NATIONAL HEAVY VEHICLE REGULATOR

PERFORMANCE BASED STANDARDS 2.0

Discussion Paper

November 2022

NHVR

PURPOSE

This Discussion Paper and associated consultation process provide stakeholders with the opportunity to assist the NHVR to reform and modernise the Performance Based Standards (PBS) scheme to deliver greater flexibility, enable continued innovation, and reduce the regulatory and administrative burden on the NHVR, industry and road managers.

This project will henceforth be referred to as the PBS 2.0 Project.

CONSULTATION

Submissions are sought from any stakeholder with an interest in the PBS scheme.

Submissions are invited on the entirety of this Discussion Paper, but the NHVR is especially interested in feedback on Sections 5 to 8. This feedback will assist the NHVR to progress the PBS 2.0 Project.

Questions are included at the end of Sections 5 to 8.
A consolidated list of questions is provided in Section 9.

As a suggestion, the NHVR provides the following topics to guide the review of this document and help formulate responses:

- Ensuring best practice administration of the PBS scheme from conception to on-road operations.
- Providing assurance of the integrity of the PBS scheme and participants in the scheme.
- Recognising the PBS scheme and increased adoption of PBS vehicles are critical to achieving safety and environmental sustainability targets, and to creating a productive, resilient and internationally competitive supply chain.
- Providing assurance to road managers that PBS vehicles contribute to protecting public safety, infrastructure, and public amenity.
- Providing certainty, transparency and fairness, and improving access and productivity as the incentive for industry to invest in PBS vehicles.
- Reducing industry need for PBS vehicle access permits.
- Reducing road manager need to undertake PBS vehicle route assessments.
- Improving knowledge and understanding of the benefits of PBS vehicles.

LODGING A SUBMISSION

Submissions must be lodged with the NHVR by 5pm on 17 February 2023.

Submissions can be made by email to PBSreview@nhvr.gov.au.

There is no prescribed format, and your submission may be as short or as long as you like. It may contain facts, opinions, arguments or recommendations.

If your submission contains additional material in a separate document or is more than three pages in length, it would be appreciated if you could please include a summary of key comments and recommendations at the front.

Further information

If you require further information on making a submission, please contact Scott Britton (Project Manager, PBS Review) at PBSreview@nhvr.gov.au.

Publication of submissions

Unless clearly marked 'IN CONFIDENCE', submissions received may be made public through https://www.nhvr.gov.au/about-us/consultation.

The NHVR will consider all submissions, whether published or not.

The NHVR reserves the right to edit or redact part or all of a submission, or withhold a submission from publication on any grounds, including, but not limited to, offensive language, potentially defamatory material or copyright infringing material.

The NHVR privacy policy, including information about access to and correction of your personal information, is available at https://www.nhvr.gov.au/law-policies/privacy.

ACRONYMS

ARRB	Australian Road Research Board
ARTSA-i	Australian Road Transport Suppliers Association - Institute
ATC	Australian Transport Council
CILTA	Chartered Institute of Logistics and Transport Australia
COAG	Coalition of Australian Governments
DA	Design Approval
HVNL	Heavy Vehicle National Law
HPF	High Performance Fleet
HPFV	High/er Productivity Freight Vehicle
NHVR	National Heavy Vehicle Regulator
NTARC	National Truck Accident Research Centre
NTC	National Transport Commission
PAG	Performance Based Standards Advisory Group
PBS	Performance Based Standards scheme
PRP	Performance Based Standards Review Panel
TIC	Transport and Infrastructure Council
VA	Vehicle Approval

1 ABOUT THIS DISCUSSION PAPER

This Discussion Paper presents the NHVR's evaluation of the PBS scheme and opportunities to ensure it continues to promote innovative, yet robust, approaches to heavy vehicle safety and productivity while reducing regulatory, administrative and cost barriers for the NHVR and its stakeholders. The NHVR's vision for the PBS scheme is set out in this Discussion Paper as follows:

Sections 2 to 4 provide an overview of the PBS scheme, the scope of this Discussion Paper, and the strategic context within which this Discussion Paper has been developed.

Sections 5 to 7 provide high-level concepts related to three key frameworks that underpin the NHVR's preferred approach to the future of the PBS scheme, including:

1. **Standards Framework** – the adoption of an accelerated process to ensure that PBS vehicles remain at the forefront of innovation through the dynamic management of PBS Standards, including the potential use of interim standards to temporarily test new technologies.
2. **Access and Transition Framework** – the creation of a 'lifecycle' for a PBS vehicle from initial concept through to exit from the PBS scheme for common and mature design concepts via an alternative regulatory mechanism. This approach reduces barriers to entry for industry to adopt PBS or PBS-like vehicles as part of their operating fleet.
3. **Assurance Framework** – supporting the development of capability and capacity of PBS scheme participants, to expedite end-to-end approval processes. This can be achieved by providing opportunities for third parties to deliver regulatory functions.

Section 8 places NHVR's preferred approach to the future of the PBS scheme within a broader range of opportunities to advance the scheme.

Section 9 provides a consolidated list of questions posed throughout earlier sections of the Discussion Paper.

The Discussion Paper has been informed by NHVR's experience in administering the PBS scheme and historic engagement with PBS scheme stakeholders, including jurisdictions, road managers, assessors, certifiers, industry associations and operators.

