Submission on NTC discussion paper on MMDs

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Please note that our engineering consultancy conducted an MMD project for Austroads that commenced in 2012 and resulted in the publication of Standards Australia Technical Specification 3695.3 (TS) in 2018. The final report for that project contains a substantial amount of information relevant to the current NTC discussion paper. The report is not available as a public document but was available to NTC officers (who participated in the Austroads project).

That project also had a Road Rules Working Group (including an NTC representative) that identified numerous issues with the current ARR (and State rules) and developed some options for addressing these issues.

We also authored a recent international conference paper describing the development of the Technical Specification : Paine M and Paine D (2019). "New Safety Standards for Motorised Mobility Devices in Australia", Proceedings of 26th International Conference on the Enhanced Safety of Vehicles (ESV), Paper 19-0205, Eindhoven

http://indexsmart.mirasmart.com/26esv/PDFfiles/26ESV-000205.pdf

That paper addresses some of the issues set out in the NTC discussion paper. These issues are covered in more detail below.

Page 9 - Speed restrictions

Our 2019 ESV paper summarises the reasons for recommended maximum speeds and a low-speed mode. In brief, the primary concern is *collision avoidance* because an MMD user who is ejected from the device (as a result of a collision) is likely to suffer severe injuries irrespective of the kinetic energy of the collision. Pedestrians, including other MMD users are also at risk of severe injuries through collisions or near-collisions, particularly as a result of falls onto hard surfaces. MMD users also risk losing control of the device post-collision which may expose them to further hazards.

The ESV paper sets out an analysis of maximum speed associated with various sight distances in order to avoid a collision. This confirms that a maximum of 5km/h is appropriate for busy pedestrian areas and 10km/h for open footpaths. This comment also applies to Table 2 of the NTC paper, which attempts to analyse the effects of increased mass through kinetic energy calculations (incidentally the units for "Speed" should be km/h, not "kms"). Kinetic energy has little to do with collision avoidance or the risk of injury for MMD-related incidents and should not be a major reason for justifying a change to maximum unladen mass.

As mentioned on page 15 of the NTC Discussion Paper, most MMD-related injuries are to the MMD user rather than other footpath users, although there is

an under-reported risk for other footpath users. This risk is primarily associated with sight distances and avoidance of hazards and so speed of travel is more important than kinetic energy.

Page 12 - Public transport accessibility

In developing the SATS 36595.3 the Standards Australia expert committee recognised that it would not be possible to ensure that all "blue label" devices would be able to access all types of large public vehicles, particularly since not all public transport conveyances (buses, trains, ferries, etc) comply with the requirements of the Disability Standards for Accessible Public Transport (DSAPT). As a result the foreword to SATS 3695.3 states that a Blue Label indicates compatibility with public transport access that is consistent with DSAPT but that this does not ensure access is possible in all cases as not all public transport is DSAPT compliant.

Considerable effort was put into developing swept path and manoeuvrability tests that would improve compatibility, particularly with regards to buses. For example in 2015 several MMDs that met the proposed requirements were tested on a sample of buses that industry representatives considered were close to ‘worst case’ but still met DSAPT requirements.

The resulting draft technical specification, including the accessibility tests, were the subject of two rounds of public consultation and submissions were carefully considered by the expert committee, resulting in relatively minor amendments. SATS 3695.3 was published by Standards Australia in June 2018.

We are therefore extremely concerned that the NTC Discussion Paper quotes negative comments about the public transport accessibility requirements of SATS 3695.3 by researchers from Central Queensland University (CQU).

In particular, the letter to NTC from CQU dated 26 February 2019 has the following summary of the buses used in the research:

> *"Eleven buses did not achieve the minimum width requirement of 800mm, none of the 21 buses met the Allocated Space requirement of 1300x800mm and 19 of the buses did not have a manoeuvring area of 2070x1540mm"*
>
> (https://www.ntc.gov.au/submission_data/129)

This sentence raises several concerns about the findings of the research.

