

Moving more  
with Less 2021

HIGH PRODUCTIVITY  
FREIGHT VEHICLE PLAN





## Introduction

*Moving More with Less 2021* is the Victorian strategy which supports the use of more efficient, safer, and environmentally friendly road freight combinations known as High Productivity Freight Vehicles (HPFV).

It reinforces the key road freight objectives of the Victorian Freight Plan – *Delivering the Goods*, by outlining the operational policy and the short-medium term priorities that deliver Victoria’s commitment to HPFVs and expanding access to the Victorian road network.

It also responds to feedback provided by the Victorian Transport Association and the 2020 Class 2 Industry Forum, which called for HPFVs to do more of the freight task and sought to clarify and accelerate the network permit process.

Implementing the strategy will provide clarity and confidence to the heavy vehicle industry by supporting the uptake of HPFVs. It will also provide a basis for ongoing engagement and consultation with stakeholders, including for further network development.

*Moving More with Less 2021* builds on the work that began in 2009 with the publication of Victoria’s first-ever freight strategy, *Freight Futures*, which initiated HPFV access to the road network.

Originally published in 2013, *Moving More with Less* encouraged a greater use of HPFVs on a wider network to assist with an increasing freight task.

It also initiated significant investment in the road freight network – particularly strengthening bridges – to ensure HPFVs could operate at a higher gross combination mass (GCM).

From these cautious beginnings, when the 30-metre B-double combination bolstered Victoria’s role as the nation’s busiest container port, the Victorian Government recognised the economic benefits of introducing agreed designs on pre-approved routes for 30 and 36.5-metre A-Double combinations.

Victoria soon led the nation in HPFV approvals, and the local trailer manufacturing industry expanded as it took advantage of the growth.

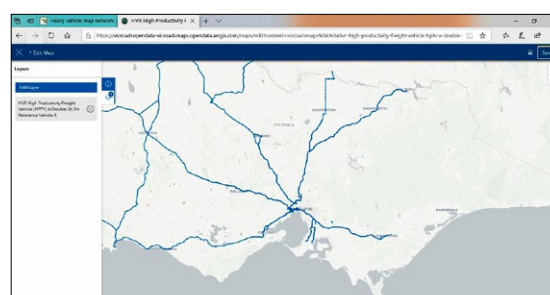
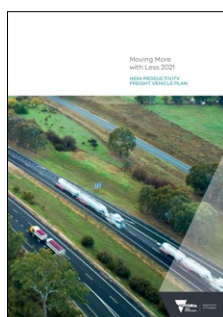
By 2019, 75 per cent of the national trailer fleet was manufactured in Victoria, such was the state’s dominance. Today, there are over 871 HPFV combinations operating across the network.

As the next chapter in this Victorian success story, *Moving More with Less 2021* is part of a broader narrative that recognises the importance of freight to the economy, while maintaining a focus on safety, on the community and on the environment.

The Victorian Freight Plan  
*Delivering the Goods*

*Moving More with Less*

HPFV network maps



## The importance of HPFVs in Victoria

High-quality, reliable freight and logistics are essential to our connectedness and liveability, for the success of Victorian businesses and primary producers and for job creation across our economy.

The freight and logistics sector contributes \$21 billion to Victoria's economy and employs about 260,000 Victorians.

The Victorian freight task is predicted to increase from around 360 million tonnes in 2014 to nearly 900 million tonnes in 2051. While *Delivering the Goods* contains a number of initiatives to encourage growth in rail freight, the road network will continue to play a dominant role in the freight task.

Victoria relies more heavily on road transport because the Victorian freight task is so complex. Even though the distances are relatively short, the state's exports are broadly scattered, accentuating a reliance on road transport.

Victoria makes up only 3 per cent of Australia's total land mass, but accounts for almost a quarter of the nation's total food-and-fibre exports. As a result, Victoria maintains a complex supply chain with connections to every farm gate and primary producer throughout the state.

The growth of larger vehicles that can carry more freight is essential in ensuring that the capacity of Victoria's road network expands to support the forecast increase in demand without exponentially increasing the number of heavy vehicles on our roads.

### What is a HPFV?

In Victoria, a HPFV is a heavy vehicle combination that exceeds 26 metres and/or has a GCM greater than 68.5 tonnes. HPFV also include semi-trailers fitted with a quad-axle group.

