

# **MOVING MORE WITH LESS**



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# Introduction

## The need for change

Since the 1990s Australia's freight task has been growing at a rate that will see it double every 15-20 years. Without a significant government response, Australia faces the prospect of its roads being overly congested with truck traffic.

The 2007 Productivity Commission Inquiry into Road and Rail Freight Infrastructure Pricing found that as a result of the inherent differences in the service characteristics of road and rail, only about 10-15 per cent of the freight task is considered to be contestable across the two modes. This means that most of the freight currently being transported by truck cannot feasibly be transported by rail, so truck productivity must be improved if we are to manage the road component of freight task growth.

The B double is currently Victoria's safest and most efficient mainstream freight vehicle configuration. It has single-handedly accommodated a doubling of the freight task since its introduction in the early 1990s, but freight demand continues to rise. Truck configurations that can safely carry more freight than current B doubles will put downward pressure on the number of trucks in operation, leading to fewer trucks on the road than would otherwise be the case. Just as the B double offered a quantum leap in productivity over pre-existing single articulated configurations, an increase in productivity above current B doubles needs to be significant if there is to be a noticeable impact on road congestion overall in the years to come.

## The Victorian experience

Victoria plays a significant role in Australian road transport. It is home to Australia's largest container port and the bulk of Australia's manufacturing industry. Victoria has therefore always been forward-thinking in relation to the way that freight is moved by road. Following the introduction of B doubles in the early 1990s, and Higher Mass Limits in the late 1990s, around 99 per cent of the Victorian arterial road network and over 1,600 local government roads were made available to B double and Higher Mass Limits vehicles.

In the six years since the Performance Based Standards (PBS) Scheme was introduced, Victoria has granted access to the vast majority of Australia's 1,000-plus PBS-approved vehicles.

Further, for more than 15 years, six 33.5 metre B triples have safely carried automotive components between the Ford Motor Company's Geelong and Broadmeadows plants. During the same period, 30.0 metre B doubles have carried very heavy loads of shipping containers a short distance between the Port of Melbourne and the South Dynon Rail Terminal. More recently, these B double configurations were safely trialled at 77.5 tonnes transporting containers on an extended network in the north and west of Melbourne and bulk commodities in the south-west of Victoria.

## The measured benefits of HPFVs

Aside from the reduced on-road exposure brought about by the use of HPFVs, leading to fewer crashes, HPFVs also offer a direct safety benefit due to their safer on-road performance in comparison with standard vehicle combinations.

Preliminary research currently being undertaken for Austroads, based on Australia-wide crash data compiled by National Transport Insurance since 2005, has found that as the size of a combination vehicle increases with the addition of trailers, the rate of major crashes reduces significantly, as shown below:

	Crashes per 100 million kilometres	Crashes per 10,000 vehicles
Single semi-trailer	20.6	146
B-double	7.3	121
B-triple	4.3	99

Between now and 2030, HPFVs operating under the PBS Scheme are expected to save our community 4.5 billion vehicle kilometres, 94 fatal crashes and 114 fatalities nationally.

Economically speaking, the benefit of HPFV operation is felt not only by the operators of the HPFVs, but also by the wider community through a flow-on effect that has been estimated at about 84 cents for every dollar saved by the operator.

HPFVs will improve Victorian road safety as well as the Victorian economy.

### What now?

Victoria's implementation of HPFVs has so far been contained to specific industries and specific vehicle configurations on specific routes. This has limited the overall impact of HPFV operations.

Victoria is now adopting a more general approach to access arrangements for HPFVs. This document outlines the approach that will be implemented by VicRoads in 2013.

## Key features of the new approach to HPFVs

VicRoads has adopted the following policy principles in forming the new approach to HPFVs:

- Place downward pressure on the number of trucks on Victorian roads by facilitating the use of more efficient HPFV configurations.
- Limit the use of HPFVs to appropriately designed roads, such as high-standard duplicated highways and roads with generous geometric design.
- Work with local governments to determine 'last mile' access.
- Ensure that trucks are safe and operate on the right roads through the Performance Based Standards (PBS) Scheme and the Intelligent Access Program (IAP).