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2 BACKGROUND

2.1 Why the NHVR is undertaking the PBS 2.0 Project

In May 2018, the then Transport and Infrastructure Council (TIC) endorsed the National Transport Commission (NTC) *'Reforming the Performance-Based Standards (PBS) Scheme'* policy paper (NTC PBS Marketplace Review). Recommendations relevant to the NHVR included:

- Review the standards in the PBS scheme (In progress).
- Lead a communications plan to promote the benefits of the PBS scheme (Business as usual).
- Publish a National PBS Notice for each network level (Delivered).
- Design a nationally consistent infrastructure assessment guideline (Being delivered in partnership with the Commonwealth, state and territory transport governments, and Austroads).

Improving the timeliness and efficiency of the PBS process is also a key consideration of the NTC's Heavy Vehicle National Law Review (HVNL Review).

The PBS Marketplace Review and HVNL Review have not undertaken a holistic review of the entire PBS scheme, and only address some of the issues that industry, road managers and the NHVR have.

Industry has told the NHVR that because of the regulatory and administrative burden, innovation has stagnated, access continues to be an issue, and there is no path for PBS vehicles to exit the PBS scheme into the 'as-of-right' fleet. Further, if the PBS scheme's growth continues at the current trajectory without procedural and operational improvements, there will be a huge strain on the NHVR and industry.

The PBS 2.0 Project intends to comprehensively review the PBS scheme and provide options on how to incentivise industry uptake, accelerate growth in the PBS scheme, and enable continued fleet innovation.

The NHVR, as the administrator of the PBS scheme and the national regulatory authority for heavy vehicles, is best positioned to lead this reform, so that industry, governments and the community benefit from the significant safety, productivity, sustainability and economic outcomes delivered by PBS vehicles.

2.2 About the PBS scheme

The PBS scheme allows heavy vehicle operators to use innovation to optimise vehicle designs to achieve greater productivity and improved safety, while making the least possible impacts on the environment and road infrastructure.

PBS vehicles are designed to perform their tasks as productively and safely as possible, and to operate on networks that are appropriate for their level of performance. PBS vehicles are tested against 16 stringent safety standards and four infrastructure standards to ensure they can safely operate on roads (Figure 1). The basic principle of PBS is matching the right vehicles to the right network (i.e. a performance-based approach to access).

It is a voluntary scheme that sits alongside the long-standing prescriptive regulatory system for heavy vehicles (i.e. vehicle parameters are in regulation, and vehicles meeting these are deemed safe to operate on roads networks). This prescriptive regulatory system is adopted in the majority of international markets. There are some 'PBS-like' systems, that exist around the world, such as:

- South Africa: Replication of Australian PBS scheme.
- New Zealand: Some performance measures in place, uses a proforma design approach - Broader PBS scheme under investigation.
- European Union: In the process of developing and trialing a type of PBS scheme. Based on vehicle 'modules', not performance outcomes, with capped dimensions and mass.

Australia's PBS scheme is therefore the most sophisticated of its kind in the world, providing significant productivity, safety and environmental benefits to governments, industry and the community.

Common PBS configurations can be found in the NHVR publication – PBS Vehicle Configurations.

More information on the PBS scheme can be found in the NHVR publication – PBS an Introduction for Road Managers or on the NHVR website at https://www.nhvr.gov.au/road-access/performance-based-standards.

