

PERFORMANCE-BASED STANDARDS (PBS)

TED VINCENT

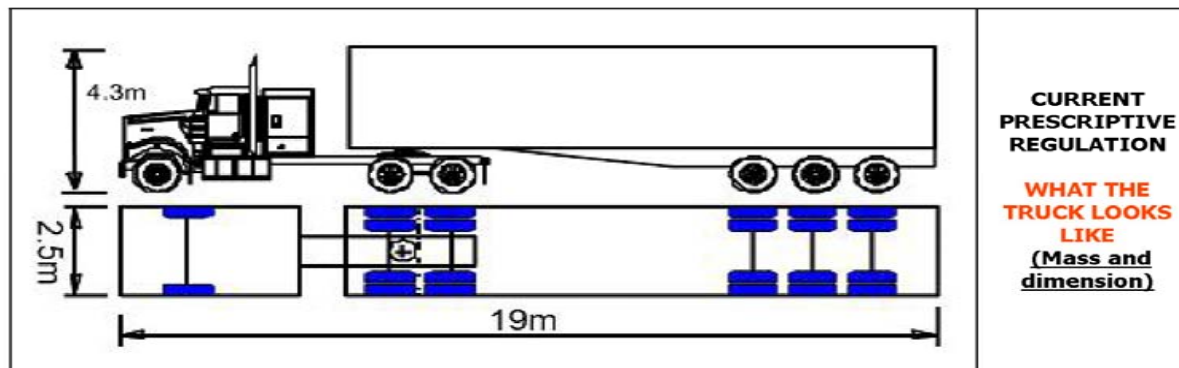
EXECUTIVE DIRECTOR – REGIONAL SERVICES

With thanks to:



WHAT IS THE PBS?

- ❑ Vehicle dimension and mass has previously been determined by a set of prescriptive regulations.

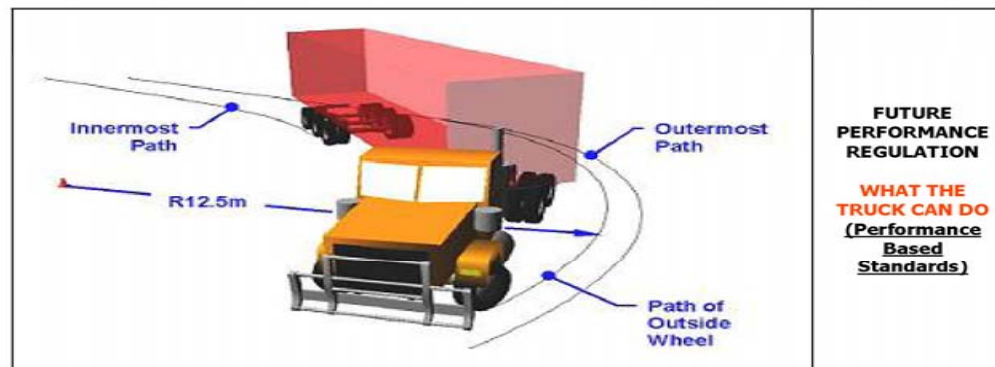


- ❑ These regulations have been seen as restricting the potential for vehicle innovation.



WHAT IS THE PBS?

- PBS marks a departure away from prescriptive regulations.

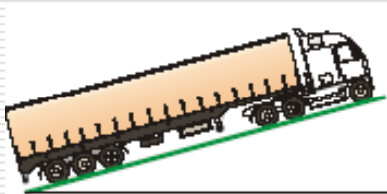


- It focuses on how the vehicle behaves on the road, rather than what the vehicle should look like.
- This is achieved through a suite of **15** approved safety and infrastructure standards.



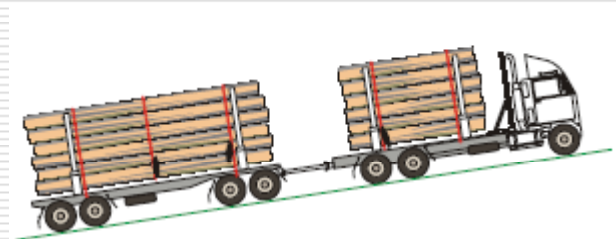
Performance Standards - Safety

- There are 11 safety standards. These are:



(1) **Startability** - The ability to commence forward motion on a specified grade.

