



PBS experience in Australia under the National Heavy Vehicle Law (NHVL)

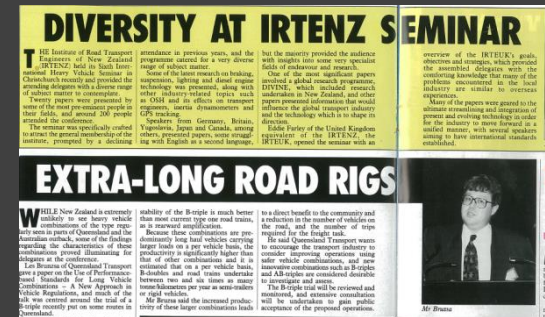
IRTEENZ 2015, Rotorua

Les Bruzsa

Chief Engineer – National Heavy Vehicle Regulator (NHVR)

Good IRTENZ Memories

- My first IRTENZ Conference was in 1996
 - Article in New Zealand Trucking, Sept 1996
 - Role of Performance Based Standards
 - AB-triples and B-triples
 - Increased productivity, enhanced efficiency
 - Reduction in a number of vehicles on the road
 - Reduced effects on the environment

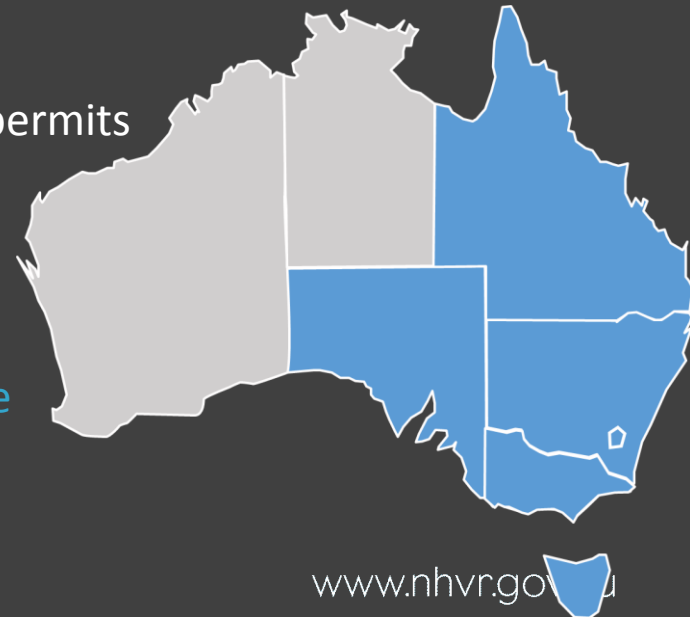


We are talking about similar things, but we have achieved a lot!

Who we are (NHVR)

The NHVR is Australia's independent regulator for all vehicles over 4.5 tonnes gross vehicle mass (except WA & NT). Within the scope of what we aim to achieve the NHVR is responsible for:

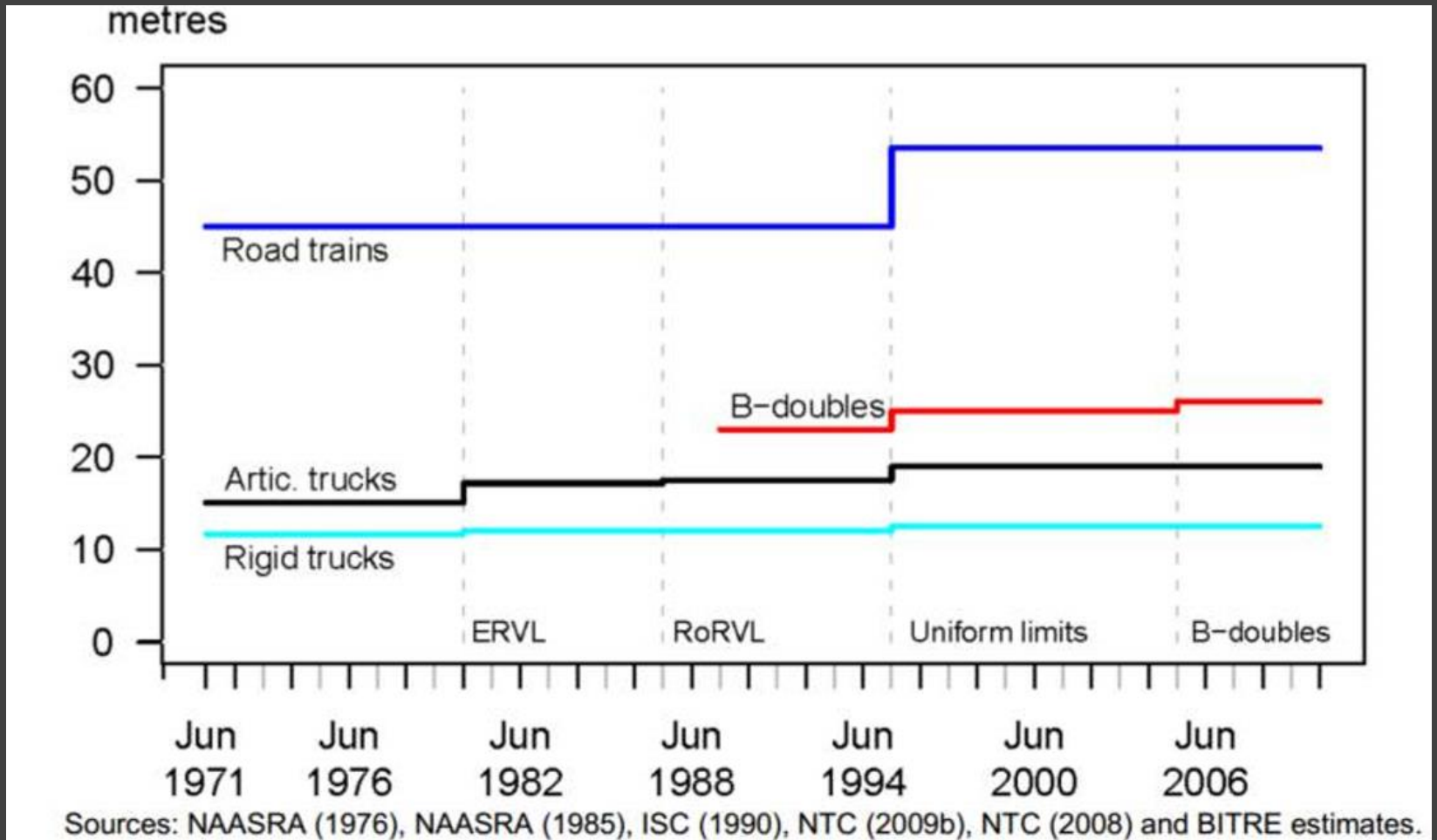
- [National Heavy Vehicle Accreditation Scheme \(NHVAS\)](#) management and accreditations, Fatigue, Electronic Work Diaries
- [Compliance and enforcement](#), Chain of Responsibility, vehicle inspections
- [Performance-Based Standards \(PBS\) Scheme](#) vehicle design and access approvals; enabling innovation and efficiencies
- [Heavy vehicle access](#) permit applications
- [Heavy vehicle standards](#) modifications and exemption permits
- One set of [national notices](#)
- One set of [national fees](#) for NHVR services
- One set of [national penalties](#)
- [On the 10th of Feb 2014 the new National Heavy Vehicle Law \(NHVL\) was implemented](#)