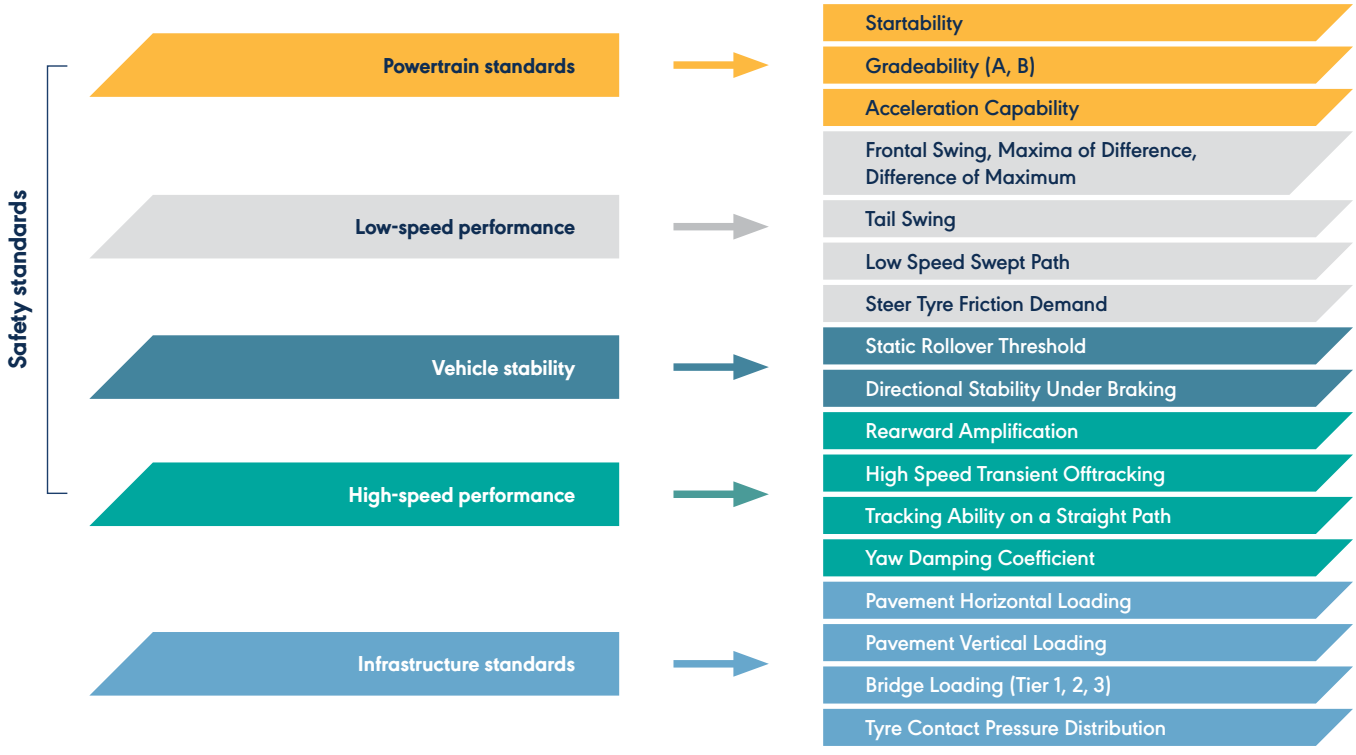


Figure 1: PBS safety and infrastructure standards

2.2.1 Timeline of key events

- 1999 –The PBS scheme was initiated as a partnership arrangement between the NTC, Australian Road Research Board (ARRB), Austroads, Commonwealth, state and territory transport agencies, and industry.
- November 2000 – The NTC began drafting the *Performance-Based Standards Policy Framework for Heavy Vehicle Regulation* and finalised this in May 2001, together with the Regulatory Impact Statement, which the Australian Transport Council (ATC) endorsed, along with the adoption of the scheme.
- February 2002 – To ensure that the developed PBS standards were compatible with the Australian heavy vehicle fleet at that time, the NTC commissioned a report on the performance characteristics of the Australian heavy vehicle fleet.[1] The objective was "to measure the safety and infrastructure related performance of the selected fleet vehicles against the proposed standards, to recommend a final set of performance-based standards for heavy vehicle regulation."
- February 2006 – The Council of Australian Governments (COAG) endorsed the PBS scheme.
- October 2007 – Implementation and administration of the PBS scheme by the NTC.
- October 2012 – PBS scheme incorporated into the HVNL.
- February 2014 – HVNL commenced, and administration of the PBS scheme transitioned from the NTC to the NHVR.
- May 2018 – The NTC PBS Marketplace Review, which evaluated the PBS scheme and provided recommendations for improving its efficiency and effectiveness, was endorsed by TIC.

2.3 PBS growth and market share

The PBS scheme is being adopted in record numbers. There are currently more than 4,000 transport operators in the scheme, with some 15,400 PBS combinations in their fleet.

The compound annual growth rate of PBS uptake from 2008 (73 combinations) to 2021 (13,745 combinations) was 49.6%.

In 2017, approximately one in six new heavy vehicles was PBS-approved. In 2018, this increased to approximately one in five.[2]

In terms of market representation, a high proportion of the PBS fleet is represented by a few combination types.

There is also a skewed distribution across PBS levels.

