

16 April 2019

To whom it may concern

Dear Sir/Madam

### **NOTIFICATION OF IMPLEMENTATION OF MASH ROAD SAFETY HARDWARE**

In 2009, the AASHTO Manual for Assessing Safety Hardware (MASH) was published, superseding the National Cooperative Highway Research Project Report 350 (NCHRP350) for the purposes of evaluating new safety hardware on the US highways network. As with the earlier document, MASH sets guidelines for crash testing and evaluation criteria for assessing test results.

The NZ Transport Agency adopted MASH as the nominal standard for road safety hardware systems installed on the State highway network from 1 October 2012.

On 24 April 2018, the Austroads Board accepted the Australasian Safety Barrier Assessment Panel's recommendation to transition to MASH tested products over the following timeframe:

- 31 December 2018 Steel rail barriers and permanent concrete barriers
- 30 June 2019 Terminals
- 31 December 2019 Wire rope safety barriers and crash cushions
- 31 December 2020 Transitions, temporary barriers, Part 2 products.

This timeframe was developed from the Joint Implementation Plan published by AASHTO and FHWA on 7 January 2016<sup>1</sup> but did not incorporate the subsequent amendments for W-Beam terminals and wire rope safety barrier systems. Further information on the US implementation programme and amendments is available from the AASHTO website<sup>2</sup>. Austroads has not currently adopted the extension to wire rope safety barriers as planned in the US, but is monitoring the availability of such systems in the AU/NZ market.

This notification is to re-affirm the New Zealand Transport Agency's intent to follow the same staggered introduction of MASH-only hardware for new permanent installations and full replacements of existing installations on the New Zealand State Highway network.

For contracts on the State highway network with award dates after the dates below, only road safety hardware evaluated (crash tested) to the 2016 edition of the AASHTO MASH criteria may be used for new permanent installations and full replacements of existing installations:

- 31 December 2018 W-Beam road safety barriers and permanent concrete barriers. Note (i)
- 30 June 2019: Tangential W-Beam terminals. Note (ii)
- 31 December 2019: Wire rope safety barriers and crash cushions
- 31 December 2020: All other semi-rigid and rigid barrier types (e.g. bridge barriers)  
Transitions  
Temporary road safety barriers  
AS/NZS 3845 Part 2:2017 products  
All other W-Beam terminals, such as double-sided or median terminals, 'flared' terminals, and terminals installed on a flare. Note (iii)

<sup>1</sup> [http://safety.fhwa.dot.gov/roadway\\_dept/policy\\_guide/roadHardware/docs/memo\\_joint\\_implementation\\_agmt.pdf](http://safety.fhwa.dot.gov/roadway_dept/policy_guide/roadHardware/docs/memo_joint_implementation_agmt.pdf)

<sup>2</sup> <https://design.transportation.org/mash-implementation/>

NOTE:

- (i) All W-Beam road safety barriers and concrete barrier profiles currently accepted in NZTA M23 already meet MASH criteria hence there is no impact on these products.
- (ii) Tangential W-Beam terminals are installed parallel to the roadway but may have the impact head offset by up to 610mm over the first 15,24m (4 rails). NZ examples include ET2000 Plus (NCHRP350), X-350 (NCHRP350), SoftStop (MASH) and MSKT (MASH).
- (iii) 'Flared' W-Beam terminals must have the impact head offset by up to 1220mm on the approach and therefore require a larger graded area for installation. The most common NZ example is the FLEAT (NCHRP350).

The ability to repair existing hardware installations, such as previously compliant NHRP350 systems will be dependent on the availability of repair components. As older systems (predominantly US-sourced) become unavailable, full replacement using MASH-16 compliant systems will be required.

Temporary work zone devices, including portable barriers, manufactured after 31 December 2020, must have been successfully tested to the 2016 edition of MASH. Such devices manufactured on or before this date, and successfully tested to NCHRP Report 350 or the 2009 edition of MASH, may continue to be used throughout their normal service lives.

Modifications of eligible highway safety hardware must utilize criteria in the 2016 edition of MASH and AS/NZS 3845 Part 1:2015 and Part 2:2017 for re-evaluation and/or retesting.

Non-significant modifications of eligible hardware that have a positive or inconsequential effect on safety performance may continue to be evaluated using engineering assessment and/or finite element analysis.

If you are a supplier in the New Zealand market, we would appreciate your early notification of any inability to meet this timeframe and your proposed implementation plan to manage migration to full MASH-16 compliance, as necessary.

Please feel free to share this letter with your design and procurement teams.

Yours sincerely



**James Hughes**  
**Lead Safety Advisor (Roads & Roadsides)**  
DDI +64 4 894 6312  
M 64 21 562 769  
E [james.hughes@nzta.govt.nz](mailto:james.hughes@nzta.govt.nz)