Facilitate, Innovate, Regulate

- Improve heavy vehicle safety
- Improve productivity
- Harmonise laws and policies
- Improve access outcomes balanced against infrastructure and community considerations
- Enable efficiency gains
- Connect and engage with industry

Dimensional limits



What is PBS?

- PBS aims to maximise the safe use of higher productivity vehicles by matching the right vehicles to the right roads
- Alternative regulatory system – PBS requirements are set in National Law
- Worlds first – only introduced into Australia
- Nationally agreed Safety and Infrastructure Standards
- The only truly national scheme

Source: Byford



PBS Origins in Australia

- 1992 Dec First PBS type submission submitted to NRTC
- Mid 90's to 2004-2008 development of innovative HV combinations
- 1999 PBS Commenced its development
- 2001 ATC endorsed policy framework for development of PBS approach
- 2003 ATC approved interim PBS framework
- 2005 Interim Regulation Panel used PBS
- 2006 COAG recognised the potential of PBS
- 2007 Oct Ministers approved the PBS package
- 2007 OCT First PBS Review Panel (PRP) meeting
- 2011 PBS RIS is released
- 2013 Jan NHVR takes over PBS administration
- 2014 Feb PBS incorporated into Heavy Vehicle National Law
- 2015 June 36th PBS Review Panel meeting

The PBS Process

- Accredited PBS Assessors (design concept) and PBS Certifiers (built vehicle)
- Design Approvals (DA) for concepts/designs – reviewed by an independent panel (PRP) with an advisory role
- PBS Combinations are approved by NHVR
- Vehicle Approvals (VA) for actual combinations – individual vehicles inspected and certified
- Access by Permit or Notice

Exemptions for PBS Vehicles permitted under National Regulation

ADR43

- clause 6.1 (Length)
- clause 6.2 (Rear overhang)
- clause 6.3 (Height)
- clause 6.5 (Width)
- clause 9.4 (Retractable axles)
- clause 9.5 (Retractable axles)

ADR 62/63

Tow coupling overhang and location

MDL Regulations

Length

- section 3 of Schedule 6 (general)
- section 4 of Schedule 6 (trailers)
- section 5 of Schedule 6 (rear overhang)
- section 6 of Schedule 6 (Trailer drawbars)
- section 7 of Schedule 6 (Width)
- section 8 of Schedule 6 (Height);

VS Regulations

Section 29(b&c) and Section 31 of Sch 3 - Coupling attachment and overhang

PBS related responsibilities of the NHVR

- Assessment and approval of PBS applications
- Approval of PBS vehicle certifications
- Authorisation of PBS Assessors and Certifiers
- One stop shop for PBS vehicle and access applications
- Facilitating access for PBS vehicles
 - PBS access decisions remain with the Road Managers
- Maintenance of PBS approvals
- Monitoring PBS operations
 - Compliance with PBS conditions
 - Demand for access

Industry is embracing the PBS concept



SEVERAL TRAILER
MAGAZINES
FEATURING PBS
VEHICLES

LONG VEHICLE

IN THE MARKET FOR PBS? RELY ON AUSTRALIA'S MOST EXPERIENCED BRANDS.







72 DESIGN APPROVALS
PBS (Performance Based Standards) is all about designing truck & trailer combinations which can carry larger than normal payloads.

Through our five leading semi-trailer brands, MaxiTRANS has 72 PBS designs approved by the NHVR. Not surprising when you consider that our dealers and engineering staff are some of Australia's most experienced in the PBS approval process.

WE MAKE IT EASY
If by chance one of our 72 existing PBS designs doesn't suit your requirements, we'll gladly design you a new one. Best of all we manage the process for you from start to finish, taking much of the work off your hands and guiding you through the steps to getting your combination onto the road.