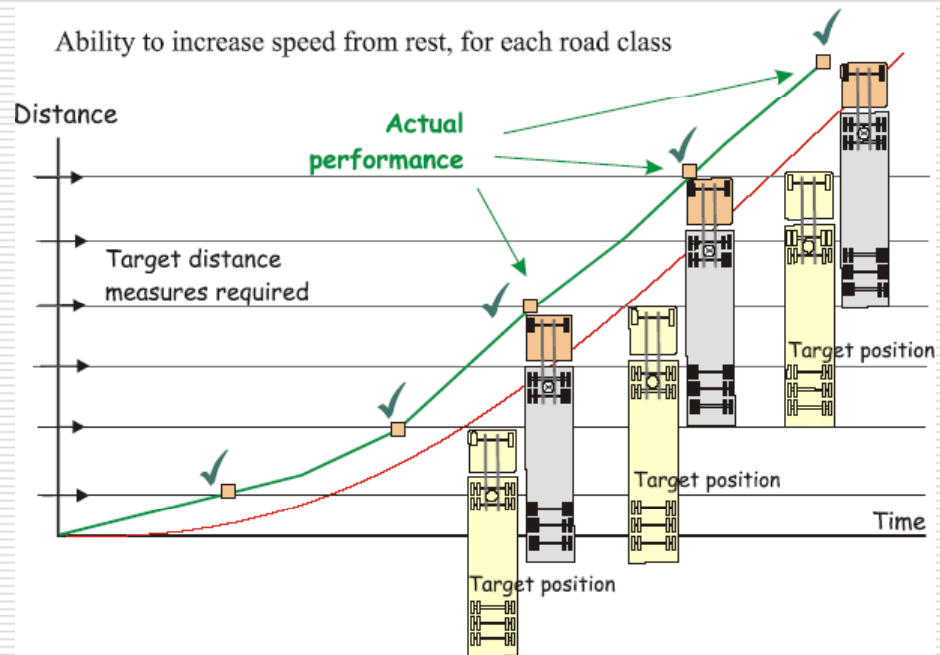
(2) **Gradeability** - Ability to maintain forward motion on a specified grade; and achieve a minimum speed on a 1% grade.



Performance Standards - Safety

(3) Acceleration -

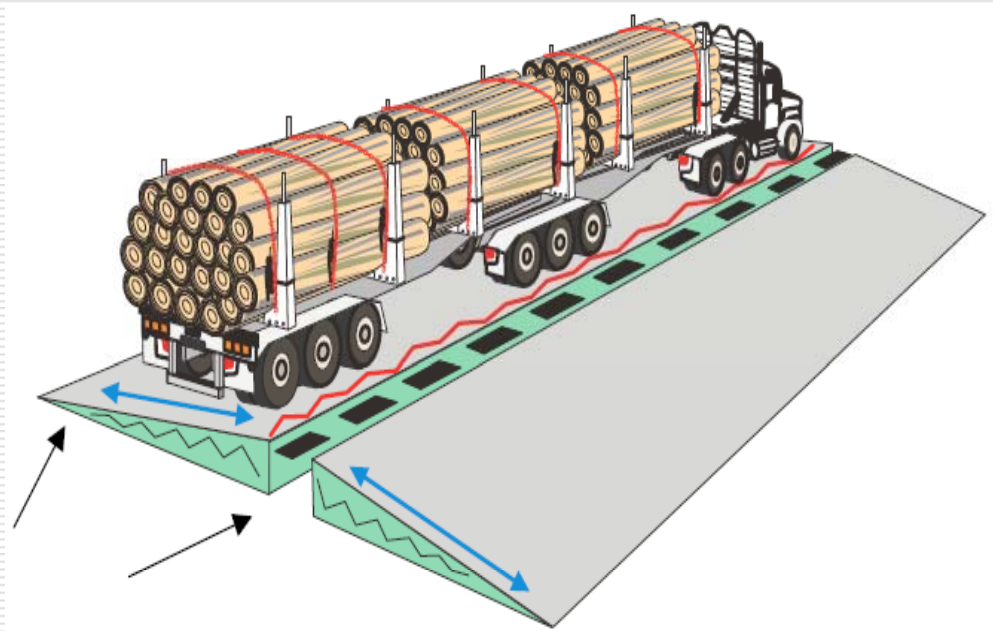
Ability to accelerate either from rest or to increase speed on a road (no grade).



