New Initiative Form

This form must be used to socialise new proposals to the NHVR Technical Working Group (TWG) and will be used to seek views and gain the understanding of and input from members and key stakeholders. It will be used to ensure new proposals are well articulated so they can be properly assessed by the TWG to progress to the NHVR's Forward Work Implementation Proposal phase.

Completion Responsibility	NHVR Vehicle Safety and Performance Unit
Proposal Name	Tyre Inflation Proposal
Date	18 October 2016

Initiative Purpose/ Problem Addressed

TyreSafe Australia has made several submissions to both the NHVR and Federal Minister regarding the inadequacy of the tyre inflation requirements in the *Heavy Vehicle National Law* (HVNL) and the National Heavy Vehicle Inspection Manual (NHVIM).

It is contended that the light vehicle requirements are addressed in ADR 42 and that heavy vehicles should also be included in the ADR.

TyreSafe Australia are seeking that tyre pressure monitoring systems (TPMS) be mandated in Australia for heavy vehicles, aligned to the USA, EU, Korea, Taiwan and China. The NHVR notes these mandates are for vehicles up to 4.5 tonnes and there are no markets that mandate TPMS for heavy vehicles.

The aim is to determine if there is a problem with poor type inflation maintenance within the Australian heavy vehicle fleet. This will assist guide if further work is required to update the ADR, the Heavy Vehicle (Vehicle Standards) National Regulation and/ or the NHVIM to address the matter of poor tyre inflation maintenance by the heavy vehicle fleet by mandating TPMS.

Out of Scope

- Assessment of the effectiveness of TPMS available to heavy vehicles whether for new vehicles or the retro-fitment of such systems.
- The capability of the market to deliver services for retro-fitment if TPMS is mandated.
- Regulatory Impact Statements requirements, timeframes or decision processes related to mandating fitment of TPMS.

Cost-Benefit Analysis

The ability of heavy vehicles to operate safely is clearly linked to their ability to track and remain on the road as well as respond to demands from the driver when undertaking manoeuvres. Tyres therefore play a vital role and their condition and inflation are key aspects to the vehicles performance. The community as well as operators and drivers should be confident that tyres are well maintained and perform as intended and this can be aided by appropriate inflation pressure.

The economic consequences of crashes is well known and although obtaining specific data associated with failure to maintain tyre inflation pressure as a cause of heavy vehicles crashes is difficult we can estimate that there are significant community savings to be made by ensuring heavy vehicle tyres performing effectively.

In addition, there are other costs associated with not having adequate tyre performance related to driver fatigue, pavement wear and emissions related to poor vehicle performance. It is even more difficult to assess the impact of this proposal on those areas however.

Mandating TPMS on all heavy vehicles would impose significant costs to industry if required for all new vehicles and the 'ATA conservatively estimates the cost to be over $1.6 billion to equip all trucks and trailers over 4.5 tonnes GVM with these systems'.[1]

Based on ARTSA vehicle data[2], and assuming a cost of $100 per tyre for purchase and installation of TPMS, the NHVR has estimated that mandating of TPMS would cost approximately:

[1] ATA submission: Standards Australia AS2330, pg 3, 25 March 2016.

[2] Q2 2016 vehicle data for vehicle with a gross vehicle mass exceeding 12 tonnes.

- $720 million[3] cost if mandated for entire heavy vehicle fleet
- $16 million[4] per annum if mandated for new heavy vehicle fleet.
- The above figures do not factor in ongoing industry installation cost for new vehicles. If this was factored in, it would represent an additional $320 million.[5]

Obtaining reliable crash data where tyre pressure can be directly attributable to a crash is almost impossible. However, National Transport Insurance produce a yearly Major Accident Investigation Report and from the 2015 report we know that they estimate mechanical failure to contribute to 5% of heavy vehicle crashes with 72% attributed to tyre failure.[6]

BITRE data indicates that during the 12 months to the end of June 2016, 208 people died from 182 fatal crashes involving heavy trucks or buses. We can assume that 5% or 10 deaths might be attributable to mechanical failure of which 7 deaths might be attributable to tyre failure based on NTI data. BITRE research from 2006 indicates that the social cost of a death is $2.4 million. MUARC undertook research in 2012 and made estimates for human capital crash cost of $3.125 million per crash.

- Therefore social cost (human capital crash cost) of tyre failure is approximately $22 million (7 x $3,125,000).

The cost benefit ratio over 20 years can then be expressed as:

- Mandatory for all heavy vehicles $1.04 billion ($720 million + $320million) cost to $440 million in savings results in a negative cost benefit ratio of approximately 2.3:1.
- Mandatory for all new heavy vehicles $320 million cost to $440 million in savings resulting in a marginal positive cost benefit of 0.7:1.

The regulatory burden to industry of having to retrofit TPMS to all heavy vehicles would be difficult to justify based on the number of crashes that might be directly attributed to poor tyre inflation pressures. Adjustment to maintenance practices and processes through providing appropriate guidance for operators and guidelines for industry (which exists) is one method to mitigate risk associate with poor type inflation pressure maintenance practices.