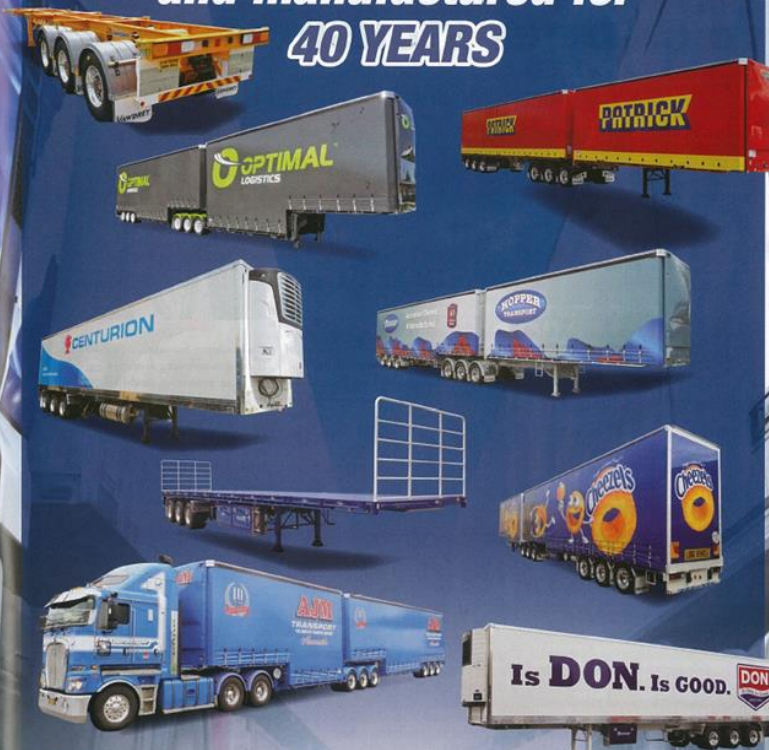
If you're in the market for a PBS combination, talk to one of our dealers today.




To find your nearest dealer, scan this QR code or visit:
www.maxitrans.com/find-a-dealer/



Proudly Australian owned and manufactured for 40 YEARS





Experience the future of transport with Vawdrey Australia's Performance Based Standards (PBS) approved combinations.

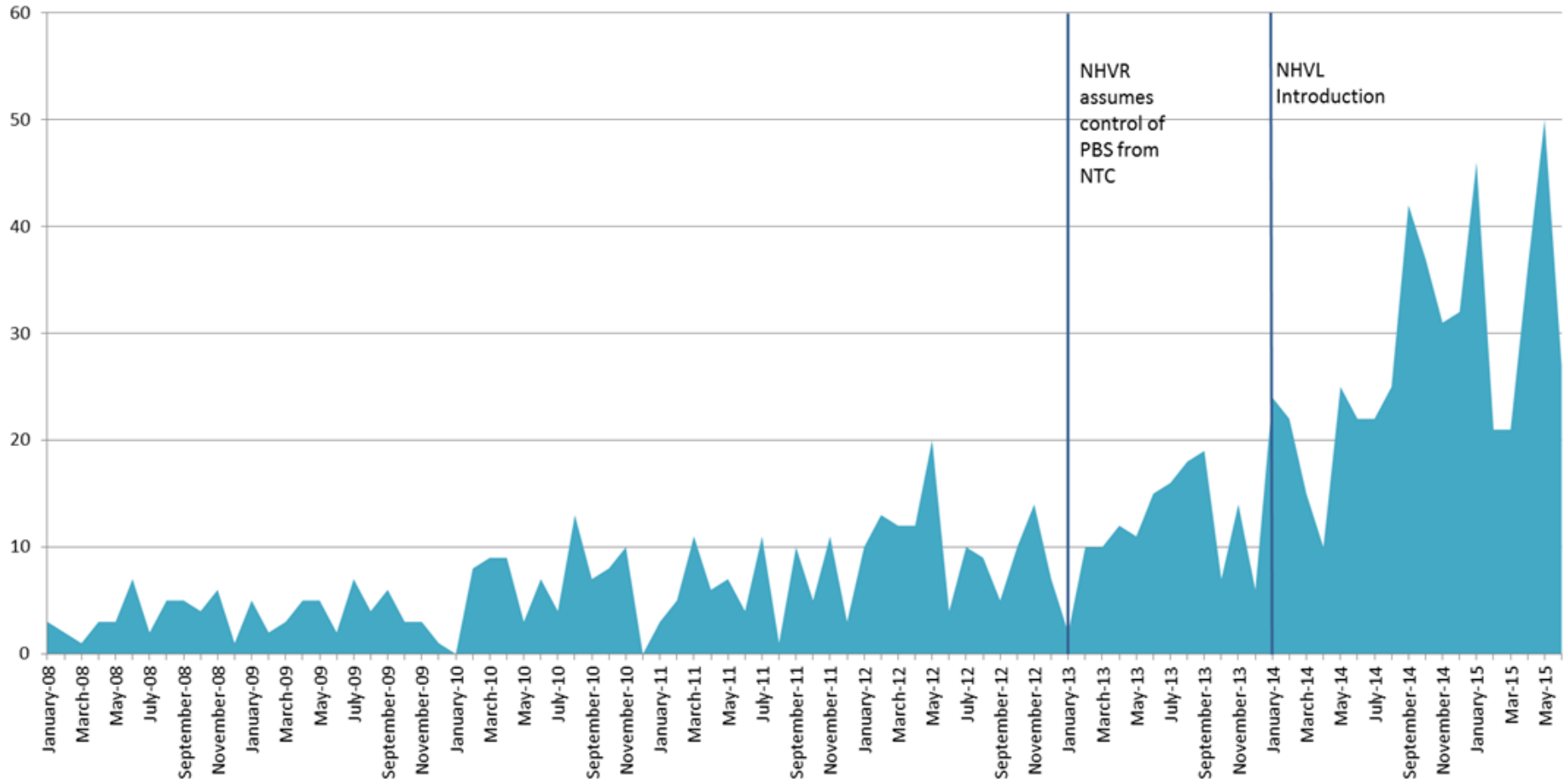
FACTORY & HEAD OFFICE
1-53 Quantum Close, Dandenong South Vic 3175 Tel (03) 9797 3700 Fax (03) 9702 8598 Email sales@vawdrey.com.au