Performance Standards - Safety

(4) Tracking Ability on a Straight Path -

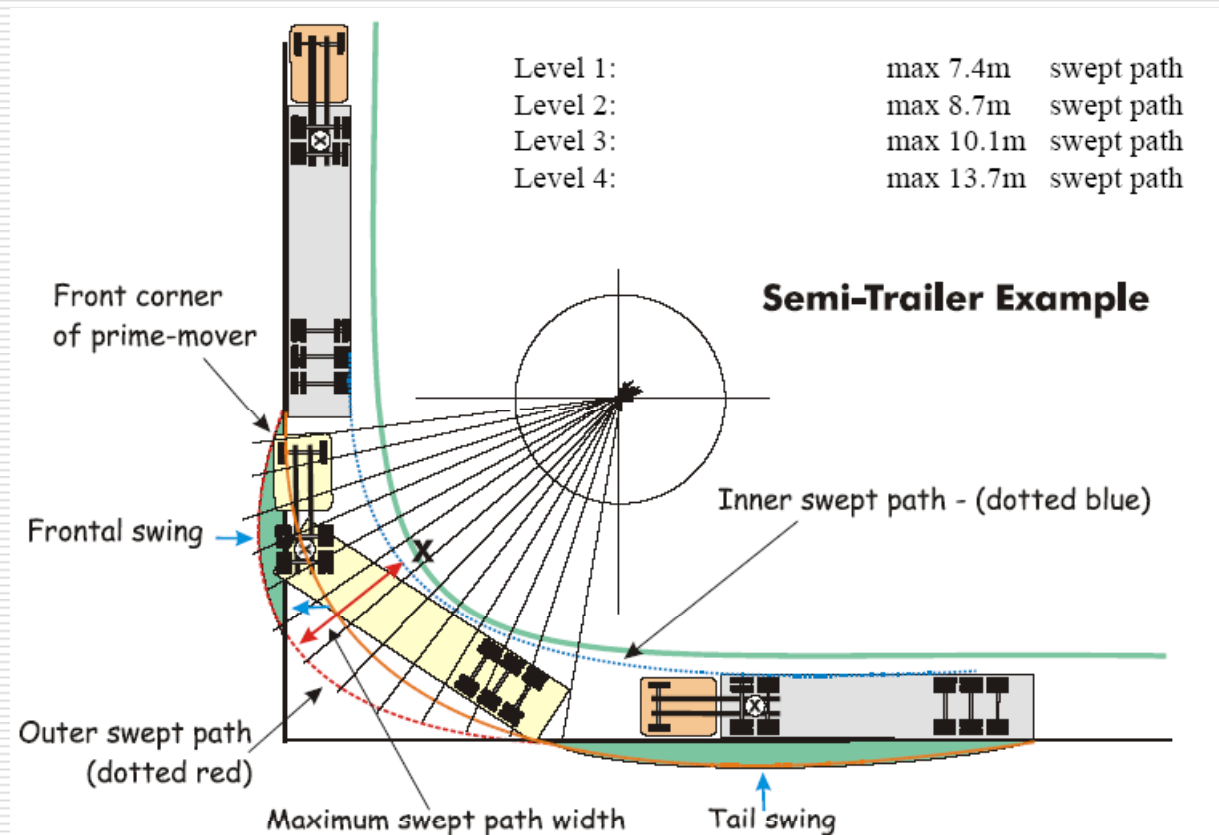
The amount of lateral movement (swept path) of the trailing unit (last trailer) measured relative to the influence of variations due to crossfall, road surface, unevenness and driver steering activity.



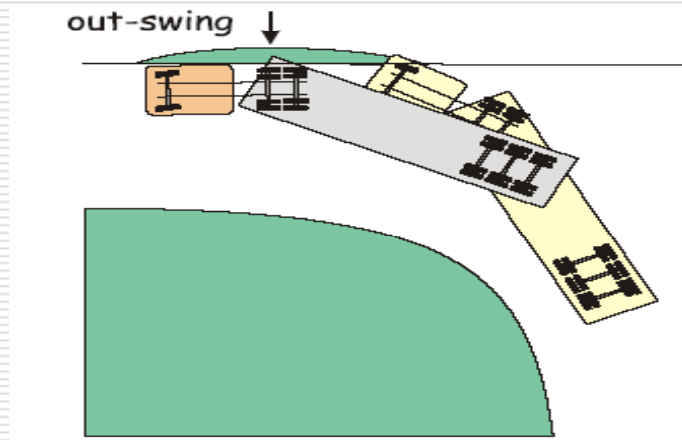
Performance Standards - Safety

(5) Low Speed Swept Path -

The maximum width of the swept path in a prescribed 90° low speed turn.