Firstly, clause 2.6 of the DSAPT requires access paths to have a minimum width of 850mm, not 800mm. There is an exemption clause where existing buses can have an 800mm wide doorway but this does not apply to passageways. The swept path test of SATS 3695.3 uses curved walls 850mm apart. Therefore the computer modelling appears to use passageways that are narrower than the minimum required by DSAPT.

Secondly it is surprising that none of the buses met the allocated space requirements because the DSAPT Schedule of target dates requires that 80% of buses comply with the allocated space requirement from 31 December 2017 (Schedule 1, clause 3.3). This suggests that either the buses were not representative of most buses in service in Victoria, that enforcement of the DSAPT is seriously lacking in Victoria or there has been an error made by the researchers in measuring/assessing allocated space.

Thirdly the DSAPT requirement for a manoeuvring area of 2070x1540mm (Clause 3.1) applies to premises and infrastructure (such as bus stations) - not to the bus interior and so the statement is irrelevant to MMDs manoeuvring within buses.

Furthermore, the summary of the performance of the 35 models of MMD does not take into account the important safety requirements of SATS 36956.3. There are numerous compact models of MMD that are not suitable for general footpath use but are designed to be highly manoeuvrable indoors (the relevant category within the Australian Standard is ‘Class A’. The relevant categories in the Australian Standard for devices designed to be used outdoors are ‘Class B’ or ‘Class C’). Many compact MMDs can meet the swept path and allocated space tests of SATS 3695.3 but they are not able to safety negotiate obstacles or gradients that may be encountered outdoors or when using public transport.

During our presentation at the MMD workshops organised by Queensland TMR in April 2019 we gave key test results for four types of MMD: a compact 3-wheel mobility scooter, a compact 4-wheel mobility scooter, a large 4-wheel mobility scooter and a powered wheelchair. Only the large mobility scooter failed the blue label accessibility tests. *Although the 3-wheel scooter met the accessibility requirements it failed most stability/obstacle tests – in some cases to the point of tipping - and so would not be eligible for a white or blue label*.

The other devices either passed the stability/obstacle tests or it is feasible that these could be modified to pass (e.g. improved design of anti-tip wheels).

These four devices correspond to three of the four main outcomes of testing to SATS 3695.3:

1. Devices that are compact enough to access DSAPT-compliant public transport but do not meet safety requirements such as stability and obstacle tests - many "Class A" MMDs (intended for indoor use) fall into this category
2. Devices that are compact enough to access DSAPT-compliant public transport and also meet the safety requirements. Some "Class A" mobility scooters, some compact "Class B" mobility scooters and most "Class B" powered wheelchairs are likely to fit into this category
3. Devices that are too large to access worst-case DSAPT-compliant public transport but meet the safety requirements. Most "Class B" mobility scooters and large powered wheelchairs likely fit into this category.

(The fourth category is devices that are too large for public transport and also do not meet safety and/or dimensional requirements. These are mostly "Class C"

devices that are intended for off-road use and are generally not suitable for footpath use.)

It is not clear from the CQU research how many of the 22 MMDs that were predicted through computer modelling to be able to access 13 of the buses also met the safety requirements of SATS 3695.3 (i.e. category 2 above). Like the 3-wheel scooter tested by us, those that did not meet safety requirements would be unsuitable for conveyance on public transport despite being compact enough to manoeuvre into an allocated space (Category 1 above). These should be excluded from any analysis of the suitability of accessibility tests of the Technical Specification.

The finding that, through computer modelling, four of the MMDs that met Blue Label (accessibility) requirements could not access eleven of the buses may not be useful because eleven of the buses did not meet the minimum width requirement of 800mm apparently used by the researchers. It is not clear how many of the four MMDs would have passed the swept path test using the requirement of 850mm, as used in the Technical Specification.

In summary we consider that the CQU letter *has not demonstrated that SATS 3695.3 is deficient regarding its stated purpose* of identifying MMDs that are likely to be compatible with public transport that is consistent with DSAPT requirements, as well as meeting critical safety requirements (i.e. Category 2 above).

