

What Regulatory Reform is Needed?

Marcus Coleman
Tiger Spider





Vision

An efficient and profitable freight transport system that generates no deaths or serious injuries which is environmentally sustainable.





the MISSION

To improve transport through better technology

What Regulatory Reform is Needed?

“Productivity isn't everything, but, in the long run, it is almost everything.”



**PAUL
KRUGMAN**



Summary

1. Removing barriers to new technology
2. ARTSA PBS Reform Priorities
3. PBS Tyre Data



Removing barriers to new heavy technologies that improve safety, productivity and the environment.



Global Standards

- Disconnect between the intention to remove trade barriers and the reality of being able to import vehicles, components and technology from overseas markets.
- Dimension and Mass limits are fundamental to heavy vehicle and equipment design.
- Australia is aligning with Global Safety and Emission standards NOT Global Dimensional and Mass limits.
- Products CANNOT be brought to Australia without redesign and modification, resulting in cost increases and reduction in heavy vehicle and equipment product availability.



Australia is being left behind

- Australia has 0.1% take up rate of alternative powered heavy vehicles, versus a global average of about 2%* (1/20th the global average).
- Electric, battery, fuel cell and hydrogen storage technologies, as well as automated driving functions will place significant strain on the Dimensional and Mass “envelopes” of heavy vehicles.
- If we do not align with international Dimensional and Mass limits, we will miss out on safety, environmental and productivity improvements. Technology will be built around country of origin limits (UN and USA), NOT Australian regulations.

Data sources: * TIC T-Mark data 2016 and Mov3ment P/L



What is being impacted?

Current global safety and emission technologies (not available):

- Access to a full model ranges, option and features
- OH&S compliant cab steps and grab handles
- Ultra wide tyres (replacing dual tyres)
- Full range of Steerable Axles
- Vehicle mounted equipment with state-of-the-art OH&S features
- Electric and alternative fuelled vehicles
- Increased axle masses (present in global markets)

Future Technologies (not coming):

- Autonomous vehicles
- Connect “Intelligent” vehicles



Past, Present and Future

2002 Prime Mover
 (median age of Aust. truck fleet)



2017 Prime Mover



Beyond 2020 Prime Mover



GVM	22,500kg	23,000kg	23,000kg
TARE weight	8,700kg	9,500kg	Est. 11,100kg
Payload (productivity)	13,800kg	13,500kg (-300kg)	11,800kg (-1,900kg)
Emissions (Noxious)	ADR70 (Euro1) x40 pollutants	ADR80/03 (Euro 5)	Zero Emissions
Emissions (CO ₂)	Baseline	3-5% less than baseline	Zero Emissions
Vehicle noise	ADR28/00	ADR83/00	Tyre noise only
Safety Equipment (ADR)	Basic brakes Basic lights	As left plus: ABS FUPS Cab strength	As left plus: ESC, AEBS, LKA, etc Driverless functions Vehicle connectivity



The Future



What do these trucks have in common?

- ✓ Are the trucks of the (near) future, potentially as soon as 2020
- ✓ Zero emissions (noxious and CO₂)
- ✓ Latest safety features, ESC, LKAS, AEBS, Connectivity, Autonomous Potential.....
- ✓ Operator (fuel) savings (potential labour savings – remove the driver)

X NONE comply to Australia's current Dimensional and Mass limits

X NONE are bound for Australian shores.....



Australia/European lane widths

Australian urban arterial road widths (Austroads, 2010)

Element	Lane width (metres)	Comments
General traffic lane	3.3 – 3.5	General traffic lane widths to be used for all roads
Freeways	3.5	Lane lines but no edge lines
Interchange ramps	3.5-4.5	Lane lines but no edge lines
High Occupancy Vehicle (HOV) lane	3.5 – 4.5	Bus lane

European lane widths (Hall et al, 1995)