Performance Standards - Safety

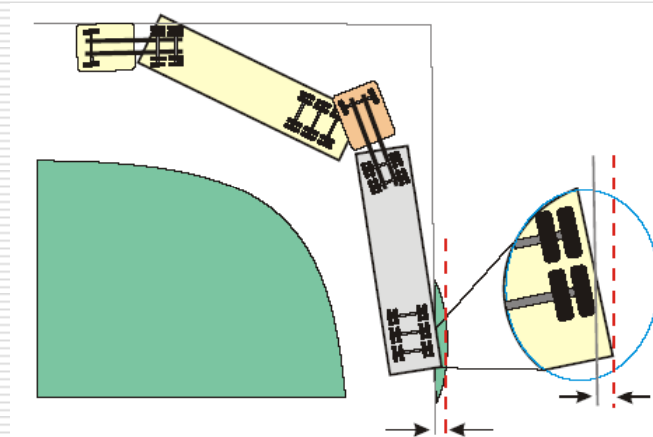


(5a) Frontal Swing -

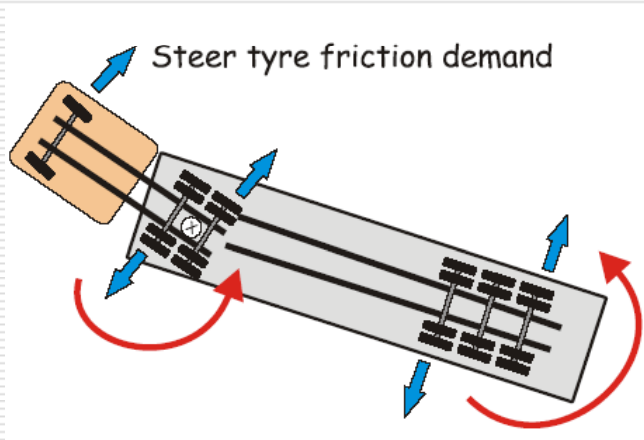
The maximum lateral displacement in a prescribed low-speed turn between the path of the front outside corner of the vehicle.

(5b) Tail Swing -

The maximum lateral out-swing of the outside rear corner of the truck or trailer as the turn commences, or on the exit.



Performance Standards - Safety

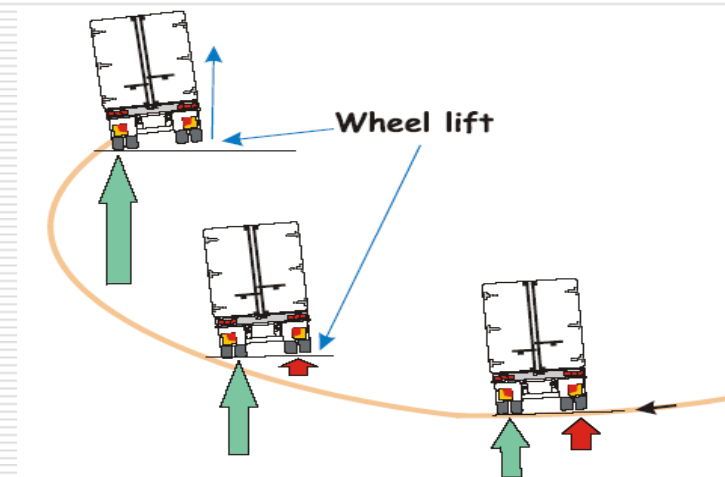


(6) Steer Tyre Friction

Demand - The maximum friction of the steer tyres of the hauling unit in a prescribed low speed turn.