A HPFV is defined as a Class 2 vehicle under the National Heavy Vehicle Law. Access is conditional on assessments of proposed routes including road geometry and the vehicle's impact on bridge structures.

### What are Performance Based Standards?

HPFVs operate under the Performance-Based Standards (PBS) scheme.

PBS-approved vehicles are tested against 16 stringent safety standards and four infrastructure standards to ensure they fit the existing road network and are safe.

Australia's heavy vehicle industry – both suppliers and customers – have embraced PBS.

The proportion of PBS vehicles in the heavy vehicle population continues to grow. In 2018, almost one-in-five new heavy vehicle trailers manufactured in Australia were PBS approved, making up nearly 9000 PBS-approved combinations nation-wide.

## The benefits of HPFVs meeting PBS

The growing number of PBS vehicles is delivering safety, productivity and sustainability benefits. A 2018 review by the National Transport Commission (NTC) highlighted that PBS vehicles are involved in 46 per cent fewer major crashes per-kilometre-travelled than conventional vehicles and improve productivity by an average of 15 to 30 per cent.

Nationally, an increase in logistics total factor productivity of 1 per cent is estimated to increase GDP by \$2 billion.

Without the contribution of PBS vehicles, conventional heavy vehicles like semi-trailers would have travelled 260 million extra kilometres.

PBS vehicles also deliver substantial environmental and community benefits. The NHVR estimates that the PBS fleet annually saves 200 million litres of fuel, 486,000 tonnes of carbon dioxide emissions and \$107 million in road-maintenance expenses.

Victoria's HPFVs must also meet Australian Design Rule 80/02, which reduces emissions of particulate matter by more than four times over the previous standard.

These savings are forecast to increase as the PBS fleet size grows.



## HPFVs and Victoria's Freight Plan

*Delivering the Goods* sets out a series of short, medium and long-term priorities to support the efficient movement of Victoria's freight during a period of unprecedented growth.

The broad objectives of the plan are to reduce the cost of doing business, improve the efficiency of freight while minimising adverse impacts, better connect Victorian businesses with local, interstate and export markets and provide sufficient future freight capacity.

*Moving More with Less* supports those actions by focusing on the expansion and upgrade of the Victorian HPFV network.

### Changing intermodal transport and global shipping trends

As well as the impetus from strong policy settings and growing freight volumes, global shipping trends are also propelling the uptake of HPFVs. The more widespread use of 40-foot shipping containers has encouraged transport operators to seek more efficient ways of transporting them.

In 2006 the ratio of 20-foot to 40-foot use was quite even. Today, twice as many 40-foot containers are used compared to 20-foot containers.

The trend from 20-foot to 40-foot containers benefits a combination like the 30-metre HPFV, which has the capacity to transport two 40-foot containers, compared to a standard 26-metre B-double or conventional semi-trailer which can only accommodate one 40-foot container.



## Actions and priorities

*Delivering the Goods* foresees a future where the HPFV network comprises end-to-end access through integrated interstate, state and local road connections. It has a number of priorities and supporting actions to achieve this. The following table outlines where *Moving More with Less* supports the plan's objectives.

<b>DELIVERING THE GOODS</b>	→	<b>MOVING MORE WITH LESS</b>
<b>Priorities and supporting actions</b>		<b>Priorities and supporting actions</b>
<p><b>Expand the HPFV network</b></p> <ul style="list-style-type: none"> <li>• Continue to invest in the expansion of the existing Victorian HPFV network, principally by strengthening and upgrading bridges and intersections.</li> <li>• Reflect the HPFV network in the Principal Freight Network (PFN).</li> <li>• Identify uses of on-board mass monitoring systems to improve heavy vehicle access to restricted infrastructure.</li> </ul> <hr/> <p><b>Work with local government to remove or reduce first and last mile impediments</b></p>		<p><b>Increase safe HPFV Access</b></p> <ul style="list-style-type: none"> <li>• Continue to undertake corridor assessment of structures.</li> <li>• Increase the number of pre-approved and gazetted networks.</li> </ul> <p><b>Increase productivity</b></p> <ul style="list-style-type: none"> <li>• Engage with industry and equipment manufacturers.</li> <li>• Improve rest areas for HPFV.</li> <li>• Strengthen bridges.</li> <li>• Identify and improve pinch-point intersections.</li> <li>• Prioritise road maintenance on HPFV networks.</li> <li>• Engage with industry and equipment manufacturers to provide input on additional reference vehicles and routes.</li> <li>• Roll out on-board mass monitoring systems for HPFV.</li> <li>• Boost HPFV access to intermodal hubs.</li> <li>• Better manage truck curfews.</li> <li>• Strengthen collaboration with local government for first and last mile access.</li> </ul>

## Uptake of HPFVs since 2013

In 2013, the Victorian Government began developing a pre-approved HPFV network to provide the road freight industry a simpler, quicker approval process.