Country	Roadway Classification		
	Freeway (metres)	Arterial (metres)	Minor or Local (metres)
Denmark	3.5	3.0	3.0 to 3.25
France	3.5	3.5	3.5 m
Germany	3.5 to 3.75	3.25 to 3.5	2.75 to 3.25
Greece	3.5 to 3.75	3.35 to 3.75 Rural suburban	3.0 to 3.25
Hungary	3.75	3.5	3.0 to 3.5
Netherlands	3.50	2.75 to 3.25	3.10 to 3.25
Poland	3.5 to 3.75	3.0 to 3.5	2.5 to 3.0
Portugal	3.75	3.75	3.0
Spain	3.5 to 3.75	3.0 to 3.5	3.0 to 3.25
Sweden		3.75 Rural undivided	
Switzerland	3.75 to 4.0	3.45 to 3.75	3.15 to 3.65
United Kingdom	3.65	3.65	3.0 to 3.65
Yugoslavia	3.5 to 3.75	3.0 to 3.25	2.75 to 3.0





Side View



In-lane



Side View (In-lane)

Infrastructure damage

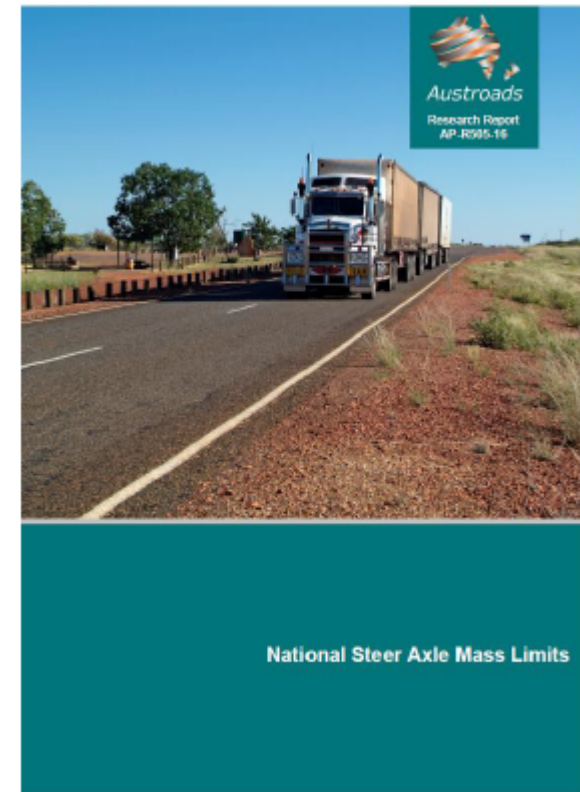
AustRoads Report findings for Steer Axle Mass:

- A safe limit of 7.0t with a wider (greater than 375 mm) tyre size with less road damage.^
- Findings detail limits up to 7.2t possible, but without “a margin of safety for the limitations of testing”. ^

✓ 7.0t already introduced by WA for General Mass Limit (not just for Road Trains).

✓ NT allows 7.2t for Road Trains via permit –now.

Source: AustRoads report AP R505-16



Performance Based Standards

NTC's PBS effectiveness paper, August 2017 confirms PBS vehicles:

- Have 46% fewer major crashes
- Are projected to save about 120 lives over the next 20 years.
- 24.8 percent productivity gains across all commodities.
- Reduction of over 440 million kilometres in truck travel.
- Saved 94 million litres of fuel in 2016, which reduced the CO2 emissions by about 250,000 tonnes.
- 4,600 PBS vehicles operating for 1 year will reduce the freight task by 2.5 billion t-km and reduce spending on infrastructure by about \$65 million



PBS Reform Priorities

1. Ensure Performance Based Standards take priority over prescriptive standards
2. Review Pavement Loading Standards to provide increased mass limits
3. Level 1 networks must equate to General Access up to 50.5 tonnes GCM
4. PBS Class B networks must be more expansive particularly in local government areas
5. Access approval process must be independent and objective
6. Level 1 vehicles require alternative performance envelope to encourage more maneuverable vehicles.
7. Bridge data and assessment protocols must be consistent and made public
8. Operating and access conditions must be applied consistently by all road managers
9. Technologies and processes to automate permit processing and cut red tape
10. Sustainability objectives should be included to incentivize technologies that reduce environmental impacts