(7) Static Rollover Threshold -

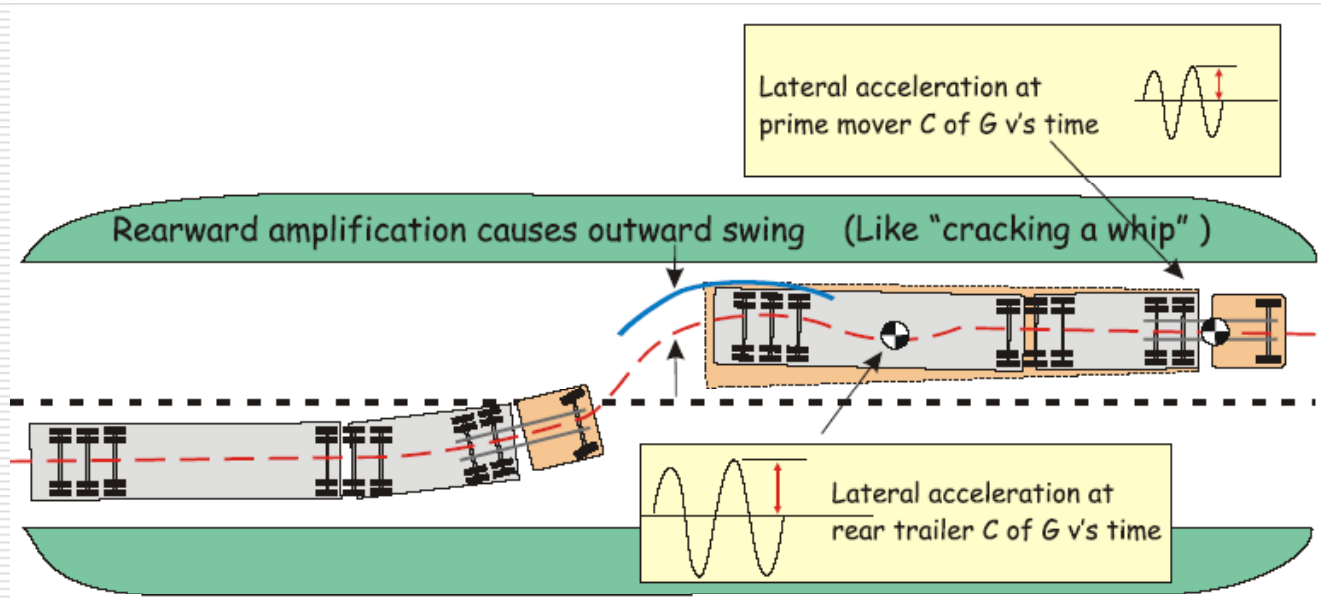
The steady-state level of lateral acceleration that a vehicle can sustain during turning without rolling over.



Performance Standards - Safety

(8) Rearward Amplification -

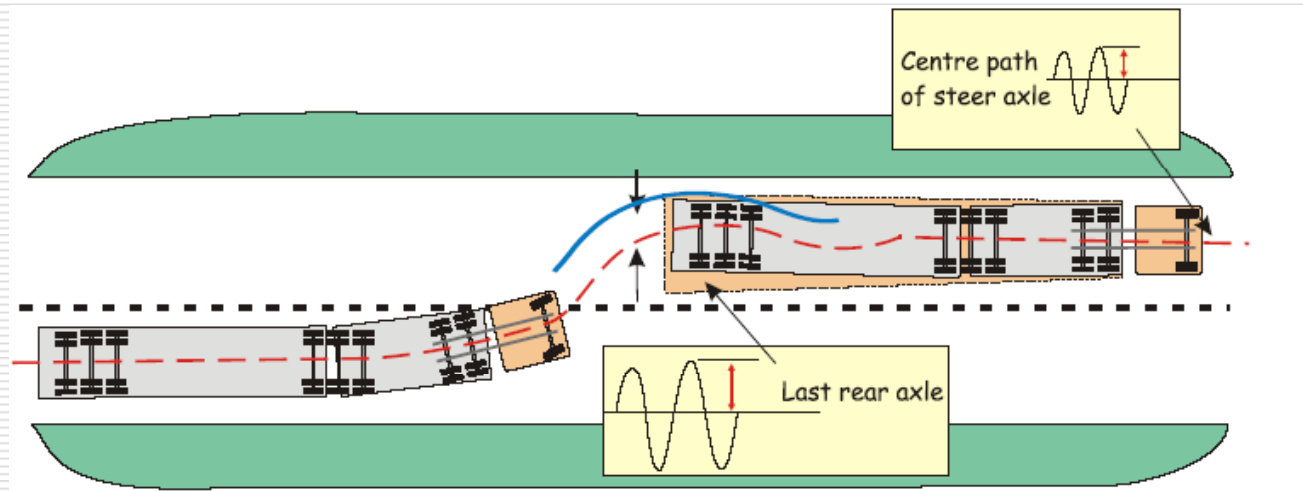
Degree to which the trailing unit(s) amplify or exaggerate lateral motions of the hauling unit.