It is recommended that reference to the CQU claims be deleted from the NTC discussion paper.

Regardless of this issue, the Blue Label requirements and labelling are entirely optional and are not relevant to the safe use of MMDs on footpaths. It is considered that any alleged uncertainty about the adequacy of the Blue Label requirements should not be a reason to delay implementation of SATS 3695.2 for MMDs intended to be used on footpaths and that other (i.e. non-Blue label) requirements that are not related to public transport use should be implemented as soon as possible to address the identified safety concerns with MMDs using public infrastructure.

Page 12 2.4 Limited understanding of the safety risks associated with MMDs

Our ESV paper summarises the Austroads project findings about MMD injuries and fatalities. The Austroads Final Report has extensive information about this issue including a provisional benefit/cost analysis. It is acknowledged that comprehensive injury information is not available for Australia but some detailed studies suggest a very high serious injury rate in terms of kilometres travelled. The benefit/cost analysis included a detailed sensitivity analysis in recognition of the uncertainties.

Page 13 Maximum unladen mass

Our ESV paper has a section that discusses unladen mass and dimensions. The 170kg recommendation was based on the desire to limit laden mass of all types of MMDs to 300kg (white and blue label devices) in order to meet common safe working loads associated with using MMD specific ramps and lifts (as per the capacity requirements for ramps and lifts set out in the DSAPT). A detailed survey of mobility scooters and powered wheelchairs on the Australian market (at that time) also contributed to setting a maximum unladen mass of 170kg. During development of SATS 3695.3 consideration was given to the issue that wheelchairs are commonly considered as essential medical equipment for the occupant and it was decided to not apply a limit on unladen mass but, instead, to encourage users to not exceed 300kg laden mass.

Page 16 - Question 1 - Do you agree with aligning the maximum unladen mass (of the ARR) with the ATS...?

If the intention is to simply change 110kg to 170kg then this is undesirable for several reasons.

Firstly, it would discriminate against powered wheelchairs with essential medical equipment (e.g. specialised seat modifications, oxygen equipment, customised controls, etc) that exceed 170kg. To avoid this it would be necessary to somehow exempt these particular MMDs from the 170kg limit.

Secondly, it allows larger, heavier mobility scooters to be used on footpaths when there are no commensurate improvements in the safety of these devices. *This would be a lost opportunity to encourage the introduction of MMDs that conform with SATS 3695.3 and the associated in-service safety benefits*. In any case, it is noted that the NTC discussion paper on Personal Mobility Devices that is also out for public comment has maximum length, width and height and hazardous protrusion requirements that are missing from the MMD discussion paper.

In our view insufficient consideration has been given to possible ARR amendments that would provide for existing MMDs but would encourage MMDs that conform to the Technical Specification in the longer term. Based on the consultations during the Austroads project, we have summarised ARR options for MMDs in the appendix to this submission.

Page 22 Austroads Project

It is recommended that the following corrections be made (it appears that the original words were based on an early draft of the Technical Specification) :

1. Replace "a maximum laden mass of 300kg for MMDs for a blue label"

with

a recommended maximum laden mass of 300kg for all MMDs

2. Replace "optional requirements for public transport that display key advice characteristics including make, model, length, width, unladen mass, maximum safe slope, year of production and a unique identifier:"

with

optional requirements to improve compatibility for conveyance on large public transport, including access through passageways and manoeuvring into an allocated space.

Remove the indent for the next paragraph "A blue or white..."

3. On page 23 replace "would remain under the 300kg limit for a blue label (Austroads, 2018)."

with

would remain under the 300kg limit for both blue and white label MMDs (Austroads, 2018).

Reason for items 1 & 3

The prescribed label has the words 'Warning: Some equipment and infrastructure are not suitable for a total occupied mass in excess of 300kg'. This applies to White and Blue label devices.

Disclaimer

This document represents the author's view and does not represent the views or policy of any organisations.