Vawdrey Victoria Ph: (03) 9797 3700	Vawdrey New South Wales Ph: (02) 9421 8444	Vawdrey Queensland Ph: (07) 3217 0900	Vawdrey Western Australia Mob: 0448 901 126	Vawdrey South Australia Mob: 0447 343 579
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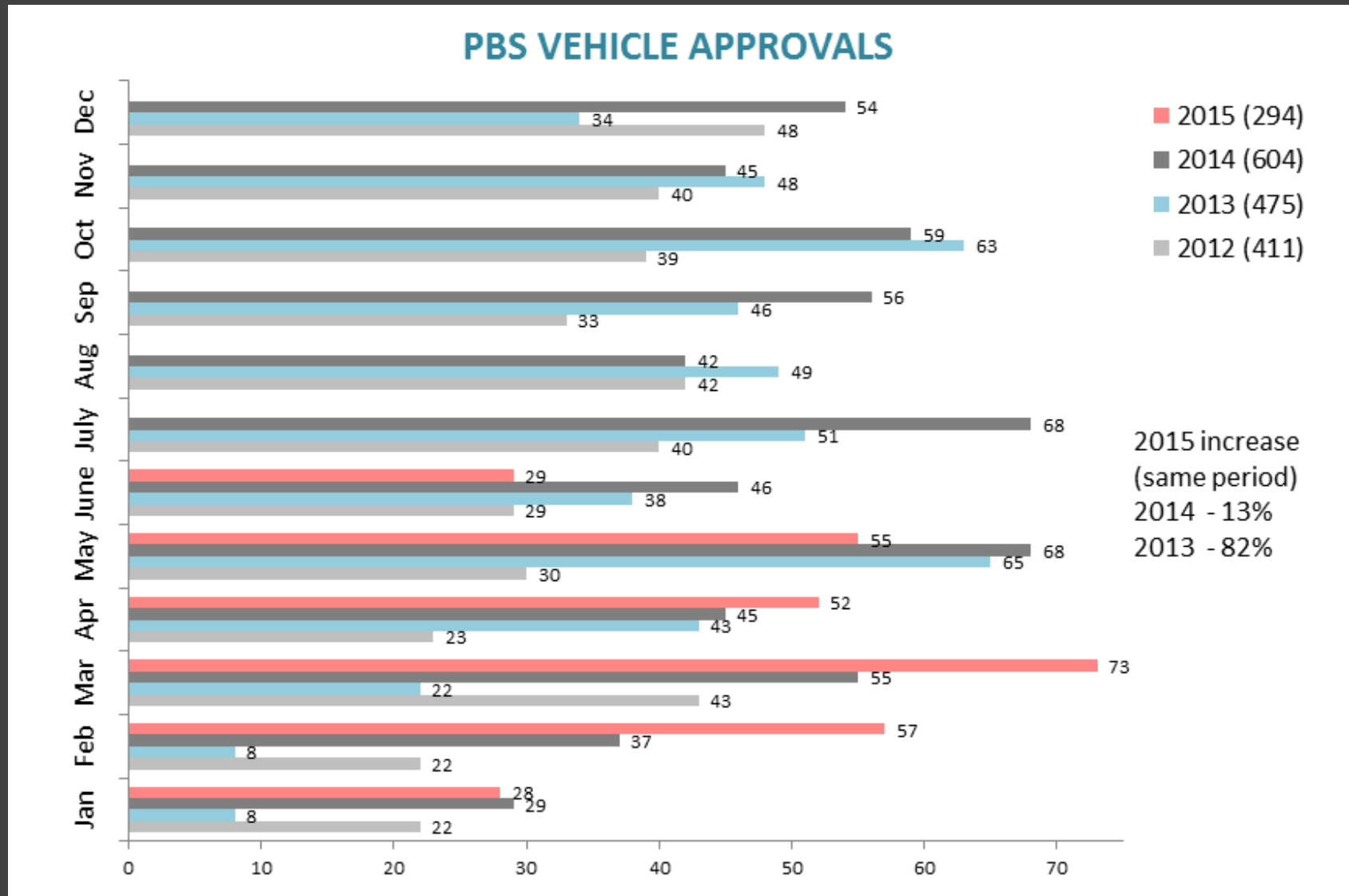
Visit us at www.vawdrey.com.au for more information