Performance Standards - Safety

(9) High Speed Transient Offtracking -

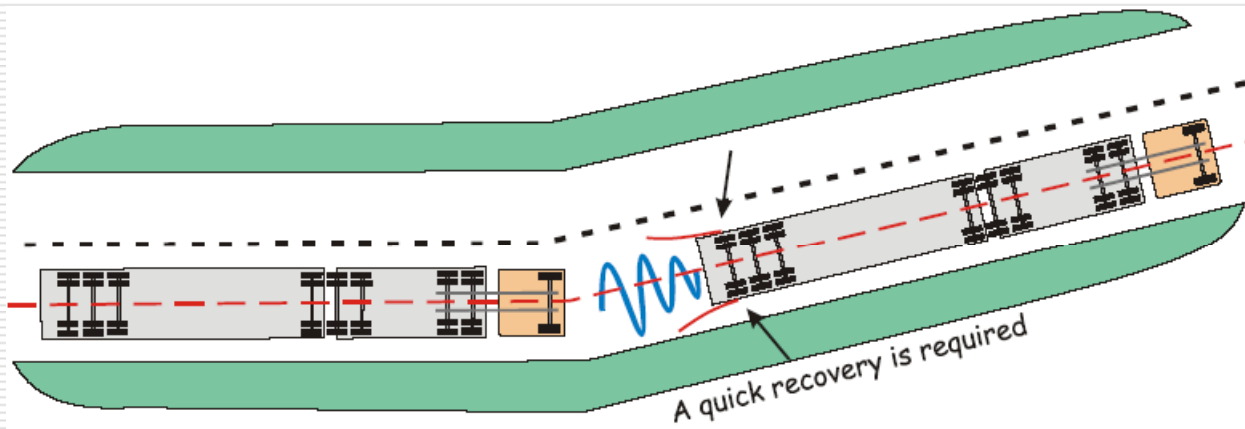
The lateral distance that the last-axle on the rear trailer tracks outside the path of the steer axle in a sudden evasive manoeuvre.



Performance Standards - Safety

(10) Yaw Damping Coefficient -

The rate at which 'sway' or yaw oscillations of the rearmost trailer decay after a short duration steer input at the hauling unit.



(11) Directional Stability Under Braking -

The ability to maintain stability under braking

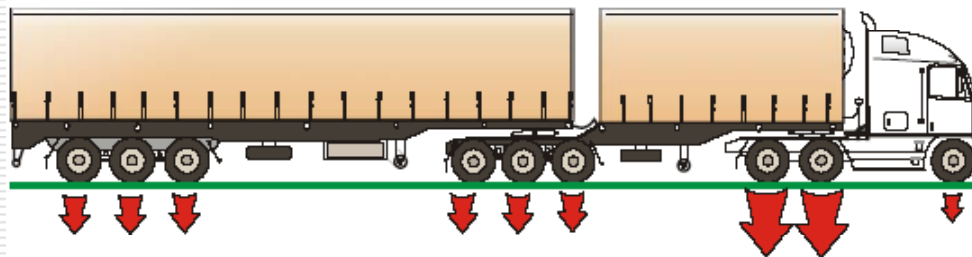
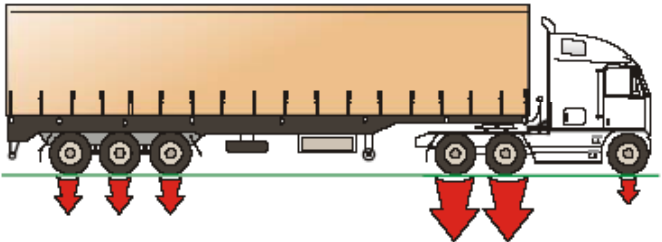


Performance Standards - Infrastructure

- There are 4 infrastructure standards. These are:

(1) Pavement Vertical Loading -

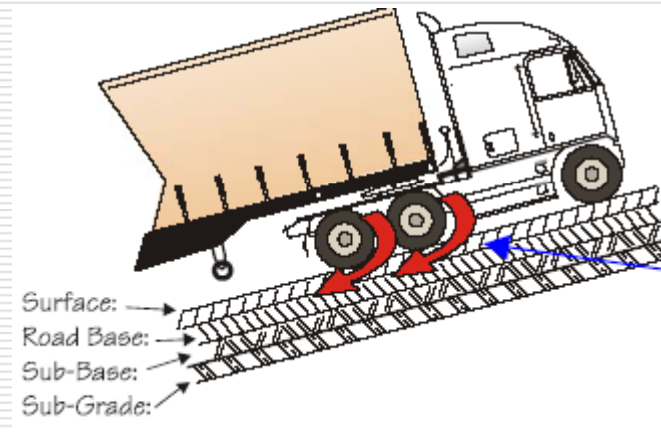
Degree to which vertical forces are applied to the pavement.



Performance Standards - Infrastructure

(2) Pavement Horizontal Loading -

Degree to which horizontal forces are applied to the pavement.



(3) Tyre Contact Pressure Distribution -

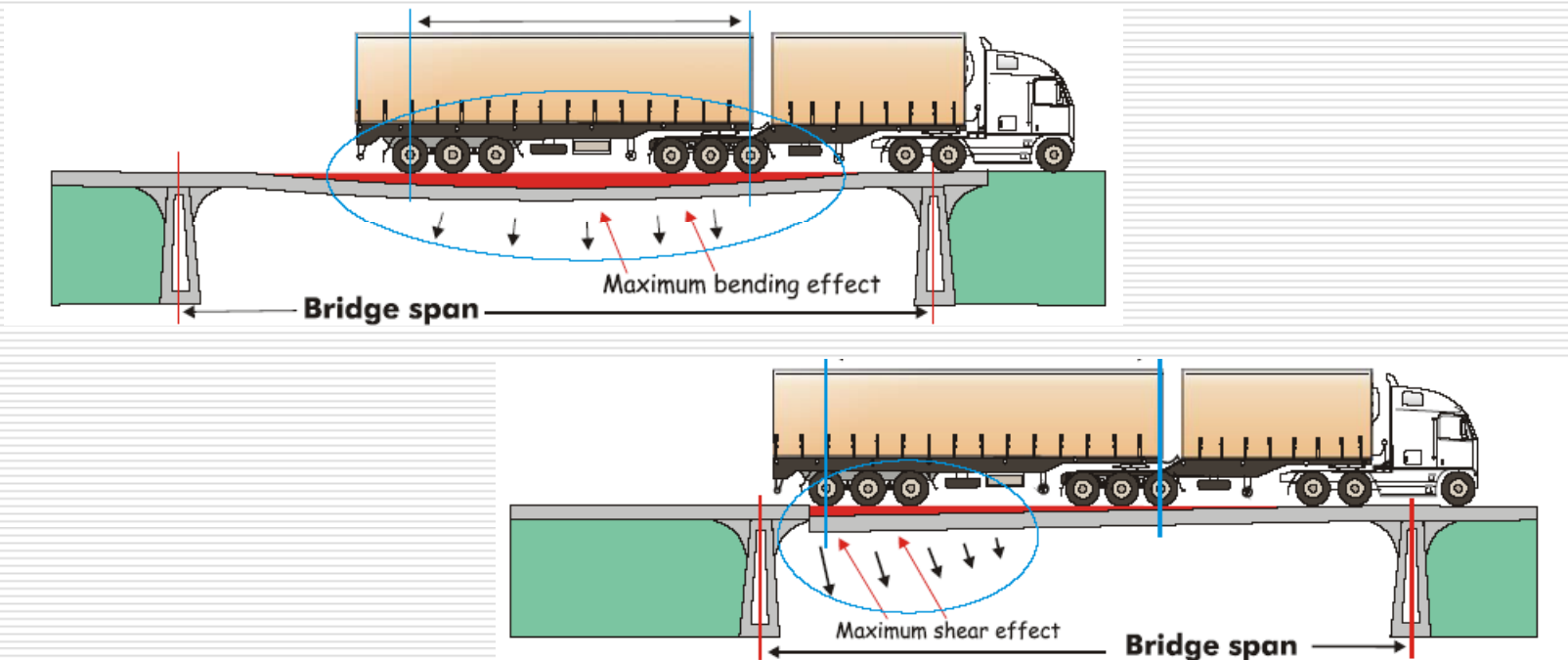
The maximum local vertical stress under a tyre's contact patch for a given vertical load type and tyre inflation pressure.