Importantly, the new approach:

- separately addresses volume-limited and mass-limited freight because of their different impact on the infrastructure, which allows more road network access to be made available to volume-limited HPFVs that do not exceed regulation B double mass limits;

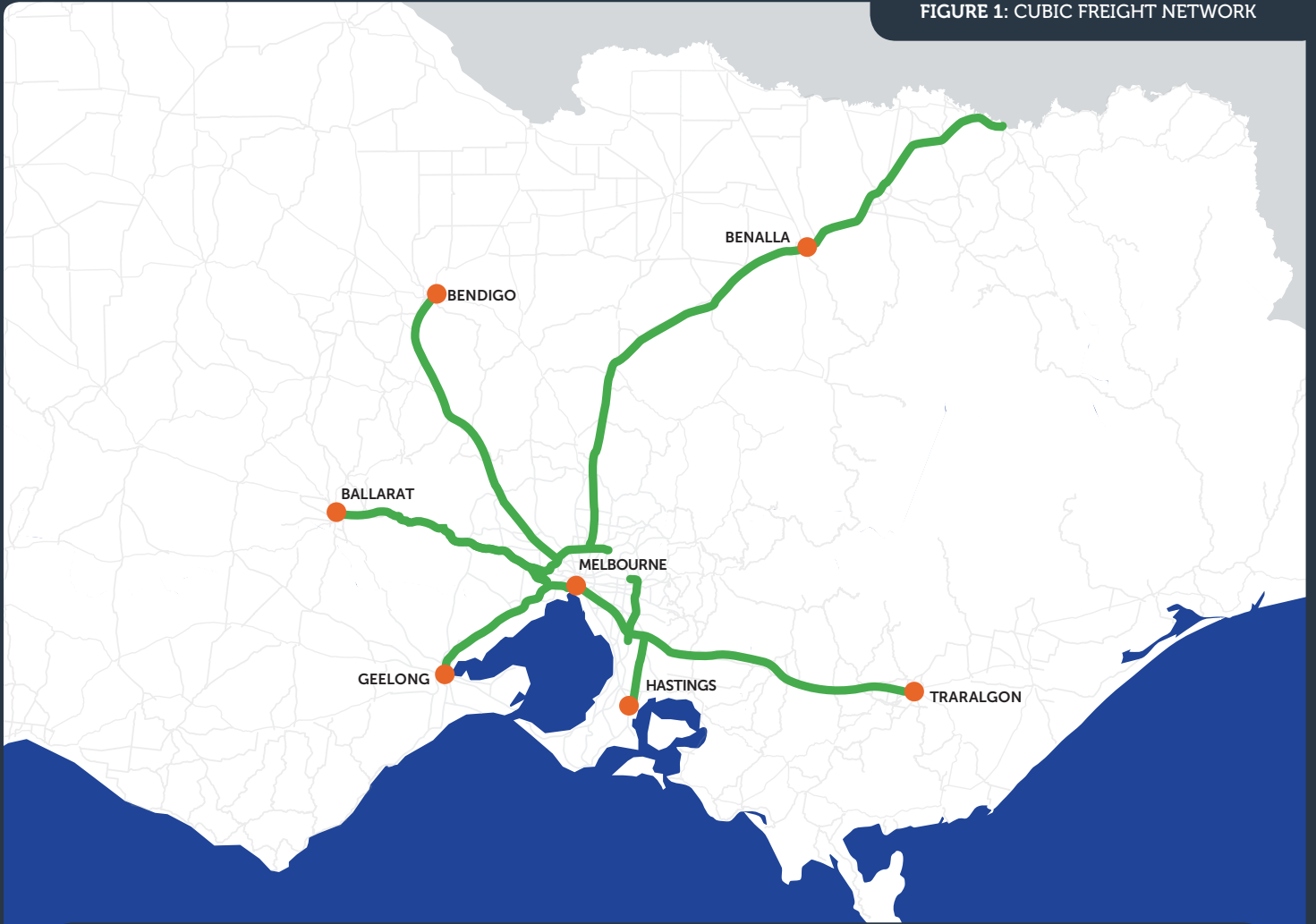
- gives industry more flexibility to select the most suitable vehicle configuration, which makes HPFV operation viable in applications where it was not viable before; and
- recognises the different road and traffic conditions in country Victoria and metropolitan Melbourne, which gives rise to opportunities for greater volumetric capacity in applications that predominantly occur outside of metropolitan Melbourne.