A pre-approved network accelerates the permit application process by providing automatic road-manager consent for a suite of reference designs.

By eliminating a stage in the approval process, Victorian freight operators have enjoyed a considerable saving in time and effort in getting HPFVs on the road.

The process to develop a pre-approved network involved corridor assessments on key strategic routes and in most cases infrastructure upgrades, particularly bridge strengthening.

The government initially focused on interstate connections including the Hume, Goulburn Valley and Western highways.

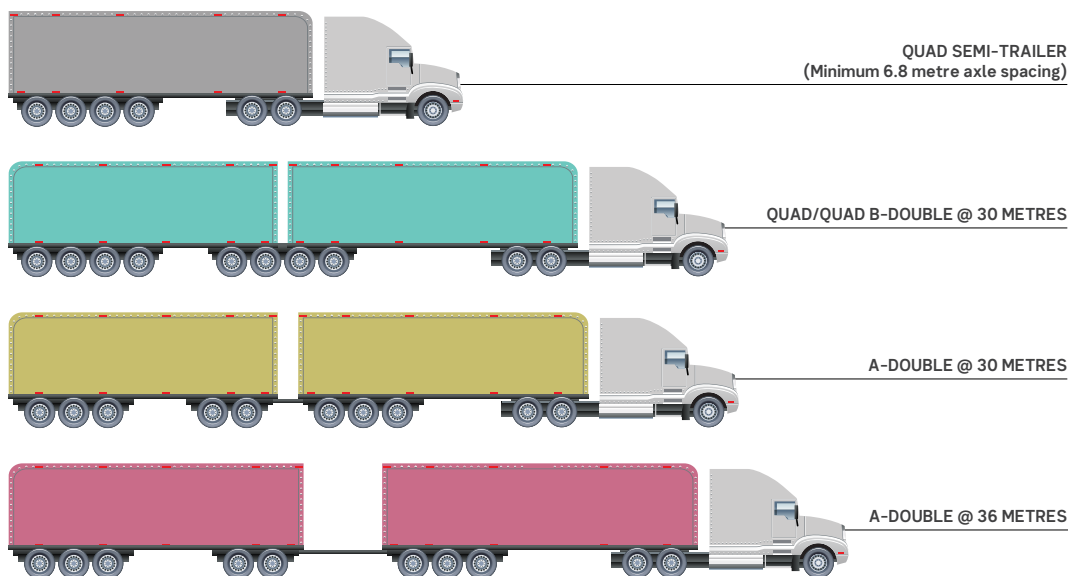
The HPFV network will continue to expand as route assessments are undertaken and road upgrades delivered.

Since the publication of *Moving More with Less* in 2013, a suite of reference vehicle configurations have been developed to enable Victorian businesses easier access to the HPFV network.