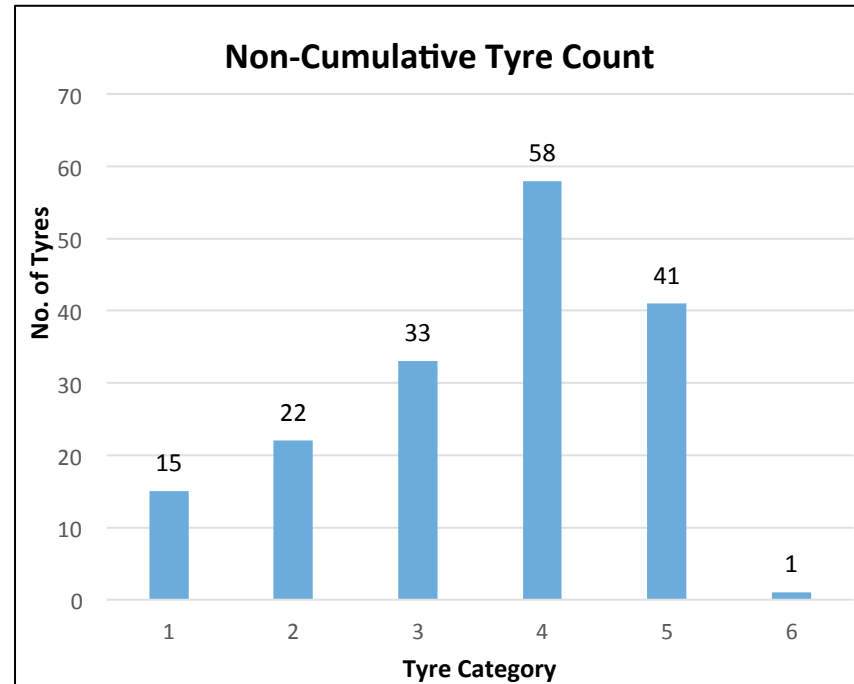
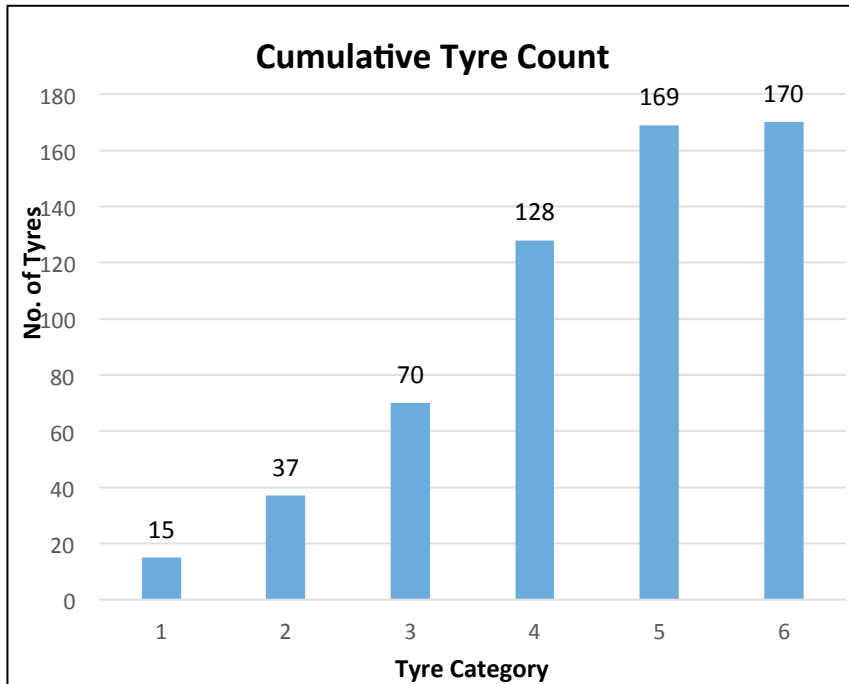
PBS Tyres