APPENDIX - ROAD RULE OPTIONS

These notes are intended for discussion about changes to the Australian Road Rules to address concerns about provisions for MMDs.

A. Do nothing - current inconsistencies with Road Rules remain

B. Amend road rules to provide same unladen mass limits as TS (170kg for mobility scooters and unlimited for powered wheelchairs) - road authorities are unlikely to agree to increasing mass limit without the safety assurances of the TS. Also it would not, by itself, encourage uptake of the TS. Furthermore, the ARR would need to distinguish between mobility scooters and powered wheelchair for mass limit purposes.

C. Amend road rules to allow an "either or" provision - either the MMD is labelled to the TS or it meets current unladen mass and maximum speed limit requirements. This has the advantage of providing an incentive for MMD manufacturers to market devices that conform to the TS but avoids mandatory provisions.

D. Amend road rules to require MMDs using footpaths have a TS label if they are manufactured after a certain date (E.G 1/1/2022). Grandfathering provisions would allow indefinite use of older MMDs that meet current road rule requirements. This was the preferred option of the ARR Working Group (TMR, TfNSW, Vicroads & NTC) from the previous Austroads project and a draft Regulatory Impact Assessment was prepared on that basis. The draft RIA made it clear that the main avenue for enforcement would be at point of sale (product not fit-for-purpose if an unlabelled MMD is sold for use on footpaths) and that in-field enforcement of MMD users would be very unlikely.

E. Amend road rules to require all MMDs using foothpaths after a certain date have a TS label - this would likely be regarded as draconian since older devices would suddenly become illegal to use. It was never a consideration for the ARR Working Group.

F. Amend public transport regulations to require MMDs using certain public transport after a certain date to have a TS blue label. This was not considered by the ARR Working Group and was not raised by any stakeholder during that project. It would be regarded as a major imposition on MMD users. The blue label provisions of the Technical Specification were introduced at the request of public transport regulators to encourage compatibility between MMDs and mass transit vehicles and were never intended to be mandatory for use of public transport (as stated in the scope of the TS).

Recommendation

Based on the outcomes of the previous Austroads project *it is recommended that Regulatory Option C be put forward as the preferred way* to address inconsistencies in the current road rules.

It has been suggested that the ARR could simply refer to TS label instead of requiring compliance with the TS (it is understood that there are difficulties having the ARR refer to standards/documents that are outside the control of regulators). Possible wording for the ARR is as follows:

Motorised mobility device (a new ARR definition)

A motorised wheeled device that is used by one occupant who is unable to walk or has difficulty walking and the device either:

a) has a permanently affixed label that includes the words "This product conforms with SA TS 3695.3" or

b)

i. has a maximum speed capability on level ground of not more than 10km/h and

ii. has an unladen mass of not more than 110kg and

iii. is a chair mounted on three or more wheels that is built to transport a person who is unable to walk or has difficulty in walking, but does not include a pram, stroller or trolley.

Notes:

- The proposed wording means that conformance with the TS is optional under the ARR. It would encourage suppliers to market products that conform with the TS, firstly because the TS is recognised in regulation (reinforcing the fit-for-purpose message) and secondly it offers unladen mass benefits compared with existing requirements.

- This approach avoids the need to separately define mobility scooters and powered wheelchairs in the ARR, since they have different unladen mass requirements in the TS. It would not be reasonable to simply change the existing unladen mass limit in the ARR to 170kg since the TS has no limit on unladen mass for powered wheelchairs and limiting them to 170kg could be regarded as discriminatory.

- An alternative to referring to the TS in the ARR is to require "wording acceptable to the registration authority" and have that authority refer to the TS through gazettal: e.g. *Acceptable wording is "This product conforms with SA TS 3695.3"*. This gives extra flexibility, particularly if the TS changes.

- There are numerous other minor amendments that were identified by the ARRWG to address inconsistencies with current ARR (see the non-public draft Regulatory Impact Assessment prepared by that Group).