### The combinations are:

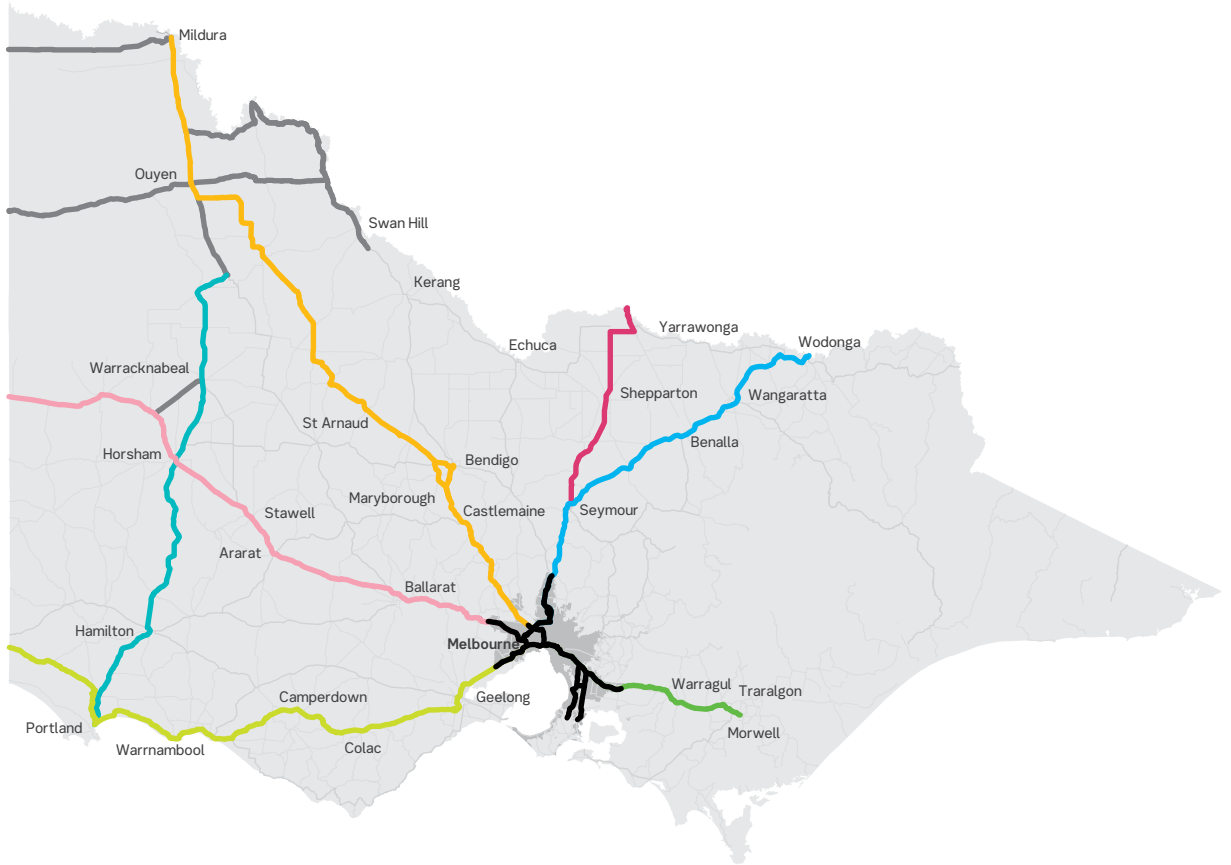
- Quad-axle semi-trailers
- Quad-tri axle and quad-quad axle B-doubles
- 30-metre A-doubles
- 36.5-metre A-doubles

### Reference designs for the pre-approved HPFV network





Structural assessments undertaken since 2013



<p><b>Calder Hwy</b></p> <p>Assessed: 168</p> <p>Strengthend: 0</p> <p>Investment to date: \$1,531,000</p>	<p><b>Western Hwy</b></p> <p>Assessed: 160</p> <p>Strengthend: 3</p> <p>Investment to date: <b>\$11,699,900</b></p>	<p><b>Princes Hwy East</b></p> <p>Assessed: 102</p> <p>Strengthend: 6</p> <p>Investment to date: <b>\$5,740,000</b></p>	<p><b>Hume Hwy/Fwy</b></p> <p>Assessed: 316</p> <p>Strengthend: 8</p> <p>Investment to date: <b>\$8,375,800</b></p>
<p><b>Henty Hwy</b></p> <p>Assessed: 34</p> <p>Strengthend: 0</p> <p>Investment to date: \$280,000</p>	<p><b>Princes Hwy West</b></p> <p>Assessed: 103</p> <p>Strengthend: 0</p> <p>Identified for upgrade: 12</p> <p>Investment to date: <b>\$11,064,900</b></p>	<p><b>Goulburn Valley Hwy</b></p> <p>Assessed: 69</p> <p>Strengthend: 5</p> <p>Investment to date: <b>\$4,524,000</b></p>	<p><b>Metro Melbourne</b></p> <p>Assessed: 99</p> <p>Strengthend: 9</p> <p>Investment to date: <b>\$11,500,000</b></p>
<p><b>North-West Road Train Network</b></p>			

**The following conditions apply to the reference vehicles operating on Victoria's HPFV network:**

- Class 2 permit issued by the NHVR
- The relevant level of PBS
- Fitment of a GPS device (in-vehicle unit) accredited under the Intelligent Access Program (IAP)
- Fitment of a certified category B or C on-board mass (OBM) system that can be integrated with IAP
- Accreditation under the Mass Management module of the National Heavy Vehicle Accreditation Scheme
- Anti-lock braking system on all axles
- Certified Road Friendly Suspension (RFS) on all axles
- Depending on the combination, a road train warning sign at front and rear, or a long vehicle warning sign at the rear.
- Emission control requirements of ADR 80/02

