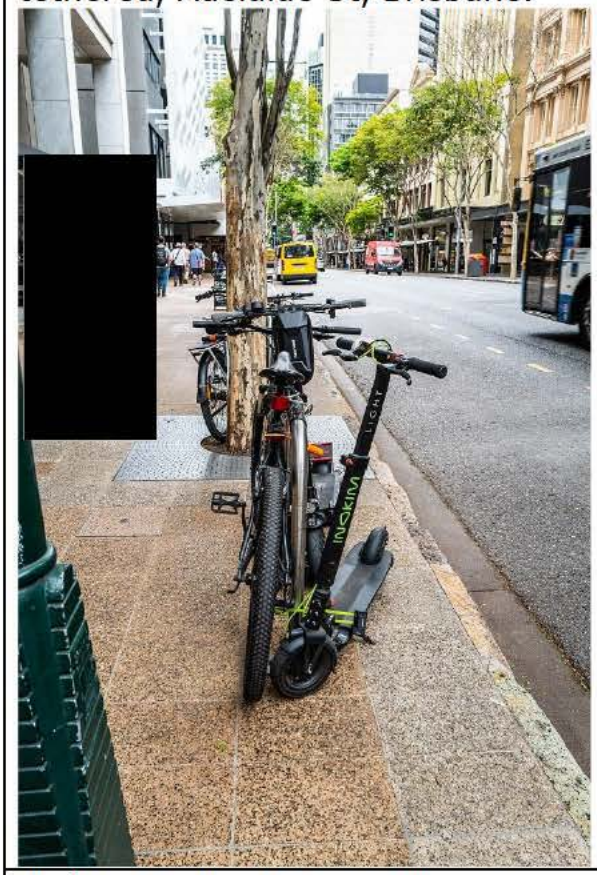
Public e-scooters and e-bikes require designated parking areas wherever these are practicable.  Responsible parking protocols that can be enforced by geofencing or other means should be implemented widely.

Riders of private e-scooters and e-bikes need secure parking options. Existing bicycle infrastructure, while of good design, is not available in the quantity required.  Initiatives to encourage local authorities, transport providers and private property owners / managers to provide more bicycle parking stations would both encourage active transport and allow secure parking of e-scooters and e-bikes.

| Private e-scooter and e-bike tethered at Westfield, Chermside. | Private e-scooter tethered at Westfield, Chermside. |
| --- | --- |
|  |  |

[28] https://theconversation.com/e-for-equity-e-scooter-and-e-bike-schemes-can-help-people-on-low-incomes-and-with-disabilities-224844
[29] https://doi.org/10.1016/j.jcmr.2024.100016

Private e-scooter and e-bike tethered, Adelaide St, Brisbane.




Private e-scooter concealed behind a pillar, Mary St, Brisbane.


Parking instructions on Neuron e-scooter, William St, Brisbane.


Designated e-scooter and e-bike parking, Adelaide St, Brisbane.

Designated e-scooter and e-bike parking, City Botanic Gardens, Brisbane.

Designated e-scooter and e-bike parking, City Botanic Gardens, Brisbane.


Designated e-scooter and e-bike parking, Ann St, Brisbane.

Signs prohibiting e-scooters and e-bikes, Queen Street Mall, Brisbane.

A well-regulated micro-mobility regime that has designated parking at or near transport nodes—and other significant destinations—and that has strict parking protocols and secure parking options away from major hubs, will benefit a very broad range of people, including many who have disabilities.