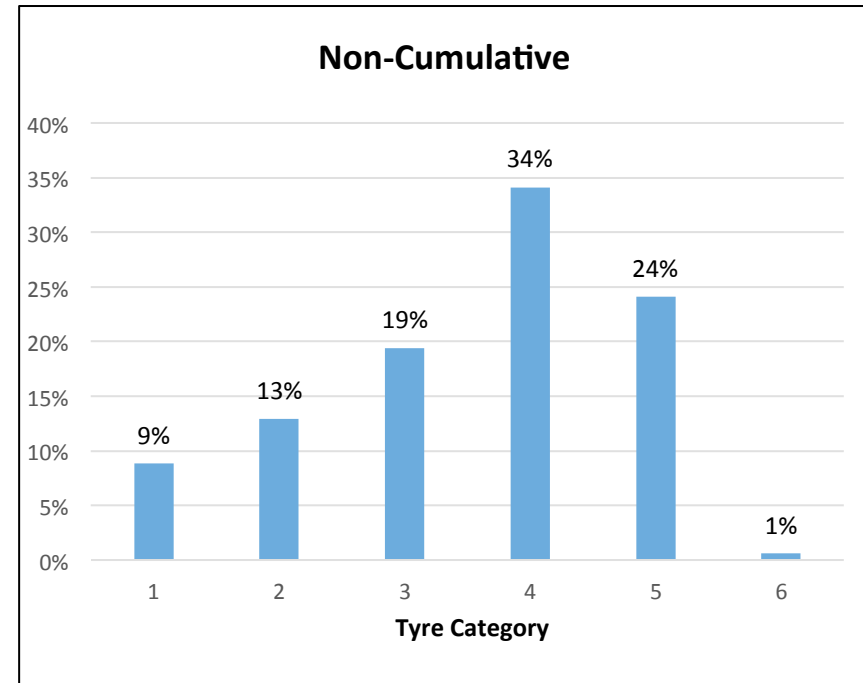
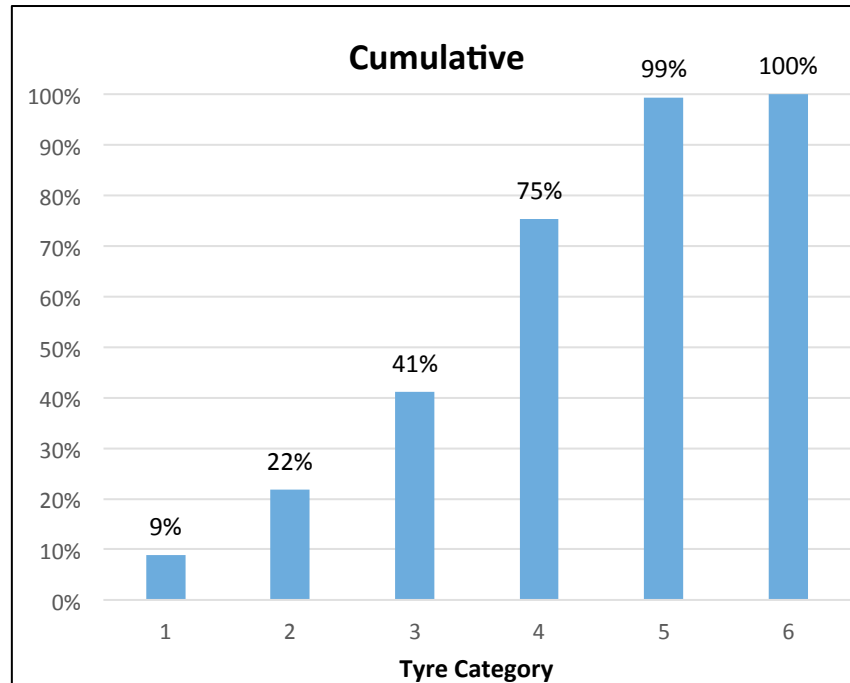
Tyre Testing