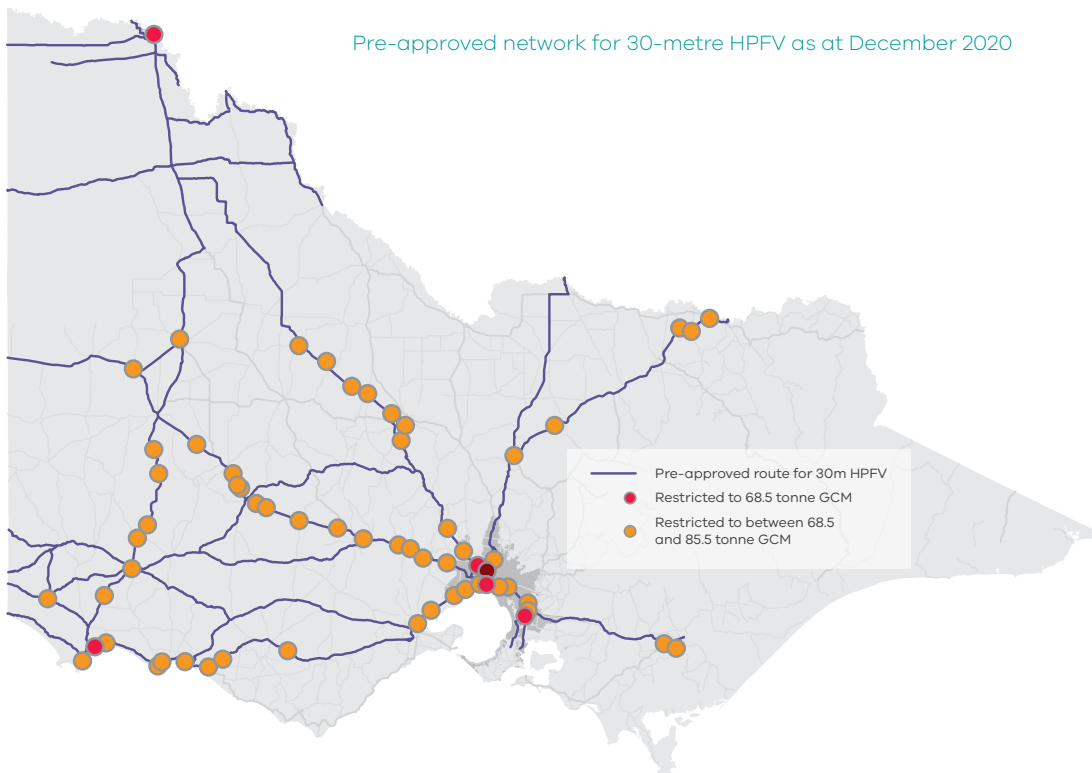
Combinations up to 30 metres require a Class 2 PBS permit, while combinations greater than 30 metres and up to 36.5 metres require an NHVR-issued Class 3 PBS permit.

The pre-approved networks show operators how to access approved routes and include information about mass-limited structures like bridges and culverts and intersections that do not meet swept-path requirements.

**Maps showing the networks can be found at:**

<https://www.vicroads.vic.gov.au/business-and-industry/heavy-vehicle-industry/heavy-vehicle-map-networks-in-victoria>

Pre-approved network for 30-metre HPFV as at December 2020



## Growth in HPFV use

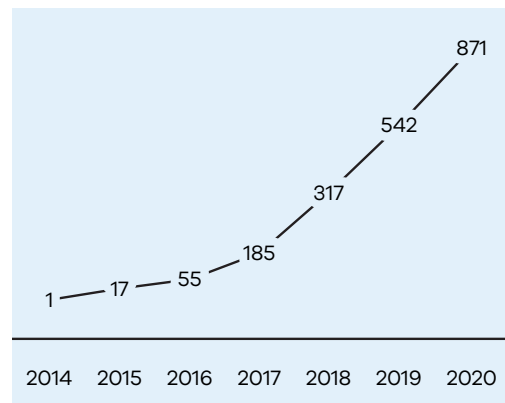
Victoria's pre-approved networks and reference designs, as well as upgrades to priority structures, have triggered massive growth in the use of HPFVs.