NHVR PBS Experience – Exponential Growth

PBS NEW APPLICATIONS AND AMENDMENTS

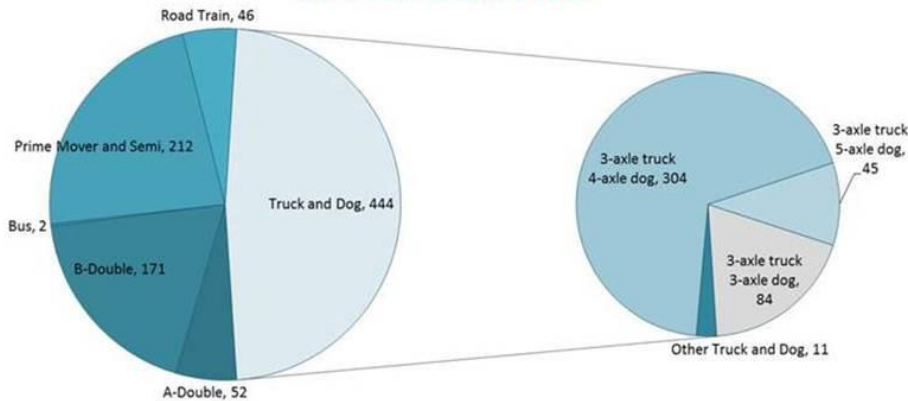


NHVR PBS Experience – Exponential Growth

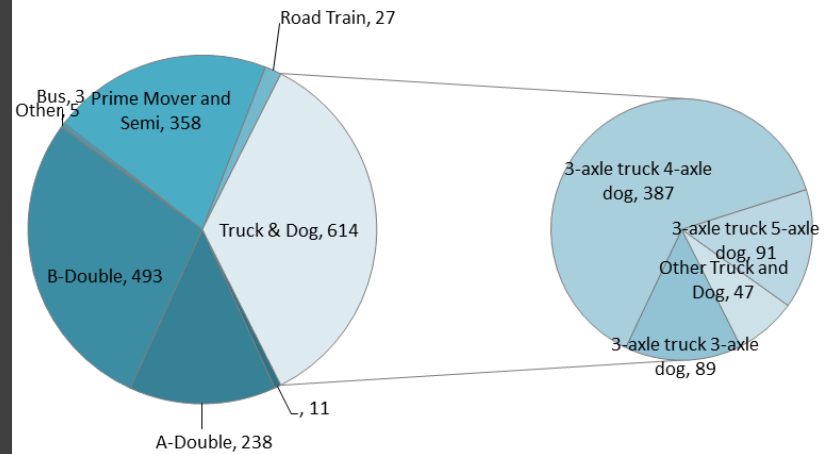


PBS Vehicle Combinations in 2014 and 2015

PBS VEHICLE COMBINATIONS 2014
COMBINATIONS - 927
INDIVIDUAL UNITS 3321



PBS VEHICLE COMBINATIONS 2015
COMBINATIONS - 381
INDIVIDUAL UNITS -1749



PBS truck and dog combinations

PBS Level 1 - 20m max overall length, 50.5t of GCM

PBS Level 2 - 26m max length (Level 2A), 68.5t (GCM is not limited)

Two significant related projects: PBS Truck and dog Notice, Class 3 notice for compliant combinations to operate with PBS limits



PBS Examples – PBS 20m Pm semi

PBS Level 1 – 20m max overall length, 45.0t of GCM

Productivity increase: from 20-22 pallets to 26 pallets (new designs with 28 pallets)

A reduction of nearly a million litres of fuel annually and

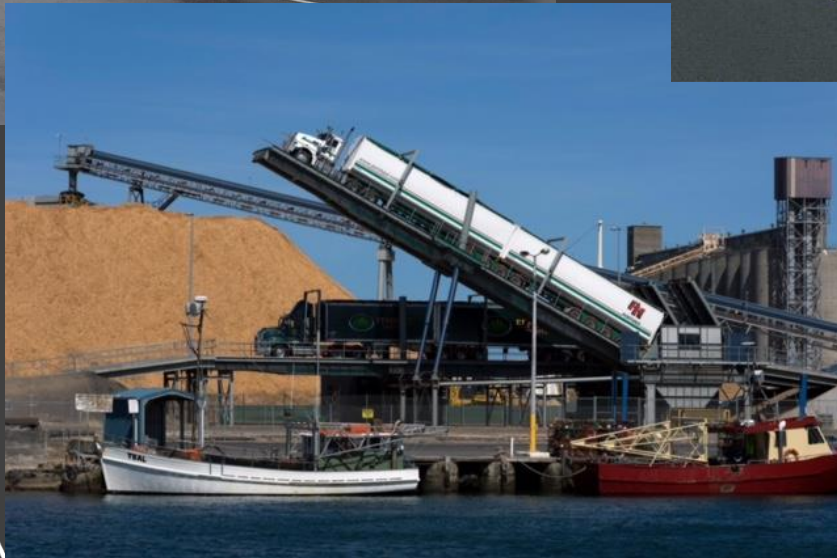
A significant reduction of the number of trips to perform the freight task