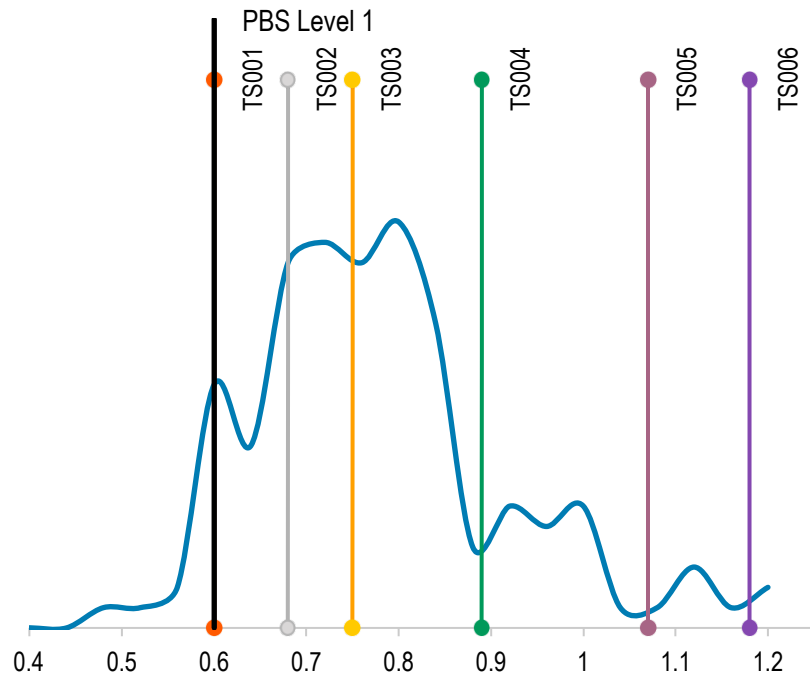


Tyre Count (Current catalogue + 25 new ARRB tested tyres)

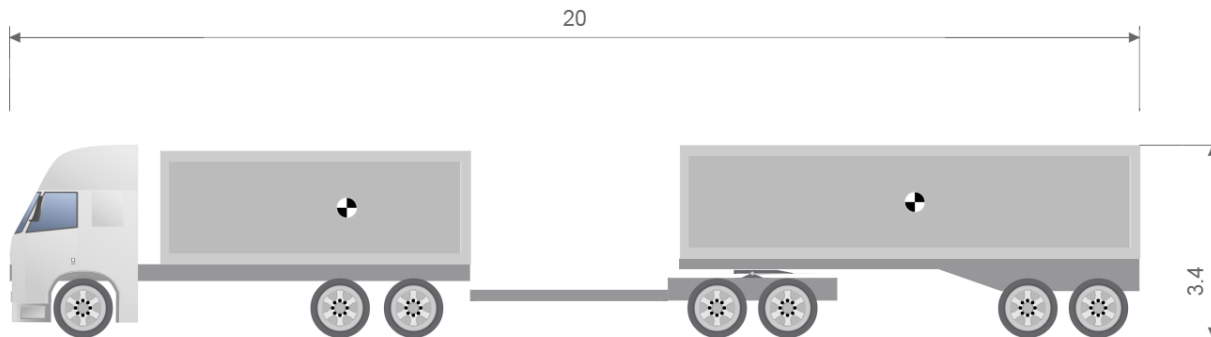


Tyre Percentage (Current catalogue + 25 new ARRB tested tyres)





Number of Tyres Simulated	170	
Number of Eligible Tyres	15	9%
TS001	15	9%
TS002	37	22%
TS003	70	41%
TS004	128	75%
TS005	169	99%
TS006	170	100%



Limit: 6500 kg

Limit: 17000 kg

Limit: 17000 kg

Limit: 17000 kg

Limit: 6500 kg

Limit: 16500 kg

Limit: 13750 kg

Limit: 13750 kg