Since 2013, Victoria has assessed and imposed mass limits on 1121 bridges, strengthened 31 structures (mostly bridges), funded a further 71 and prioritised 56 structures for upgrade.

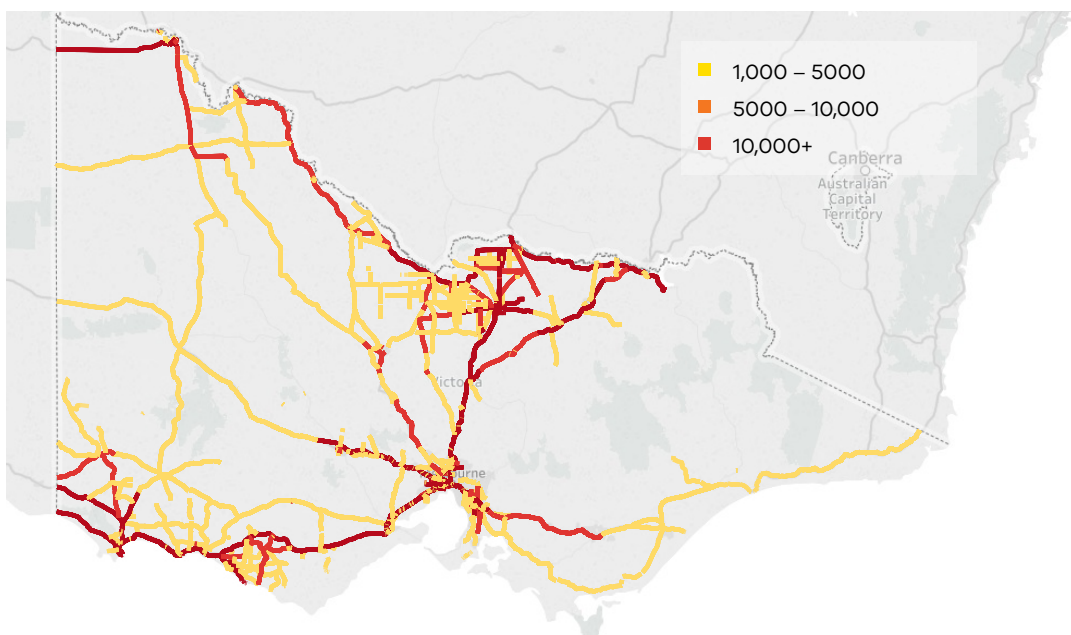
Victoria's uptake has been accelerated by a strong local heavy vehicle manufacturing industry.

In 2019, 75 per cent of the national PBS trailer fleet had been built in Victoria, and over 50 per cent of Australia's PBS trucks were manufactured locally or imported by locally based truck brands.

HPFV enrolments in IAP



Network usage by HPFVs from January 2018 to June 2019  
(routes carrying more than 1000 journeys)





## Expanding the network

The 2020 Class 2 Industry Forum identified a series of actions that would deliver a big productivity boost to the road freight industry. The Victorian Government will commit to deliver on a number of these recommendations.

### Action 1: Undertake further route assessments

Victoria will invest in further route assessment to boost network access.

Routes will be prioritised taking into account the Principal Freight Network (PFN), industry feedback and network usage data.

