Transport and Other Legislation (Managing E-mobility Use and Protecting Our Communities) Amendment Bill 2026

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Submission: Managing E-mobility Use and Protecting Our Communities Amendment Bill 2026

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Reference: This submission should be read in conjunction with CHATO International Pty Ltd Submission 849 to the Queensland Parliament Inquiry into E-Mobility Safety dated 24 July 2025.

PROLOGUE – REGULATORY CONTROL OF MOMENTUM (HARM CONTAINMENT)

This proposal provides the legislation with a mechanism equivalent to seatbelts and airbags. In motor vehicles, harm is reduced by physically restraining occupants and managing energy transfer during a crash. For personal mobility devices, no such physical restraint exists. Instead, harm needs to be controlled before impact, by regulating the momentum of the operating unit.

This is achieved through legislative constraint of combined mass and speed, ensuring that the energy transferred in a crash remains within survivable limits. This is not device regulation. This is harm containment through momentum control.

This submission is limited to Personal Mobility Devices operating at 25 km/h or less, however it highlights that failure to control speed and throttle access allows these devices to function beyond their safe and regulated design limits.

EXECUTIVE SUMMARY

The Bill establishes a framework for regulating personal mobility devices. An observed linkage exists between trauma injury mechanisms observed by medical professionals and the combined mass and speed of the operating unit at impact.

The legislation defines a personal mobility device “when not carrying a person or other load” (Page 80), excluding the rider and payload from its regulatory basis. In practice, harm is generated by the operating unit, being the combined mass and speed of the device, rider, passenger, and load.

Momentum is a primary determinant of injury severity in a collision. Regulation of speed without inclusion of total mass addresses only part of the harm mechanism. This creates a gap where the primary driver of injury severity is not fully represented in the regulatory model.

This submission outlines a method to align the legislation with observed injury mechanisms through recognition and regulation of the operating unit.

GRAPHIC EXECUTIVE SUMMARY

- The Bill has strong foundations and supports public safety.
- The current model focuses here on the device, not the operating unit.

Note: By excluding operating unit physics and the relationship between mass and speed, the legislation does not regulate the mechanism that determines injury severity, reducing its effectiveness in protecting users and the public.

- The operating unit is the device, rider, any passenger, and any carried load.
- Harm is caused by the operating unit, not the device alone
- In impacts, the operating unit can separate into multiple projectiles.

- **60Kg device 25km/hr max 1500 momentum units.**
- **60Kg device, 60kg rider 50kg passenger 10kg package 25km/hr max 4,500 momentum units three times the device alone or double with a rider only.**

- Injury severity is driven by operating unit momentum, being mass × speed
- As operating unit mass increases, speed must decrease to maintain consistent harm levels
- Regulation should be based on operating unit impact risk, not device-only classification

1. THE CORE ISSUES

A gap exists where the legislation defines the device in isolation, while harm arises from the operating unit in use. The legislation regulates a condition that does not exist in real-world use. All real-world operation involves an operating unit comprising device, rider, passenger if present, and carried load if present.

2. OPERATING UNIT DEFINITION

Operating Unit = Device + Rider + Passenger + Load. This is the system that generates momentum and contributes to injury outcomes.

3. MOMENTUM AND HARM

Momentum = Mass × Velocity. In a crash, injury severity is driven by total system momentum, not device speed alone. Increasing mass at constant speed increases harm. Increasing speed at constant mass increases harm. Both variables influence injury outcomes.

4. REGULATORY GAP

The current approach regulates speed only. Mass is not included. This results in higher momentum events at the same legal speed, increased injury severity, and misalignment with observed trauma outcomes. The model does not fully represent the harm mechanism.

A further gap exists in that the legislation does not account for the ability of the device to safely decelerate the operating unit. This omits a critical component of the harm mechanism, being the control and dissipation of momentum through braking.

5. POLICY IMPLICATION

The legislation does not fully capture the operating conditions under which harm occurs. A key component of the harm vector, total operating unit mass, is not incorporated into the regulatory framework.

The absence of braking regulation relative to total operating unit mass means the framework does not ensure the operating unit can be safely controlled under real-world conditions.

Addressing these gaps aligns the legislation with observed trauma injury mechanisms and improves public safety outcomes.

6. PROPOSED SOLUTION

Adopt an operating unit framework: regulate momentum through control of total operating unit mass, supported by braking system limits and maximum allowable speed

This aligns control of momentum with both generation and dissipation of energy.

7. IMPLEMENTATION MODEL

Total Operating Unit Mass Speed Limits.

Use a benchmark operating unit to define consistent momentum levels. Example baseline: 120 kg operating unit at 25 km/h. Equivalent momentum limits: 120–200 kg → 15 km/h, greater than 200 kg → 10 km/h. (Actual baselines to be defined by consultation with appropriate authorities.)

Total Operating Unit Mass Braking Limits

The regulator sets the framework for total operating unit mass and speed limits. The manufacturer is required to comply with this framework and specify the braking system limit for the device. The braking system may reduce the allowable operating limit within the regulatory framework, but it cannot increase it.

8. COMPLIANCE LABELLING

Operating Unit Mass Speed Limits

Compliance labelling should include information relating to operating unit risk, including total mass and speed classification, to assist enforcement and public understanding of harm potential. (Example only)

Labelling bands:
up to 120 kg → 25 km/h,
120–200 kg → 15 km/h,
greater than 200 kg → 10 km/h.
Total weight = rider + passenger + load.

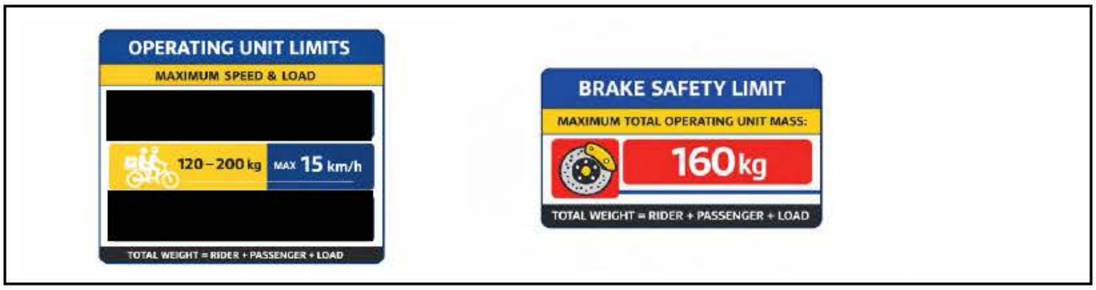
Total Operating Unit Mass Braking Limits

A complementary label will be required specifying a single maximum total operating unit mass for the braking system.

The labels must define total weight as rider, passenger if present, and carried load, and be fixed in a visible location on the device.

9. ENFORCEMENT AND PUBLIC UNDERSTANDING

Simple compliance labels provide clear user guidance, enforceable thresholds, and alignment.



Example only:

The regulator defines the operating unit mass and corresponding speed limits within the framework. The manufacturer complies with this framework by specifying the braking system limit for the device. The braking system may reduce the allowable operating unit mass but cannot increase it. The braking system is the defining safety limit for this device.

10. CONCLUSION

An observable relationship exists between operating unit momentum and trauma injury mechanisms observations.

The current legislative framing does not fully incorporate this relationship. Recognition and regulation of the operating unit mass, speed and braking system provide a pathway to align the framework with real-world conditions and injury mechanisms.