A blueprint design is available – no assessment is required



PBS Examples

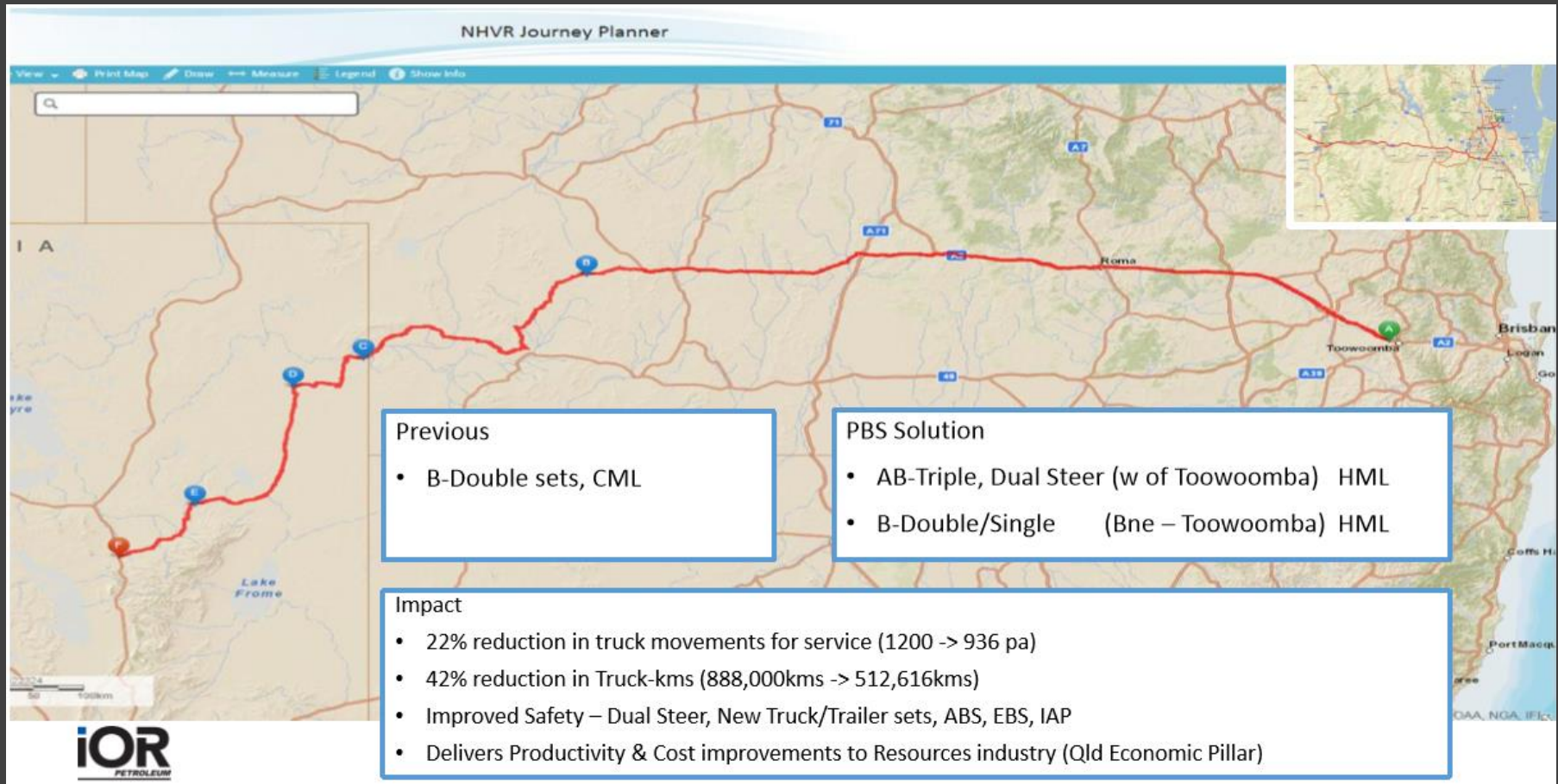
Quad-axle trailers



PBS Examples – improved logistics

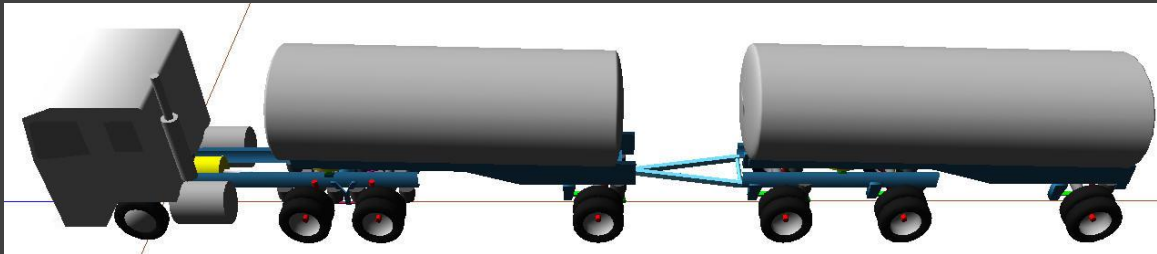


PBS Examples - IOR

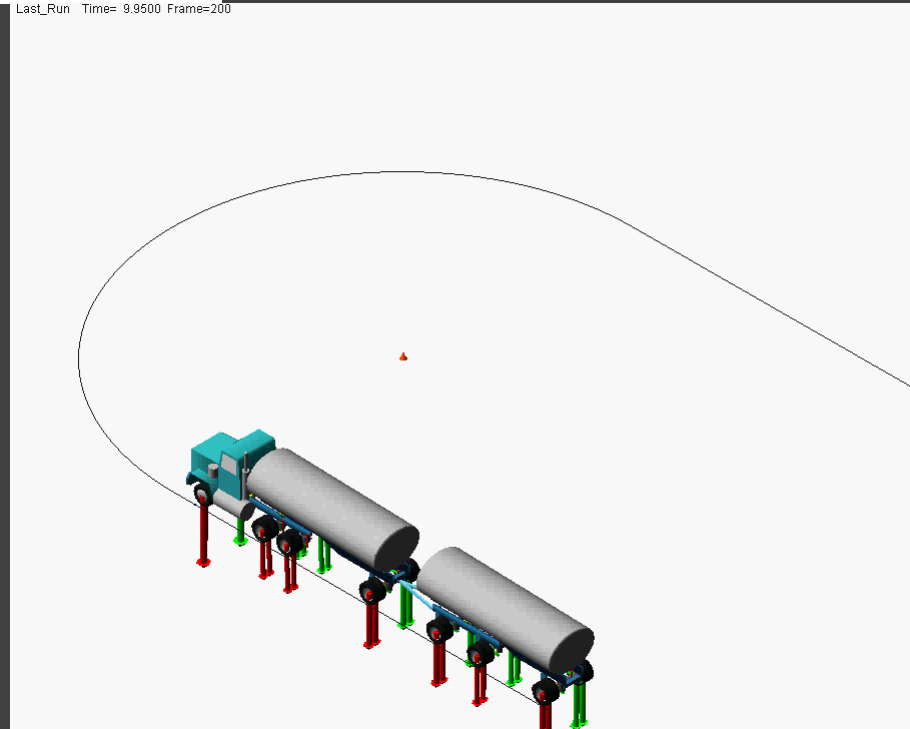


New PBS concepts – AB-double

- 2 versions with Level 1 and Level 2 masses
- Application for the dairy industry
- Significant productivity benefits



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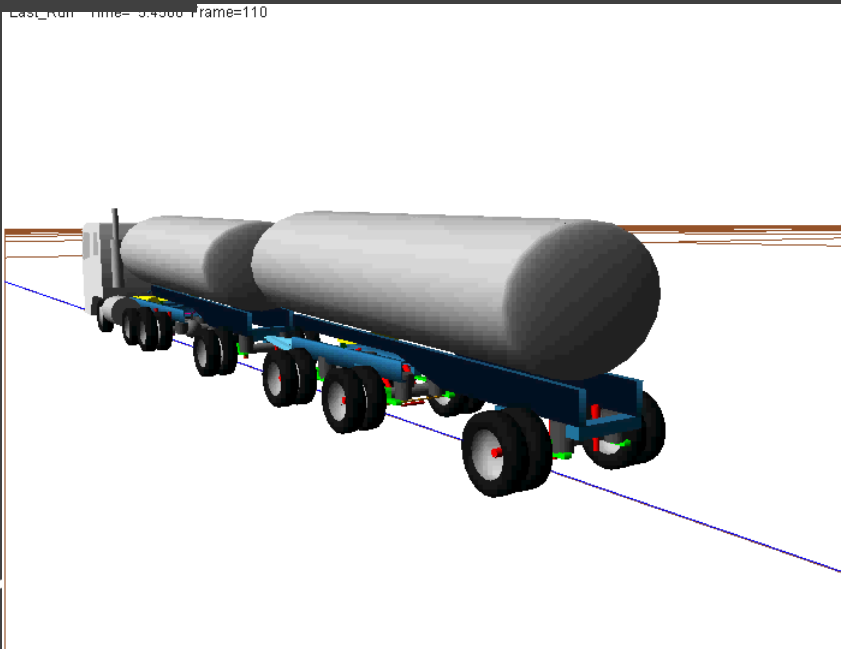