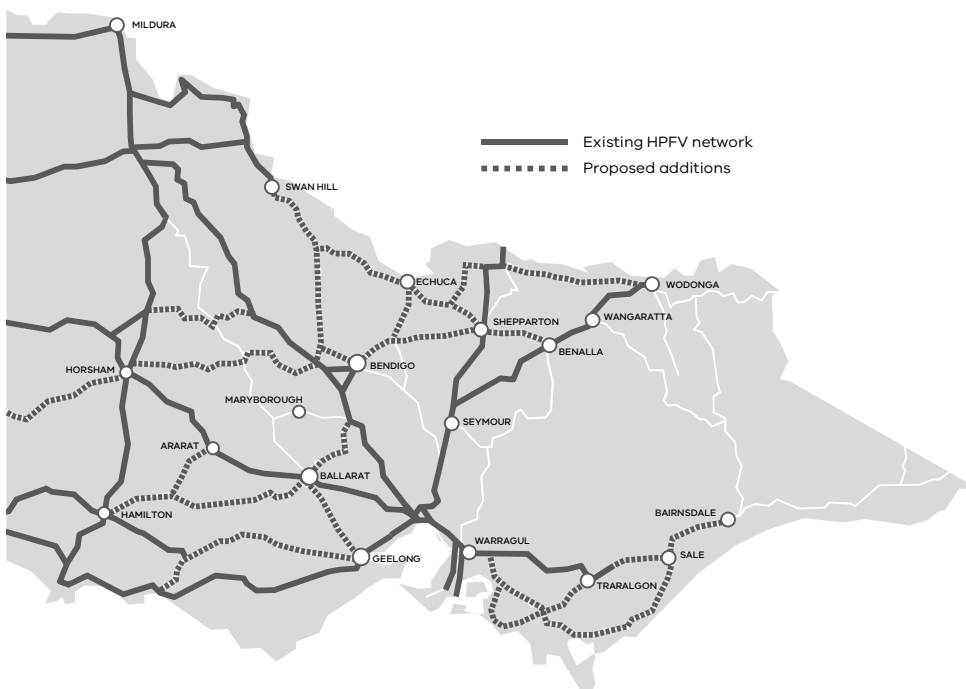
The PFN designates those parts of the transport network where freight movement is either concentrated or of strategic value.

Using the three key criteria, the following links have been added to the network:

- Murray Valley Highway
- Northern Highway
- Princes Highway East
- Arterial roads in the state's dairy regions in south-west and northern Victoria
- Bass and South Gippsland Highway in future extraction-industry locations
- Arterial roads in the Green Triangle region in the state's south west.

In addition to 3000km added to the network in 2021, the 2021-2022 Victorian Budget funds the structural assessment of a further 700 kilometres of routes across regional Victoria.

### Recent additions to the HPFV network



## Action 2: Introduce new reference designs

Victoria will introduce new reference designs for specified routes.

Routes under consideration include a 36.5-metre AB-triple network, a 36.5-metre B-triple network, a 26-metre A-double tanker and a 30m A-double tanker network.

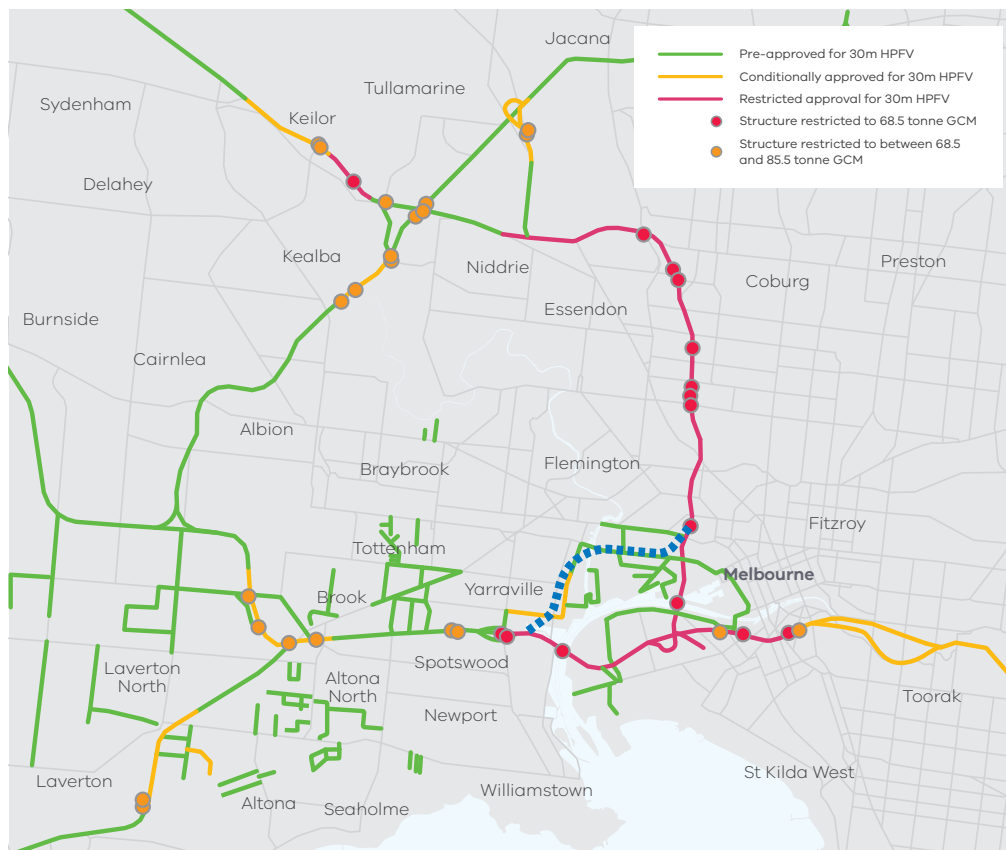
Further industry engagement will be undertaken to develop new reference designs and broader network access.

