

Transport Technology & Productivity 2015

PRESCRIPTIVE LIMITS OR PERFORMANCE BASED STANDARDS?

John de Pont



Outline

- Regulating size and weight. Why and how?
- International use of PBS
- How has it worked?
- What can we learn?
- Conclusions

Protecting the Infrastructure



TERNZ
TRANSPORT RESEARCH



Promoting Safety



How?

- Traditional Approach
 - Prescriptive limits
 - Some performance standards
- RTAC Study
 - Developed a set of performance measures
 - Opened up the possibility of a PBS regime

Canada

- 1988 MOU between the provinces signed
- MOU vehicles are prescriptive but based on performance
- MOU has been extended and amended
- Some provinces used performance standards as a basis for permitting oversize vehicles

New Zealand

- Performance measures used to inform prescriptive limits since 1980s
- Performance standards used for permitting vehicles outside prescriptive limits
- Some performance standards included in regulations in 2002
- HPMVs introduced in 2010. Permits based on performance. Prescriptive dimensional envelopes were developed with no assessment required.

Australia

- Late 1990s initiated a programme to develop an alternative compliance regime using PBS
- Finally implemented in 2008.
- Different levels of road access and associated PBS requirements.
- Subsequently introduced “blueprint” designs to facilitate uptake.

South Africa

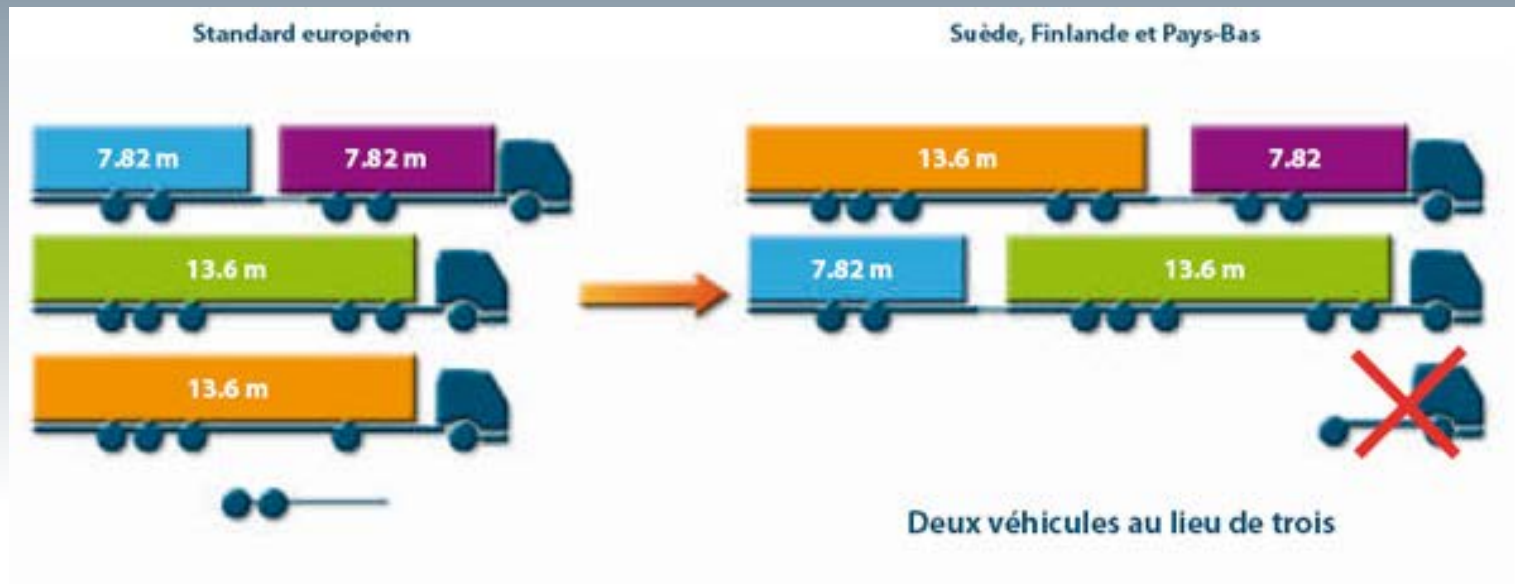
- Adopted the Australian PBS system
- Two trial vehicles in 2007 expanded to 58 vehicles by 2012.
- Fewer levels of network access.

Europe

- 1990s European Modular System (EMS)
- Not based on PBS – some performance analyses post implementation.
- Allowed but not mandated.
- Sweden currently investigating PBS as a basis for approving larger vehicles

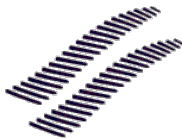
European Modular System

25.25m, 60t. Allowed in Sweden and Finland and operating on trial in the Netherlands



How has it worked? – Canada

- The main aim was to harmonise regulations across provincial boundaries.
- Largely succeeded with MOU
- Still have province-specific vehicles
- In some provinces PBS is used to assess high productivity permit vehicles
- PBS used to inform regulatory change



How has it worked? – NZ

- Unitary government structure allows rapid adoption.
- Pragmatic approach of using PBS as a basis for prescriptive framework.
- Low cost and strong uptake.
- Some problems with over-shoot. Concerns that some PBS limits too liberal.

How has it worked? – Australia

- Comprehensive and rigorous PBS system.
- Issues with access to the network at State level.
- Cost of participation is relatively high. Being addressed through “blueprint” vehicles.
- Uptake has been slow and level of innovation has been modest.

How has it worked? – Europe

- EMS vehicles have been successful where they are allowed but limited penetration.
- Active lobby groups opposing these vehicles.
- Opposition claims include safety but it is doubtful that PBS assessment would effectively counter this.

What can we learn?

- Even full PBS systems like Australia's require prescriptive limits.
 - width, height, length
 - axle group weights
 - bridge formula - weight and axle spacing
- These are imposed by the infrastructure and traffic environment rather than vehicle performance.

What can we learn?

- Some performance standards can be replaced by prescriptive requirements, e.g. the drivetrain performance requirements.
- This is simpler, cheaper and provides a more robust result.

What can we learn?

- Productivity and safety gains have been achieved through two types of vehicle:
 - larger versions of existing configurations
 - innovative configurations that are different in some fundamental way
- The pro-forma or blueprint design approach is useful for the first type.

What can we learn?

- The precision of the PBS system is greater than the accuracy of the modelling systems.
- With multiple assessors using different software this causes problems.
- It is less of a problem for the “blueprint” design approach than for individual vehicle assessments.

Conclusions

- Accept that some prescriptive requirements are unavoidable.
- Some performance measures can effectively be replaced by prescriptive requirements.
- For conventional combinations, blueprint or pro-forma design envelopes can be used. These are low-cost and encourage uptake.