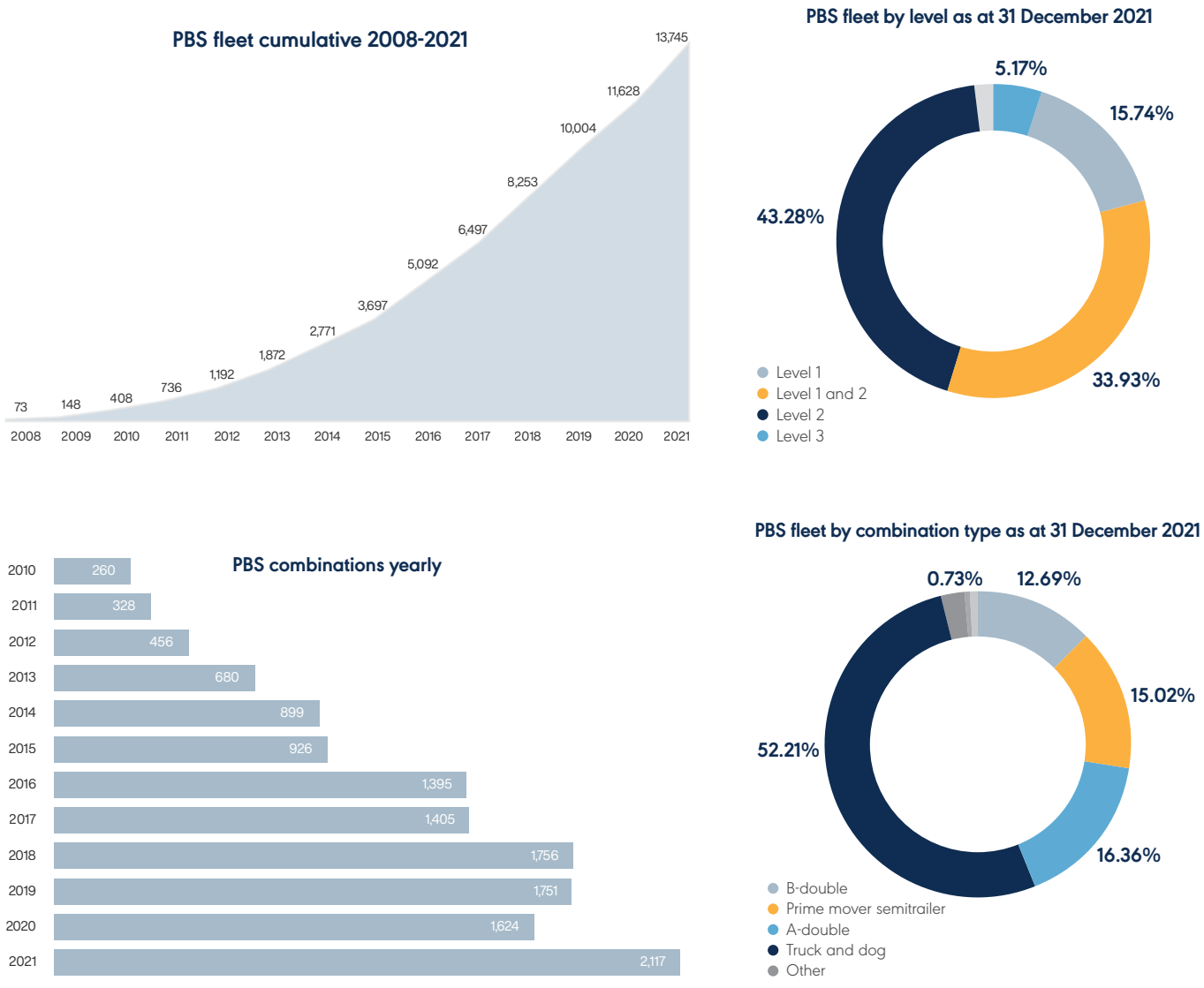


Figure 2: PBS fleet statistics

1 H. Prem et al, Performance characteristics of the Australian heavy vehicle fleet : (performance based standards - NRTC/Austroads project A3 and A4): working paper, 2002.
2 NHVR and Australian Road Transport Suppliers Association – Institute (ARTSA-i), Australia's PBS Fleet – 2020 Edition, 2020

2.4 PBS benefits

Road transport is the dominant form of freight movement for the majority of commodities produced and/or consumed in Australia. Road freight grew by over 75% between 2000–01 and 2015–16, and Australia's freight volumes are projected to grow by over 35% between 2018 and 2040. Urban freight forecasts are projected to increase by nearly 60% over 20 years to 2040 – in conjunction with growing population density pressures.[3]

Collectively, governments have a responsibility to ensure heavy vehicles can meet the country's growing freight task, which means delivering more goods with fewer vehicles in a safe manner. PBS vehicles deliver on this task, by offering industry productivity improvements of 15 to 30%. This brings significant commercial and operational benefits to industry (e.g. savings in labour, maintenance, insurance, warehousing and fuel), and significant safety, environmental and economic benefits for the broader community.

The ability of the PBS scheme to enhance road freight productivity while offering safety outcomes has been a key consideration for industry and governments. PBS vehicles are therefore an implicit solution to achieving the objectives of the National Road Safety Strategy and Vision Zero (refer section 4.7). A joint investigation into major crash rates for PBS vehicles from 2015 to 2019 undertaken by the NHVR, Chartered Institute of Logistics and Transport Australia (CILTA) and the National Truck Accident Research Centre (NTARC) showed that, compared to the conventional heavy vehicles they replace, PBS vehicles are:

- involved in:
  - 60%fewer major crashes per 100 million kilometres
  - 33% fewer major crashes per 100 million gross tonne kilometres
  - 30% fewer major crashes per 10,000 vehicles.
- forecast to save 143 lives over 20 years
- safer in every truck category.[4]

The PBS technology itself, the dedicated efforts to include PBS vehicles in an operational fleet, the mindful cost of new PBS units, the safety consciousness of many of the PBS-adopting fleet operators, often the selection of the PBS truck drivers themselves, and the appropriate road infrastructure on which PBS vehicles operate all add up to a more productive and safer heavy Australian road transport industry.

The following are two other primary drivers for PBS safety performance that have been quantitatively assessed:

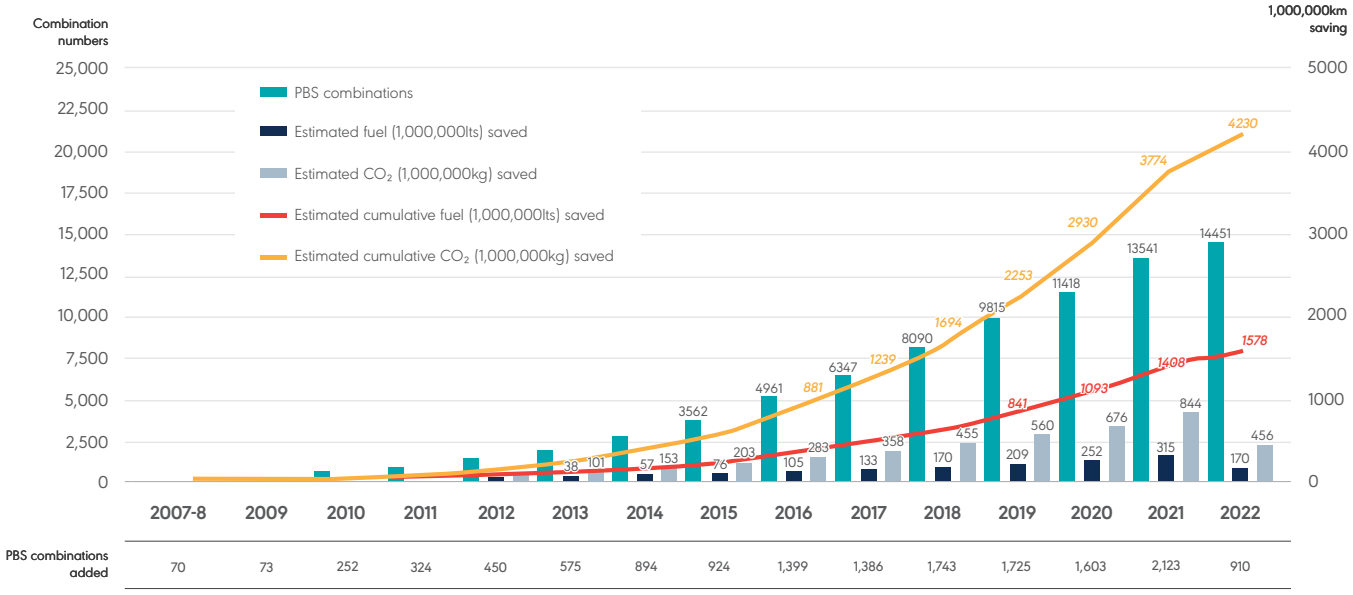
- The median age of the PBS fleet is approximately four years. When compared with prescriptive vehicles this is far younger than prime movers (over 10 years), trailers (over 12 years) and heavy rigids (over 13 years). Newer vehicles also have more modern braking and safety technology and cleaner engines.
- Over the last five years, the NHVR has calculated that PBS vehicles travelled 2.1 billion fewer kilometres on Australian roads than conventional vehicles to complete the same freight task, resulting in a significant reduction in the likelihood of vehicle-to-vehicle interactions.