The NHVR might also review if other regulatory approaches, such as appropriate in-service testing requirements to ensure compliance the HVNL and NHVIM or providing a general obligation in the HVNL to ensure the safety of tyres, are more feasible and potentially may deliver comparable safety outcomes to mandating TPMS.

The social implications of heavy vehicle road crashes affect operators, drivers and their families and the community through road trauma and dealing with the aftermath of such events can be life-long. Efforts to reduce these incidents contribute greatly to improving the social outcomes for many communities of interest.

Estimated Duration (if known)

It is expected that this project could be completed by June 2017.

Estimated Proposal Cost (if known)

This proposal will be funded through internal business-as-usual funding and can be absorbed by the NHVR. The NHVR estimates that a full-time equivalent (FTE) resource of 0.25 is required to manage and completed this proposal to 30 June 2017.

We will actively seek input from the TWG to provide data and evidence about the adequacy of current practice and procedures and the extent of the problem in the Australian fleet.

Estimated Resource Required (if known)

The NHVR estimates that a full-time equivalent (FTE) resource of .25 is required to manage and completed this proposal. The NHVR is unable to ascertain what industry participation might extend to but can assume that it would be equivalent FTE to that of the NHVR's for those organisations actively participating over the projects life-cycle.

[3] $525,476,200 + $193,247,700 (sum of $194,400,000 + $192,095,400). This does not factor in maintenance or replacement costs.
[4] Based on 2015 TIC data.
[5] This does not factor in maintenance or replacement costs.
[6] This is for NTI clients only and for claims over $50,000.

External Consultation/ Engagement Required (if known)
There is a requirement for ongoing consultation with industry, operators and drivers and it is the NHVR's expectation that industry associations on the TWG will provide members with updates on the progress of the project. The NHVR will keep jurisdictions appraised of the progress as well as general information through our industry updates and newsletter. A communication plan will be required to alert industry, operators and drivers to any new testing requirements and a call to action about how they can assist with any potential change.

Industry Expectations	Community/ Stakeholder Expectations
• That there not be any additional vehicle standards, compliance or enforcement burden placed on them that does not bring a commensurate productivity and safety benefit. • That there is alignment to international best practice in development of any proposed change to tyre pressure monitoring requirements to the Australian fleet whether that be mandated or through improving current industry guidance and practice and it be applied consistently nationally. • Operators and drivers understand what they are required to do in-service to meet any current or future requirements.	• Heavy vehicles operate to the highest productivity and safety standards that is affordable to the community. • Where non-compliant vehicles are identified that appropriate measures are in place to bring these vehicles back into compliance and ensure they are safe.

Estimated Proposal Size (if known)		
✓ Small	☐ Medium	☐ Large

Chair Recommendation
The TWG are encouraged to support the adoption of this proposal. The establishment of a TWG sub-group is recommended to progress this proposal to assist the NHVR deliver in a timely manner. The sub-group might consist of: • industry associations – ATA, NBTA, BIC • vehicle and trailer manufacturers – HVIA, TIC, ARTSA. The NHVR is unaware of any other work or projects being undertaken either in Australia or internationally in regards to this or a similar like proposal. We are aware, through TyreSafe Australia, of 'ample evidence from the USA and the EU on the criticality of tyre inflation', the relevance to heavy vehicle, which we have not been able to assess at this time, needs to be determined and it is important that this be reviewed and understood prior to progressing to any further work.

Approval to proceed to Forward Work Inclusion Proposal

Technical Working Group Chair		
✓ Approved	**Name:** Geoff Casey	**Title:** Chair Technical Working Group
☐ Rejected	**Signature:**	**Date:** 18 November 2016

Calculations

If mandated for all current registered heavy vehicles 12 tonnes or more:

- all heavy vehicle – tyres 5,254,762 x $100 = $525,476,200.

If mandated for all new registered heavy vehicles 12 tonnes or more:

- new heavy vehicle – tyres 220,772 x $100 = $22,077,200.

ARTSA has data for what they categorise as medium duty vehicles and we have assumed for ease of calculation that the majority are 6 tyre vehicles and there are 324,000 in the fleet providing a total of 1,944,000 tyres:

- 2 axle medium duty vehicle – tyres 1,944,000 x $100 = $194,400,000

NHVR used data from the 2013 NTC PayGo model and assumed that for a 2 axle rigid there were 6 tyres per vehicle and the fleet was 320,159 strong providing a total of 1,920,954 tyres:

- 2 axle rigid heavy vehicle – tyres 1,920,954 X $100 = $192,095,400.

We have no data at present for new vehicle registrations in the medium/ rigid vehicle category from either ARTSA or NTC. However TIC were able to provide heavy vehicle sales data:

- new heavy vehicle sales (2015) – tyres 162,114 x $100 = $16,211,400.