

Director, Land Transport Emissions and Environment
Department of Infrastructure, Transport, Regional Development, Communications and the Arts
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26 May 2023

ACRS Submission on Acoustic Vehicle Alerting Systems for Electric Vehicles

Dear Director,

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 policy makers, 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.

Under the National Road Safety Strategy 2021-2030's first Action Plan 2023-25, the Australian Government has committed to the introduction of new Australian Design Rules (ADR) for Acoustic Vehicle Alert Systems (AVAS) for electric vehicles, subject to Regulation Impact Statement outcomes. The proposal which is the subject of this consultation is to introduce AVAS only for light electric vehicles, with the consultation paper noting that insufficient data was available to fully assess the case for mandating AVAS for heavy vehicles in Australia.

ACRS supports the introduction of AVAS for all new vehicles in Australia, both for light and heavy vehicles. The consultation paper notes that "most major vehicle markets, including the EU, UK, Japan, Korea, China and the US have mandated UN R138/01 or equivalent standards" (p11). Analysis in Australia suggests that the same action should be taken in our region as well.

AVAS has been found to improve safety for pedestrians¹, and a study by Monash University found that AVAS in Australia would be of benefit in 31% of all pedestrian crashes, and potentially prevent over 3,400 crashes by 2050. Adding the benefits of autonomous emergency braking systems would increase this to more than 5,000 crashes prevented². Importantly, while the Monash report

¹ Wessels M, Kröling S, Oberfeld D. Audiovisual time-to-collision estimation for accelerating vehicles: The acoustic signature of electric vehicles impairs pedestrians' judgments. *Transportation Research Part F: Traffic Psychology and Behaviour*. 2022;91:191-212.

² Lawrence B, Fitzharris M, Liu S, Newstead S. Crash reduction benefits of the fitment of acoustic vehicle alerting systems (AVAS) in Australia. Report from the Enhancing the Safety of Quiet Road Transport Vehicles (QRTV) Project. <https://research.monash.edu/en/publications/enhancing-the-safety-of-quiet-road-transport-vehicles-qrtv-crash/>: Monash University Accident Research Centre; 2020

demonstrates significant benefits of increasing awareness of the presence of quiet vehicles through AVAS, it also notes that pedestrian crashes will still occur, and that other measures are still necessary to improve pedestrian safety including through road design and driver and pedestrian awareness and behaviour are still required to further reduce road trauma.

The College advocates for extending the implementation of AVAS to include heavy vehicles as well as light vehicles, in line with international standards. Australian road safety statistics highlight that pedestrians are too often the casualty in crashes involving heavy vehicles, especially heavy rigid trucks. The most recent Australian annual statistical summary of road trauma involving heavy vehicles shows that pedestrians are involved in 14.1% of all heavy vehicle crashes and in 23.3% of all heavy rigid crashes³. Clearly, we should avoid adding to this already high pedestrian safety burden by not allowing trucks, especially heavy rigid to become quiet as well. Research in New Zealand also supports this proposed action. A study comparing the detectability of diesel and electric buses found that electric buses are quieter at low speeds, and in some instances diesel buses are more likely to be detected, and earlier than electric buses⁴.

Pedestrian safety is an on-going problem in Australia. The introduction of quiet vehicles will increase the risk of pedestrian crashes around all quiet vehicles. Failing to extend action to reduce the safety risk for pedestrians to all quiet vehicles is only addressing part of the problem.

The College appreciates the opportunity to make this submission and contribute to improving pedestrian safety. Please do not hesitate to contact me if you need further information.

Yours sincerely



Dr Ingrid Johnston
CEO, Australasian College of Road Safety

³ Bureau of Infrastructure Transport and Regional Economics (BITRE). Road trauma involving heavy vehicles 2021 crash statistical summary. https://www.bitre.gov.au/sites/default/files/documents/hv_annual_2021.pdf BITRE; 2023.

⁴ Doran B, Crossland K, Wilkening S, Warren V. Investigation of the external noise emitted from electric buses in New Zealand and the need for acoustic vehicle alerting systems to improve road user safety. <https://www.nzta.govt.nz/assets/resources/research/reports/703/703-investigation-of-the-external-noise-emitted-from-electric-buses-in-new-zealand.pdf>; Waka Kotahi - New Zealand Transport Agency; 2022