New PBS concepts – AB-double

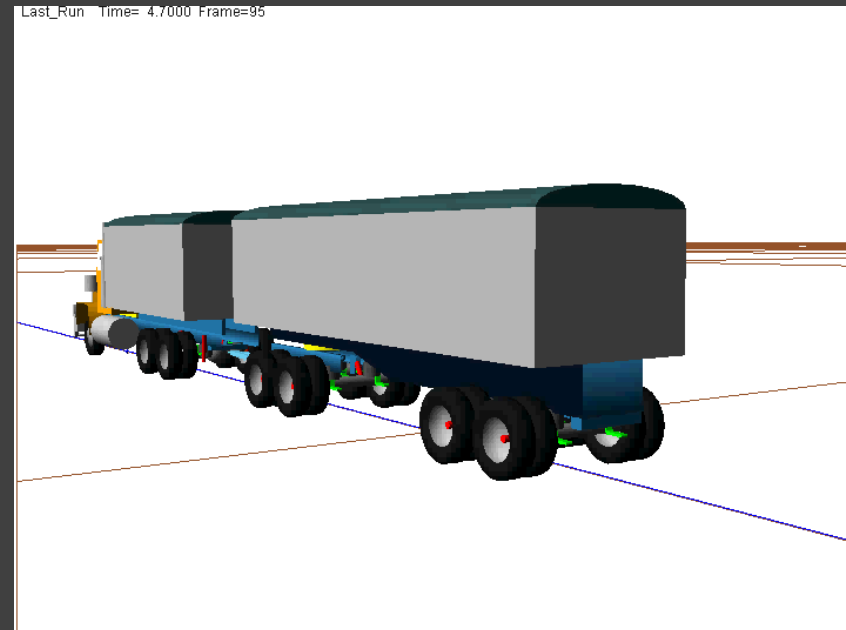
- NHVR has the legislative power to support innovative concepts;
- AB-double (20m, 58/62.5 t of GCM)
- Dynamic performance meets the PBS requirements
- SRT: 0.43; HSTO:0.71; TASP: 2.77m; LSSP: 5.81m

Sim: MSD

AB-double



PBS Tuck and dog



PBS concepts – Easysteer

- New combination for the logging industry (longer loads);
- Cannot be properly described under prescriptive regulations;
- Significant productivity benefits



PBS Buses

- Pressure on public transport systems
- Issue of mass limits and vehicle dimensions
- PBS could provide the framework for future developments
- PBS controls how a vehicle travels on the road

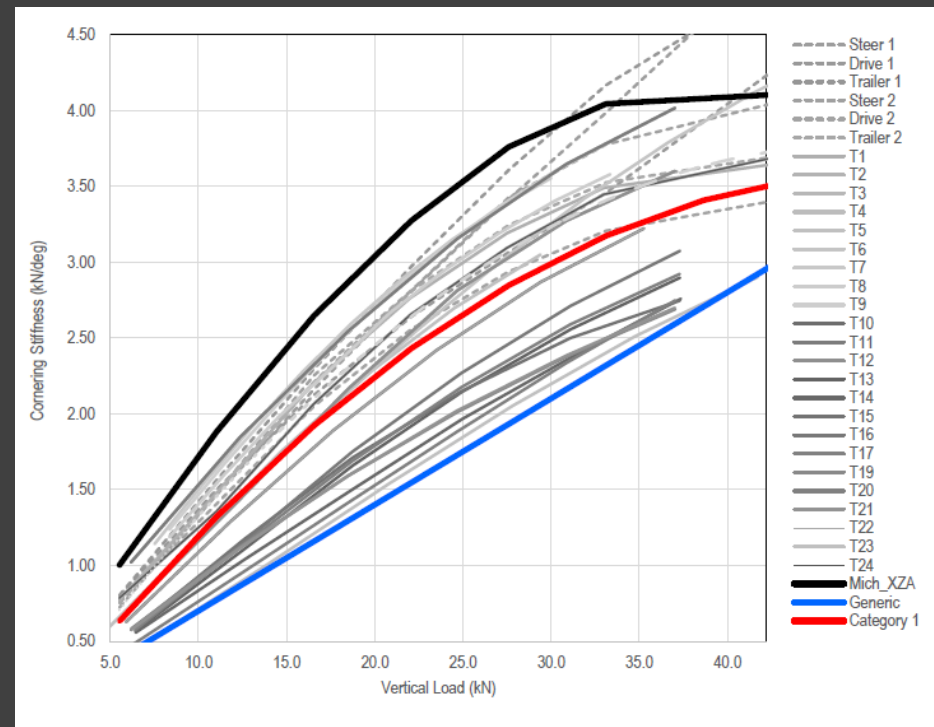
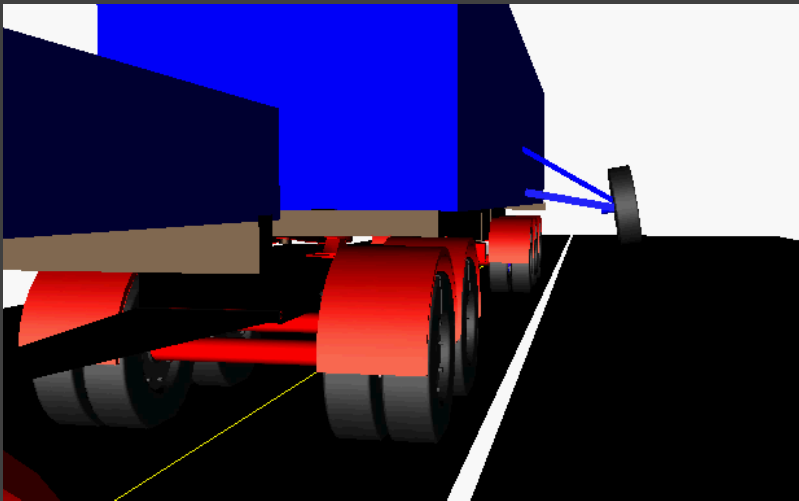