## Cubic Freight Network

The majority of road freight is volume-limited or 'cubic' freight. Cubic freight is of sufficiently low density that it will fill the space available inside a vehicle before the vehicle reaches its legal mass limit. Therefore, by simply allowing cubic freight vehicles some additional length when operating on appropriate routes, more freight can be carried within regulatory mass limits and productivity can be significantly increased without the need to upgrade the strength of the road network. Cubic freight is the 'low-hanging fruit' of productivity improvement.

Victoria's existing B double network is suitable for the general operation of vehicle combinations with an overall length of up to 26 metres and a Gross Combination Mass of up to 68.5 tonnes. VicRoads engineers have, however, confirmed that PBS-approved vehicle combinations with an overall length greater than 26 metres can safely be accommodated on certain parts of the B double network that have generous road geometry, provided Gross Combination Mass does not exceed 68.5 tonnes. The available routes are now formally known as the Cubic Freight Network (Figure 1).

FIGURE 1: CUBIC FREIGHT NETWORK



## Current HPFV Network

As previously discussed, various HPFVs exceeding 26.0 metres long or 68.5 tonnes Gross Combination Mass (or both) are currently operating under specific approval on a number of limited networks in Victoria. As part of the new Victorian approach to HPFVs, all of these existing HPFV access arrangements will continue. This includes:

- ▬ A-doubles in the Mildura region
- ▬ B doubles in the north and west of Melbourne, and on specific routes in western Victoria
- ▬ B-triples between the Ford Motor Company's Geelong and Broadmeadows plants.

The roads approved for access by these existing HPFVs are shown in the map below.



## Access conditions

### Safety assurance under the Performance Based Standards (PBS) Scheme

VicRoads will not stipulate particular HPFV designs. Rather, it will be left up to the industry to develop HPFV designs that suit their operations. Proposed designs must be approved under the PBS Scheme before access can be granted.

The PBS Scheme offers some freedom from conventional mass, dimension and configuration constraints. While conventional constraints indirectly control safety and infrastructure impact, under PBS a vehicle is ensured to be safe by direct assessment of its performance against sixteen safety-related and four infrastructure-related performance standards. The safety-related standards address aspects of vehicle performance including acceleration and braking, rollover stability, high-speed dynamic stability, low-speed turning capability and general on-road tracking behaviour. The infrastructure-related standards address the vehicle's impact on road pavements and bridge structures. The bar is set high for PBS vehicle performance, so vehicles satisfying all PBS standards are known to have a higher level of safety than the average non-PBS vehicle.

Access for PBS-approved HPFVs, if granted, will be via a Class 2 permit. The operator must obtain a letter of PBS Final Approval from the National Heavy Vehicle Regulator (NHVR) prior to application for a permit.

#### Note:

**VicRoads strongly recommends making initial enquiries with VicRoads officers before commencing work on a PBS application, as some HPFVs may be subject to restrictions—such as limited access to the network—as a result of their particular design. Where necessary, VicRoads will work with local councils to determine access to local roads (see below).**

There is no specified level of PBS approval that is necessary for HPFV access. Each application will be considered on its merits, taking into account the objectively determined level of PBS approval and the vehicle's overall combination length.

### Route compliance assurance under the Intelligent Access Program (IAP)

The Intelligent Access Program (IAP) is an avenue by which VicRoads can offer a transport operator particular road access that is more favourable than normal access in return for a high level of confidence that the operator complies with the conditions of that access.

The IAP uses tamper-evident GPS devices installed in vehicles and connected wirelessly to accredited third-party service providers to monitor compliance with a specific set of approved routes for each vehicle. Any instance of non-compliance is reported to VicRoads so that enforcement action can be taken if necessary.

Unless otherwise approved, operators must provide route compliance assurance by participating in the IAP using either an IAP Service Provider's certified In-Vehicle Unit or the operator's existing telematics system (if possible) under the IAP's Entry Options. For details about IAP participation contact Transport Certification Australia (T: 03 8601 4600, [www.tca.gov.au](http://www.tca.gov.au)).