As shown in Figure 3, the reduction in the number of heavy vehicles and total distance travelled have reduced:

- CO_2 emissions by over 3.9 billion kilograms
- fuel consumption by over 1.4 billion litres.

The mortality cost of 4,434 tonnes of CO_2 has recently been estimated as representing one life over 80 years.[5] PBS vehicles are therefore estimated to save approximately 879 lives over 80 years due to emission reductions already achieved.

These benefits will continue to increase as the PBS fleet grows.



1. The factor and methodology from the Austroads Research Report AP-R465-14 (Quantifying the Benefits of High Productivity Vehicles) has been used with the number for approved PBS combinations to quantify the benefits achieved from PBS.
2. Rated fuel burn used from ATA - TAPs - Truck Impact Chart September 2016.
3. Diesel to CO_2 conversion rate of 2.68kg per litre used.

Figure 3: Environmental benefits of approved PBS combinations 2007 to June 2022

3 Department of Infrastructure, Transport, Cities and Regional Development, National Freight and Supply Chain Strategy, 2019
4 NHVR, CILTA & NTARC, Review of Major Crash Rates for Australian Higher Productivity Vehicles: 2015–2019, 2021
5 Bressler, R.D., 2021, The mortality cost of carbon, Nature Communications 12, 4467

3 SCOPE

3.1 In scope

The following are considered in scope for the Discussion Paper and the PBS 2.0 Project:

- Matters relevant to the NHVR and its regulatory activities relating to the PBS scheme.
- The role and responsibilities of the NHVR, PBS Review Panel (PRP), PBS assessors, PBS certifiers, industry and road managers.
- Change within or affecting PBS scheme components.
  - Standards and Vehicle Assessment Rules sets out the standards, as well as the rules assessors must follow when assessing vehicles against the standards.
  - PBS Assessor Accreditation Rules sets out the qualifications assessors must have and the accreditation process for assessors.
  - PBS Vehicle Certification Rules sets out how the certification process is to be carried out. It also sets out the qualifications certifiers need and the accreditation process for certifiers.
- Change that meets the original objectives and principles of the PBS scheme.
- Using the HVNL and the HVNL Review as mechanisms to deliver improvements to the PBS scheme.

3.2 Out of scope

The following are considered out of scope for the Discussion Paper and the PBS 2.0 project:

- The review of the safety and infrastructure standards in the PBS scheme. (This is a related, but separate and distinct, project, which the NHVR has already begun, including engaging with stakeholders.)
- The HVNL Review more broadly.
- Strategic and operational policy and programs not relevant or related to the NHVR or the HVNL.
- Registration and licensing of PBS vehicles and PBS vehicle drivers.

While some of the above topics may be relevant to the PBS scheme, they are not immediately relevant to a holistic review of its technical, administrative, operational, commercial or technological elements.

4 STRATEGIC CONTEXT SUPPORTING PBS 2.0

4.1 NHVR Strategic Directions 2021–2026

The NHVR's Strategic Directions 2016 outlined the NHVR's initial 10-year vision to deliver modern and responsive regulation. Strategic Directions 2021–2026 is a mid-life review of this vision to ensure the NHVR's strategic approach delivers a nationally consistent, risk-based approach to regulation that allows for innovation by supply chain parties and removes roadblocks to productivity to prioritise safer and more productive supply chains.

The PBS 2.0 Project responds to the following opportunities and priorities set out in *Strategic Directions 2021–2026*.

The productivity and sustainability opportunity:

- The community acknowledges the increased importance of an efficient road freight task with local and national supply chains.
- An increased widespread recognition of the limitations of the traditional prescriptive approach to heavy vehicle network access and the need to move to an outcome-focused model.
- The community expects efficient delivery outcomes to meet the growing freight task (twice as fast as our population).
- Industry uptake of safer and more productive heavy vehicles continues to exceed projected growth targets.
- There is further uptake of modern and efficient vehicles that are considerably younger than the national fleet.

The NHVR will work towards a future where:

- Local and national policy settings support the uptake of safer and more productive vehicles, removing their 'high risk' perception.
- There is a recognisable reduction in the average age of the national heavy vehicle fleet.
- Mature PBS vehicles are transitioned to the prescriptive fleet, enabling an increased focus on more innovative vehicle designs.