Importance of Tyres in PBS

- Tyre performance can significantly influence PBS compliance for certain PBS combinations (A-double, truck and dog)
 - High-speed transient off-tracking, Rearward amplification and Yaw damping
- Tyres with higher levels of performance are specified
- Practical considerations
 - Reliable tyre test data could be difficult to obtain
 - PBS Assessors might use different tyre parameters in simulations
 - Tyres are a consumable and will be regularly changed on PBS vehicles (availability, price, make and model changes, operational issues)
 - In cases where the tyre is critical they should be replaced with a compatible tyre

Importance of Tyres in PBS

- What are the parameters that properly describe tyre performance
- Technically very complex area, difficult to regulate
- NHVR is working with industry towards a better process to handle the tyre issues in PBS



Suspension

- Suspension choice can influence PBS compliance with
 - SRT
 - Rearward Amplification
 - High-speed transient offtracking
- Payload heights may need to be adjusted and productivity can be lost if the suspension type does not suit the load
- Suspension must be road friendly (RFS) for HML (High Mass Limits) loading
- Practical issues with RFS Certification



Steerable Axles

- Steerable axles are a feature of quad axle groups and are required to reduce pavement horizontal loading during tight turns
- Increasing use in combinations such as 20m Semi-trailer
- These axles improve low speed turning performance and reduce pavement loadings
- 12° steering and locked at speeds above 30km/h
- Requires NHVAS Maintenance Management accreditation
- Compliance/certification/enforcement issues especially with design using new technology (wheels are locked electronically)

Brakes

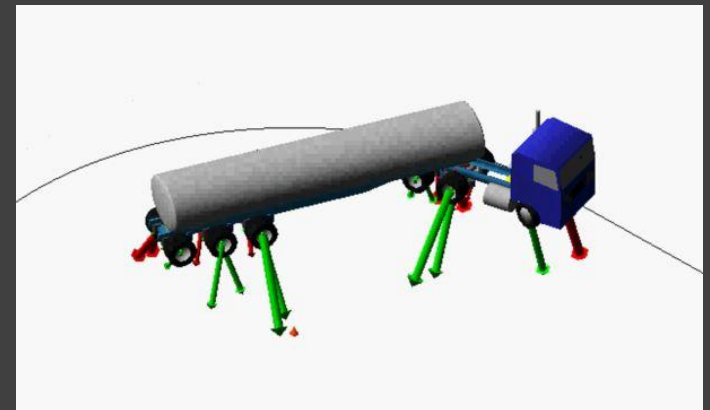
- A PBS vehicle is required to exhibit directional stability under braking
- The deemed to comply position is that all PBS vehicles must have ABS or EBS, LPV
- ABS is now compulsory on all new heavy vehicles (with some exceptions that are not accepted by PBS)
- Growing use of EBS with stability on trailers based on cost for perceived benefit
- Review of the PBS requirement/standards are needed

Electronic Controls

- PBS assessment is currently conducted without any influence of electronic enhancements
- Using technology on combination that might not achieve PBS compliance (ESC, ESP etc.)
- Combinations could be approved within PBS if a technically sound and reliable testing/demonstration method is developed
- Conditions of operation
- SAFETY considerations are important

Efficiency Benefits

- Woolworths 20m Semi
 - 1 million Litres of fuel saved per year
- Grainhart A-Doubles
 - Number of trucks are significantly reduced
- Byford 20m A-B Double/26m A-Double
 - Use of trailer steer axles improving tyre life by 3 to 5 times over std configurations



Establishment of uniform regulations

	 QLD	 NSW	 ACT	 VIC	 TAS	 SA	 NT	 WA
Draft notice (v2) supported		 Pending			 Pending	 Pending		
Incorporate 6-axle dog trailers	 Bridge concerns (clear spacing rule)		 Pending		 Pending	 Pending		
Jurisdiction networks defined (level 1 & 2A)			 In progress					
Mapping solution	 To be confirmed		 To be confirmed		 To be confirmed			
Number of LG pre-approvals	8	18	n/a	52	0	5		

Safety

- PBS vehicles have excellent safety record (60-70% reduction of crash rates)
- PBS vehicles are assessed and certified for safety
- PBS has driven changes in vehicle design such as CofG height
- Fewer vehicles with less exposure
- Better drivers, better operational behaviour
- Many operators choose EBS which includes roll stability and advanced braking

Some of the current PBS related projects

- PBS Level 3 and 4 Standards review – Austroads, NTC, NHVR
- Migration of PBS 7-axle truck and dogs into prescriptive regulations – NTC, NHVR
- Review and maintenance of PBS framework – NTC, NHVR
- PBS tyre project – ARTSA, ATIC, NHVR
- Vehicle width limits – NHVR, ATA, NTC
- Review of PBS bus requirements
- Establishment of auditing frameworks (PBS assessors and certifiers)
- Evaluating the application of new technologies for PBS vehicles – roll stability systems, optiturn

Questions