Performance Standards - Infrastructure

(4) Bridge Loading -

The maximum bending and shear forces the vehicle causes to the bridge.



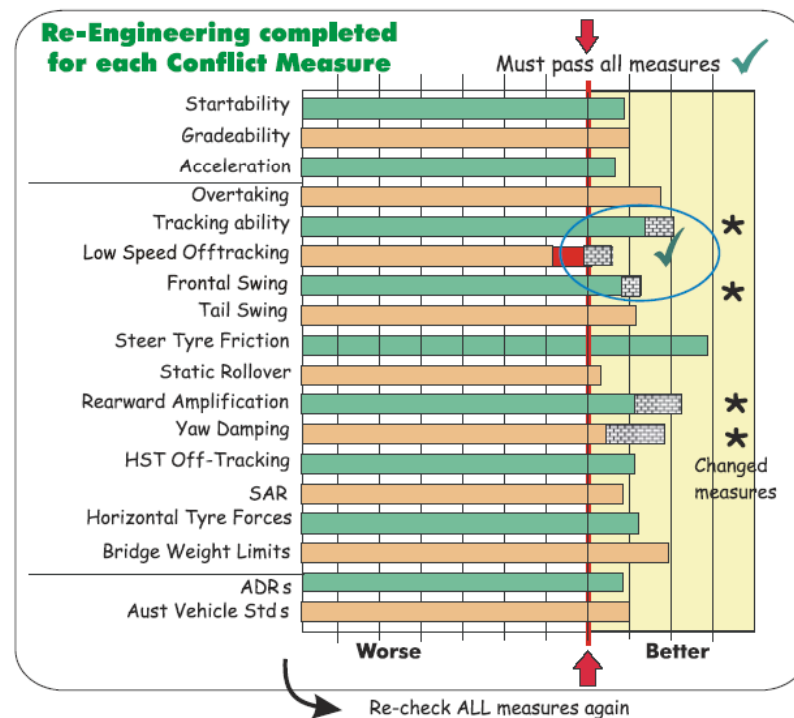
Assessment of the Vehicle

- ❑ Potential PBS vehicles are assessed against these 15 standards.
- ❑ The assessment is performed by an independent assessor who has proven expertise in the area.
- ❑ As the vehicles normally have not been built by this stage, the assessment is often done through computer modelling.



Assessment of the Vehicle

- Potential PBS vehicles are assessed against the 15 standards.







- A vehicle must pass all the Standards to be deemed a PBS vehicle.



Assessment of the Vehicle

- There are 4 PBS Levels that a vehicle can pass.

| PBS road class | Equivalent prescriptive access |
|--|--|
| Level 1 access (L1) <i>General Access</i> |  |
| Level 2 access (L2) <i>Equates to B-Double Access</i> |  |
| Level 3 access (L3) <i>B-triple/Type 1 Road Train</i> |  |
| Level 4 access (L4) <i>Type 2 Road Train</i> |  |



Interim Review Panel

- ❑ In 2005, the Interim Review Panel (IRP) began considering PBS applications.
- ❑ Since then, the Panel has considered 47 PBS applications.
- ❑ 11 of these vehicles have met all the PBS Standards and have been approved.



A Case Study – Toll Glass Floatliner

- The Toll Glass Floatliner is an innovative vehicle that provides glass manufacturers with a time efficient and safer way to load, and transport glass.



A Case Study – Toll Glass Floatliner

- The vehicle also has the capacity to carry larger sheets of glass.



A Case Study – Toll Glass Floatliner

- PBS provides the manufacturer with the opportunity to improve its productivity.



- As a result, this vehicle will shortly be operating on Victorian roads.



Moving forward

- ❑ In October 2007, the Australian Transport Council will vote on the complete PBS reform.
- ❑ There will be a transition from the IRP to the PBS Review Panel (PRP)
- ❑ The PBS is an organic scheme, with the standards being refined to reflect developments in the heavy vehicle industry.
- ❑ It is hoped, in the future, that the PBS will replace prescriptive regulations.





Questions?