The 2020 Class 2 Industry Forum identified a number of priorities that would deliver a big productivity boost to the road freight industry.

This action directly responds by reducing the time and cost associated with obtaining a class 2 heavy vehicle permit for HPFV combinations.

Funding in the 2021-2022 Victorian Budget will help deliver this action.

### HPFV access in metropolitan Melbourne



### Action 3: Invest in new corridors

Victoria has committed to three key investments that will deliver east-west connectivity across the metropolitan area.

The West Gate Tunnel will enable HPFV operating at 85 tonnes GCM direct access to Swanson Dock at the Port of Melbourne.

The M80 upgrade will remove a number of mass restrictions that have limited the use of HPFV operating at 85 tonnes GCM.

The North East Link will enable HPFV operating at 85 tonnes GCM access to the Hume Freeway from key freight-generating areas in the east and south east.

### Action 4: Strengthen bridges

The Victorian Government will ensure all new structures can accommodate HPFV operating at their maximum GCM.

We are strengthening structures so they can accommodate HPFVs operating at their maximum GCM. Of the nearly 5000 structures managed by the Department of Transport, the average age is 44 years. Most have a design limit unchanged since construction.

Such mass restrictions force transport operators to detour to less efficient routes or to split loads to smaller, less efficient consignments, reducing productivity.

### Action 5: Strengthening the Metropolitan Freeway Network

A key priority is to address gaps for HPFV access on the state's busiest freight route.

More than 20,000 heavy vehicles use the M1 corridor each day. A number of structures on the corridor restrict access for combinations above 68.5 tonnes, including the West Gate Bridge, West Gate viaduct, Bolte Bridge and the elevated structure that extends several kilometres north of the Bolte Bridge.

### Action 6: Boost local road access

*Delivering the Goods* commits to helping local government in its role as road manager where consent for HPFV access is required.

HPFVs often need access to short lengths of road that come under the jurisdiction of local government. This type of access, often referred to as the 'last mile', is granted by local councils.

### Action 7: Increase provisions for rest areas

The Victorian Government is reviewing the Victorian Rest Area Strategy and assessing rest areas against PBS guidelines. The review will ensure access to rest areas meets swept-path requirements and that parking bays cater for combinations up to 36.5 metres long.

The Heavy Vehicle National Law requires all heavy vehicle operators to manage fatigue and take regular breaks.

### **Action 8: Use on-board mass monitoring to better manage bridges**

Victoria will use On-Board Mass (OBM) systems integrated with IAP to better manage the risk posed to bridges by HPFV.

OBM systems measure the mass of axle groups on a heavy vehicle and calculate its GCM to help ensure it does not exceed approved limits. This allows road managers to more accurately assess the risk to infrastructure.

More extensive bridge-use data will enable the development of a more extensive HPFV network.

Consequently, an exemption on the installation of OBM systems integrated with IAP will be removed.

### **Action 9: Boost access between intermodal hubs and key freight areas**

Ensuring HPFV access to intermodal terminals will help boost rail's share of the freight task, one of the key overarching objectives of *Delivering the Goods*.

An intermodal terminal is a location for the transfer of freight from one transport mode to another such as between road and rail.

Many intermodal terminals were designed without taking into account HPFV access.

### **Action 10: Identify and improve HPFV pinch-points**

Identifying routes with geometry constraints like poor sight distances, narrow sealed widths and poor line markings will lead to a more efficient permit process and a more informed prioritisation of upgrades.

There are a significant number of locations on both the local and arterial road network with geometry constraints that prevent the use of the most efficient HPFV combinations.

### **Action 11: Gazette the HPFV networks**

The Department of Transport will gazette the HPFV networks in Victoria so that operators no longer need to apply for an access permit. If a vehicle complies with the conditions set out in the gazette, it automatically has access to the network.

Gazetting the HPFV networks will considerably reduce the administrative burden on operators seeking access.





