

# Performance Based Standards (PBS) Benefits

## PBS Overview

The Performance Based Standards (PBS) Scheme offers potential for heavy vehicle operators to achieve higher productivity and improved safety through innovative vehicle designs. The PBS Scheme focuses on how well a vehicle performs on the road, by assessing the particular vehicle design against a set of safety standards, rather than assessing a vehicle based on prescriptive limits.

## Vehicle Safety

Austrroads published a report on *Quantifying the Benefits of High Productivity Vehicles*. The report found that if the overall freight task was completed by PBS vehicles rather than conventional heavy vehicles, a reduction in heavy vehicle crashes of 66% would be expected.

A crash rate reduction of between 57% and 85% was observed for all four of the examined severity ranks (minor, moderate, serious and major), resulting in an estimated saving of 96 lives by 2030, valued in the order of \$156 million by 2030.



PBS vehicles are specifically designed to achieve improved safety outcomes and the PBS assessment ensures the vehicles meet a minimum safety performance standard, as outlined in the *PBS Assessment Rules and Standards*.

Each PBS vehicle is certified to ensure it meets the particular PBS design specifications, as opposed to conventional road trains that consist of any licensed prime mover and trailer coupled together.

The PBS vehicles are then permitted as a specific combination to ensure the vehicle is operating in the safest configuration, i.e. the positioning of each trailer is specified and they cannot be repositioned unless assessed and approved.



Further checks are conducted on PBS vehicles to ensure the most appropriate towing vehicles are used and appropriate components are used, such as sufficiently rated tow couplings and specific category of tyres.

Braking capability and vehicle stability is also improved on PBS vehicles with the mandatory requirement in WA for Electronic Braking Systems (EBS) with Rollover Stability System (RSS), which is not a requirement on conventional road trains.

PBS vehicles are often height restricted, which is determined by the PBS assessment, as opposed to conventional road trains that are allowed up to 4.6 metres in height under regulation. This further reduces the rollover risk of PBS vehicles and improves overall stability due to the reduced load height centre of gravity.

## Pavement & Bridge Impact

PBS vehicles are not considered to cause additional road wear compared to conventional heavy vehicles.

Higher productivity PBS vehicles have the same maximum axle loads as conventional heavy vehicles, but have more axle groups to carry a higher payload.

Even though a higher productivity PBS vehicle may have a greater Equivalent Standard Axle (ESA) calculation than a conventional heavy vehicle, the increased payload means fewer PBS vehicle movements would be required to complete any given transport task, resulting in less pavement damage (fewer individual axle loads) than if the transport task was completed with a higher number of conventional heavy vehicles.

In addition, PBS vehicles approved under the WA PBS Scheme are subject to more stringent axle spacing requirements, which further reduce the impact on the road infrastructure.

## Productivity & Efficiency

There are clear productivity benefits associated with PBS vehicles. Current operators of high productivity PBS vehicles have reported significant productivity and efficiency benefits of up to 25%, taking into account the reduced number of journeys and reduced loading / unloading times.



Even with the larger high productivity vehicles, the improved efficiency of the PBS vehicles has also been reported to provide cost savings due to less fuel consumption.

## Traffic

Higher productivity PBS vehicles reduce the number of vehicle movements for a given transport task compared to conventional heavy vehicles, which reduces congestion and the crash risk exposure.

Although PBS vehicles are often slightly longer than conventional heavy vehicles, the safety benefits outweigh any negative concerns, particularly as the length differential is no greater than for the various conventional heavy vehicle categories.

## Environment

A higher productivity PBS vehicle is able to perform the transport task in fewer journeys than a conventional heavy vehicle, which results in reduced carbon emissions.

Further to this, the PBS approved vehicles generally consist of newer prime movers, which have improved emission ratings.



## Further Information

For more information about PBS in Western Australia, please visit the PBS page on our website at <https://www.mainroads.wa.gov.au/UsingRoads/HeavyVehicles/Pages/Performance.aspx> or contact the Main Roads Heavy Vehicle Services HVS Helpdesk on 138 486.