To achieve this, the NHVR will:

- Advocate for the removal of regulatory barriers that limit adoption of emerging technologies in the domestic market.
- Work towards a future where incentivised approaches encourage increased uptake of environmental technologies across the national fleet.
- Pursue an envelope approach to access decisions based on the performance of a vehicle rather than its prescriptive dimensions.
- Collaborate with government agencies and industry to help promote the uptake of improved safety and environmental technologies.

4.2 NHVR Corporate Plan 2022–2025

The *NHVR Corporate Plan 2022–2025* was developed in accordance with the HVNL. The Corporate Plan outlines the NHVR's key objectives and strategies over the next three years, focused on providing leadership to, and working collaboratively with, road managers and industry to drive sustainable improvements to safety, productivity and efficiency outcomes across the Australian heavy vehicle road transport sector. A key deliverable in the *Corporate Plan 2022–2025* is to begin the phased delivery of PBS 2.0 to reform the PBS scheme

by optimising productivity and safety benefits and reducing administrative complexity, which will be met by delivering this Discussion Paper and the associated consultation activity.

The PBS 2.0 Project will contribute to facilitating and addressing the following opportunities and challenges, as articulated in the Corporate Plan:

- Positively influence and support road managers to improve network access for safer and higher productivity vehicles.
- Embrace and encourage the adoption of innovative technology solutions that will deliver improved safety and productivity outcomes.
- Provide access certainty and consistency to achieve improved efficiency and productivity outcomes for industry.
- Implement a risk-based and less prescriptive regulatory environment.

4.3 NHVR Heavy Vehicle Productivity Plan 2020–2025

The Heavy Vehicle Productivity Plan 2020–2025 outlines the NHVR's objectives, goals and actions to deliver safe, efficient and productive heavy vehicle movements supporting a strong and prosperous Australia. A goal of the plan is to deliver PBS 2.0 – a modern approach to the PBS scheme. It articulates the NHVR's commitment to implementing improved systems and processes that incentivise industry uptake and accelerate growth in the PBS scheme.

4.4 NHVR Vehicle Safety and Environmental Technology Uptake Plan

The Vehicle Safety and Environmental Technology Uptake Plan outlines the program of work the NHVR will undertake to accelerate the introduction of new safety and environmental technologies into the Australian heavy vehicle market. The plan contains five work packages that aim to encourage operators to incorporate newer, more technologically advanced vehicles into their fleets by:

- removing regulatory barriers that limit the adoption of advanced technologies
- offering productivity gains as an incentive for the adoption of advanced technologies
- providing education to industry on the safety, productivity and environmental benefits of new vehicle technology.

4.5 NHVR Heavy Vehicle Safety Strategy 2021–2025

The Heavy Vehicle Safety Strategy 2021–2025 sets out the NHVR's strategic ambitions to lead industry towards a safer future. The strategy is implemented through annual action plans, and demonstrates the NHVR's commitment to achieving the targets outlined in the *National Road Safety Strategy 2021–30*.

A reformed PBS scheme will contribute to the delivery of a strategic priority of the Heavy Vehicle Safety Strategy – to drive uptake of the range of innovative, safer vehicles and reduce the likelihood and impact of crashes.

4.6 National Freight and Supply Chain Strategy and National Action Plan

The National Freight and Supply Chain Strategy and National Freight and Supply Chain Strategy National Action Plan provide the platform to position Australia to meet its freight future. Through the strategy and action plan, the Commonwealth Government, NHVR and all jurisdictions have committed to future freight outcomes via supporting actions.

Related critical areas and outcomes to be achieved include:

- Enable improved supply chain efficiency.
  - Decreased transaction costs and other barriers to moving freight seamlessly along supply chains.
  - Building community acceptance of freight operations (including in relation to congestion, noise, safety and pollutants).
- Better planning, coordination and regulation.
  - Investigate policy, planning and operational solutions to improve freight access and movement along domestic and international supply chains.
  - Improve regulation to be more outcomes focused and risk-based to support innovation and reduce regulatory burden while maintaining safety, security and sustainability.

4.7 National Road Safety Strategy

The National Road Safety Strategy 2021–30 sets out Australia's road safety objectives over the next decade, and includes key priorities for action and targets to reduce the annual number of fatalities by at least 50% and serious injuries by at least 30% by 2030. It also represents all governments' commitment to deliver significant reductions in road trauma, putting Australia on a path to achieve 'Vision Zero', or zero deaths and serious injuries on our roads, by 2050.

The strategy intends to achieve this by strengthening all elements of the road transport system under three key themes: Safe roads, Safe vehicles and Safe road use. Heavy vehicle safety is a key aspect of the actions and has inherent linkages with PBS 2.0 and the NHVR's strategic documents, including the following actions:

- Regulate for and promote heavy vehicle safety technologies.
- Strengthen national heavy vehicle operational regulation.
- Promote and reduce barriers to the uptake of safe new heavy vehicles.

4.8 National Transport Commission reviews

4.8.1 HVNL Review

The NTC began a review of the HVNL in late 2018, with the intention that the new HVNL would create a more risk-based, performance-based and outcome-focused regulation that:

- Improves safety for all road users.
- Supports increased economic productivity and innovation.
- Simplifies administration and enforcement of the law.
- Supports the use of new technologies and methods of operation.
- Provides flexible, outcome-focused compliance options.