### Local road access

HPFVs will not be allowed to operate on narrow suburban local roads. From time to time, however, in order to reach a particular freight origin or destination, it will be necessary for HPFVs to gain access to short lengths of road that come under the jurisdiction of local government and therefore require approval from the relevant local council. This type of access, often referred to as 'last mile' access, is typically granted by councils on roads that are suitable for, and already carry, other forms of truck traffic. Local councils will be able to determine if it is in the interest of the municipality to facilitate the more efficient movement of freight to and from local industries.

Where necessary, VicRoads will consult with local councils on HPFV access. A PBS Route Assessment Tool (RAT), developed in conjunction with Government, the Port of Melbourne and Local Councils, will play an important role in objectively determining access to local roads.

## Speed Limits

To address concerns about the on-road interaction between HPFVs and light vehicles on the cubic network, HPFVs will be restricted to a speed limit of 90 km/h.

## Axle group loads

The mass of HPFVs will be regulated by Gross Combination Mass limits and individual axle group mass limits. The Gross Combination Mass limits are:

- 68.5 tonnes on the Cubic Freight Network
- 77.5 tonnes on selected routes on the Current HPFV Network
- 79.5 tonnes for A-doubles in the North West of Victoria

The individual axle group mass limits (subject to sufficient component ratings and other conditions outlined below) are as shown in the following table:

Axle or axle group	Mass limit
Single steer axle	6.5 tonnes
Single axle with dual tyres	10.0 tonnes
Tandem axle group with dual tyres	17.0 tonnes
Triaxle group with dual tyres	22.5 tonnes
Quad axle group with dual tyres	27.0 tonnes

## 6.5 tonne single steer axle mass limit

Under existing heavy vehicle policy, a single steer axle mass limit of 6.5 tonnes applies if the prime mover meets the national requirements for 6.5 tonne single steer axle mass, described in the VicRoads information bulletin 6.5 Tonnes Steer Axles. If the prime mover does not meet the requirements, a limit of 6.0 tonnes applies.

## Higher Mass Limits Requirements

Under existing heavy vehicle policy, higher mass limits apply to an axle group on the Higher Mass Limits network if Certified Road Friendly Suspension is fitted to each axle in the group. Certified Road Friendly Suspension is not required if tri-axle group loads do not exceed General Mass Limits (20.0 tonnes).

Under existing heavy vehicle policy, an operator is required to be accredited in the NHVAS Mass Management Module in order to obtain higher mass limits on triaxle and quad axle groups.

## 27.0 tonne quad axle groups

HPFVs may only use 27.0 tonne quad axle groups on the Current HPFV Network (see Figure 2 above).

## Signage

The front and rear of the combination must be fitted with a LONG VEHICLE sign.

## Brakes

The vehicle must have an anti-lock braking system (ABS) on all axles.



# Future network growth

## What if I want to exceed the nominal length limits?

VicRoads will consider applications that exceed the nominal length limits, subject to each application's particular parameters. For example, a 36.5 metre combination transporting produce in regional Victoria may be allowed to bring freight to the Port of Melbourne via a particular route through metropolitan Melbourne, where the nominal length limit is 30.0 metres, subject to specific approval by VicRoads.

Exceeding the nominal length limits will result in reduced network access, possibly to a single route.

## What if I want to exceed the Gross Combination Mass limits?

The limiting factor when seeking higher Gross Combination Mass is the strength and condition of bridges on the desired routes. Bridges built before 1976 were designed to a standard that generally does not support higher mass, so much of Victoria's road network is unsuitable for higher mass. Some routes comprised only of post-1976 bridges may be suitable for higher than normal mass.

If Gross Combination Mass exceeds 68.5 tonnes but does not exceed 77.5 tonnes, access may be granted to the Endorsed HPFV Network.\* If mass exceeds 68.5 tonnes but is significantly less than 77.5 tonnes, specific routes that are additional to the Endorsed HPFV Network may be found to be suitable.

If Gross Combination Mass exceeds 77.5 tonnes VicRoads will consider access for submissions supported by a detailed business case. Depending on the business case and the particular roads in question, it may be possible to facilitate access.

**\* On nominated routes in the North West of Victoria, HPFVs may operate at up to 79.5 tonnes.**