The HVNL and HVNL Review provide an opportunity for a renewed PBS scheme under the law, to move away from a strong, prescriptive focus and create a principle-based, flexible, future-proofed law, enabling risk-based regulation to empower

industry to innovate, and raise the heavy vehicle safety and productivity agenda to a new level.

4.8.2 PBS Marketplace Review

In May 2018, the PBS scheme was reviewed by the NTC in the PBS Marketplace Review. This paper considered whether or not the PBS scheme was meeting the original objectives and principles that were endorsed by COAG in 2006.

This review concluded that the current PBS fleet in Australia had improved productivity, reduced carbon dioxide emissions, improved fuel efficiency and reduced the impact on road infrastructure. It also concluded that the PBS standards resulted in safer vehicles and that PBS vehicles were involved in 46% fewer crashes per kilometres travelled than conventional vehicles.

At the May 2018 meeting of TIC, the outcomes of the NTC's Review were endorsed. This included four recommendations for the NHVR:

- Review the standards in the PBS Scheme (In progress).
- Lead a communications plan to promote the benefits of the PBS Scheme (Business as usual).
- Publish a National PBS Notice for each network level (Delivered).
- Design a nationally consistent infrastructure assessment guideline (Being delivered in partnership with the Commonwealth, state and territory transport governments, and Austroads).

The NTC review investigated, and made recommendations to address, PBS vehicles' access-related issues. It did not undertaken a comprehensive review of the PBS scheme, nor did it propose recommendations to improve the other administrative, regulatory or operational aspects of the PBS scheme. The NHVR PBS 2.0 Project seeks to address this gap.

5 STANDARDS FRAMEWORK

5.1 Opportunity statement

Vehicles are assessed under the PBS scheme according to 16 safety standards, to ensure they are stable on the road and can manoeuvre safely, and four infrastructure protection standards. To be approved by the NHVR, a vehicle must satisfy the standards, which can be found in the Performance-Based Standards Scheme – the Standards and Vehicle Assessment Rules. This document sets out the standards, as well as the rules assessors must follow when assessing vehicles against the standards.

While amendment of the standards was a recommendation from the NTC PBS Marketplace Review, this Review did not identify issues with – or provide recommendations to address – the standards amendment process. Since the inception of the PBS scheme, the process for amending the standards has not evolved.

The issues the NHVR has identified with the current amendment process can be fundamentally described as outcome driven (i.e. relating to what is to be achieved) and process driven (i.e. how to achieve the agreed outcomes). These issues include the current approach stifling policy and technical development by stakeholders who interact the most with the PBS scheme – the NHVR, industry and PBS assessors – and inefficient, outdated administrative, management and approval processes enshrined in the HVNL and its subordinate regulations.

The NHVR sees a valuable opportunity to improve the standards amendment process to promote greater flexibility, speed of execution and proactive change, and also to ensure policy and administration are owned and managed by the NHVR and its stakeholders.

5.2 Accelerating the review, management and upgrading of PBS Standards

5.2.1 Streamlined administrative and approval processes supported by enhanced advisory mechanisms

Part 2 of the *Heavy Vehicle (General) National Regulation* sets out the rules for granting a PBS approval to a vehicle. Section 5 provides that, when considering an application for PBS approval, the PRP must have regard to the Standards and Vehicle Assessment Rules. Part 3, section 21 of the Rules states:

1. *These Rules may only be amended by the National Transport Commission –*
   a. *with the consent of the Australian Transport Council* (ATC) (currently the Infrastructure and Transport Ministers' Meeting (ITMM)); or
   b. *in the case of an amendment that is of an administrative or noncontroversial nature, with the unanimous consent of the Transport Agency Chief Executives* (TACE) (currently the Infrastructure and Transport Senior Officials' Committee (ITSOC)).
2. *A reference in any document to these Rules as approved by the ATC from time to time is to be read as including any amendments consented to by TACE under sub-rule (1)(b).*

The *Performance Based Standards – Network Classification Guidelines*, which works in conjunction with the *Standards*

and Vehicle Assessment Rules, includes a similar process for progression of amendments (refer section 5 of the Guidelines).

Amending legislation governing change of the Standards and Vehicle Assessment Rules and associated Network Classification Guidelines

The NTC still has powers within the *Standards and Vehicle Assessment Rules* and associated *Performance Based Standards – Network Classification Guidelines*, despite transferring operational and technical matters relating to heavy vehicles to the NHVR upon enactment of the HVNL. The NTC may delegate functions to the NHVR, which has previously been the case, but it is still required to be a party to the process.

Sections 24(2) and 25(2) of the *Heavy Vehicle (General) National Regulation* provides powers and functions to the NHVR for the *Assessor Accreditation Rules* and the *Vehicle Certification Rules*, and these Rules enable the NHVR to implement changes without referring them to the NTC. The same type of outcome is not legislated for the *Standards and Vehicle Assessment Rules* or the *Performance Based Standards – Network Classification Guidelines.* In other words, the NHVR cannot amend the PBS scheme Standards or network access guidelines independently of the NTC. So, while the NHVR is already undertaking all relevant activities to support change, it is unable to progress or effect change without referring changes to the NTC.

The HVNL, its subordinate regulations and section 21 of the *Standards and Vehicle Assessment Rules* should be amended to ensure the process for amending and progressing approval for rules, such as the *Standards and Vehicle Assessment Rules*, sits with the NHVR. Similarly, it is suggested that section 5 of the *Performance Based Standards – Network Classification Guidelines* should also be amended, so that the process for amending and progressing approval to these guidelines sits with the NHVR.

Amending approval process to change the Standards and Vehicle Assessment Rules and associated Network Classification Guidelines

It is important that Ministers continue to approve material changes to ensure the PBS scheme remains independent, the highest approval authority retains responsibility and liability for higher risk but higher value decisions, and that change is implemented. For example, Ministerial approval should be firm direction that all subordinate governments implement the change, including road managers providing access under an updated standard.

The PRP was initially formed to provide advice on the suitability and merits of specific PBS designs/potential designs. As the PBS scheme has evolved, so has the robustness of processes, the comprehensiveness of the PBS scheme, and the size and diversity of the PBS fleet. The role of the PRP should therefore evolve with the needs of the PBS scheme. The NHVR sees a shift in focus away from a vehicle-specific advisory function limited to jurisdictional representatives to one that has a broader advisory remit and representation (including seeking advice from industry subject matter experts). This advisory committee will be referred to as the PBS Advisory Group (PAG) hereafter.

The NHVR is therefore proposing two options for approving changes to the *Standards and Vehicle Assessment Rules* and the *Performance Based Standards – Network Classification Guidelines:*

- Option 1: The NTC retains ownership and responsibility, but may delegate responsibility to the NHVR. Decisions continue to be made by ITSOC for minor changes and ITMM for major changes.
- Option 2 (preferred): The HVNL, its subordinate regulations, section 21 of the *Standards and Vehicle Assessment Rules* and section 5 of the *Performance Based Standards – Network Classification Guidelines* are amended to introduce a tiered approval process.
  - The NHVR will be responsible for owning and maintaining the PBS scheme.
  - Material changes will be progressed by the NHVR, approved by responsible Ministers (via ITSOC), and then made by the NHVR. Prior to consideration, material amendments must continue to be informed by suitable consultation with external stakeholders, and the NHVR will be informed by advice from the PAG.
  - Minor and administrative changes will be progressed by the NHVR, approved by the NHVR Board, and made by the NHVR. Consultation with external stakeholders would be on a case-by-case basis with select parties – such as, seeking advice on new wording. The NHVR will be informed by advice from the PAG.
  - The NHVR will appropriately communicate any change through a range of distribution channels before the change takes effect.
  - The NHVR will provide updates to ITMM.

Option 1 maintains the status quo.

Option 2 (preferred) streamlines internal and external processes without materially impacting outcomes, with approval delegations scaled based on potential risk, scope and frequency of change.

5.2.2 Dynamic management of Standards

Since 2007, there have been few instances where significant change has been made to the PBS Standards. The most significant amendments will be the result of the current review of the Standards by the NHVR and its stakeholders, in response to the NTC PBS Marketplace Review. Updates to the Standards are critical to ensure PBS vehicles remain at the forefront of innovation and improved safety, productivity and sustainability outcomes.

Accelerating updates to standards

To ensure ongoing evolution of the PBS Standards, processes need to be established that enable the NHVR and stakeholders to put forward proposals to update entire Standards or an aspect of a Standard, or to introduce new Standards.

Establishing these processes will have the added benefit of facilitating the introduction of new technologies or methods in a timely manner and their rapid transfer into the PBS Standards, providing the opportunity to increase alignment between the HVNL and other PBS schemes, such as the one in Western Australia.

Any stakeholder with suggestions for innovation should be encouraged to develop and submit a proposal for consideration by the NHVR and other stakeholders.

Only legitimate requests that are technically and procedurally sound, and are acceptable to PBS stakeholders, should be considered. The NHVR will need to develop a rigorous application and approval process to deter submissions lacking substance or evidence for change.

This approach will ensure that Standard updates are responsive to genuine demand, evolve with technology, information and methods, and are not simply reactive to an internally or externally driven review.

Integral aspects of a properly made submission could include:

- clear articulation of the problem, intended change and benefit
- provision of data, method and analysis to ensure technical validity
- evidence of support for the change (i.e. a litmus test of stakeholder perspectives)
- an implementation approach, including source of funding (e.g. NHVR funded, externally funded or co-contribution) and how the change would affect existing and future PBS vehicles
- a cost-benefit analysis or other evaluation method.

Submissions must be robust and rigorous to be independently verified by the NHVR, PAG and other stakeholders.

The role of the PAG would be to:

- review submissions to ensure they are properly made (including proposal and consultation outcomes)
- provide advice on the process to implement
- provide advice to submitters and the NHVR on the submission and implementation.

The NHVR may undertake further external consultation to determine level of acceptability among PBS stakeholders.

If acceptable to stakeholders, the NHVR would then make the requisite representations and submissions to the ITMM to seek its approval to update and implement the Standard.

CASE STUDY: Comparison of standards and transitional arrangements in regulatory spaces – Australian Maritime Safety Authority

National Standard for Commercial Vessels (amsa.gov.au)

- In the regulation of domestic commercial vessels (fishing and tourism vessels), standards are developed and used by the Australian Maritime Safety Authority (AMSA), with the National Standard for Commercial Vessels (NSCV) providing for vessel survey, construction, equipment, design, operation and crew competencies. These are made by AMSA under regulations pursuant to the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012*.
- The NSCV is developed by a panel of technical experts drawn from industry, government, academic institutions and the community. The panel is used to recommend amendments to the NSCV, identify emerging safety issues in the sector, recommend interpretations, and provide technical commentary.
- The NSCV is detailed. For example, it specifies requirements for the design, manufacture, installation, stowage, marking and scale of safety equipment to be carried on vessels. It also contains the required outcomes and solutions for safety equipment, the deemed-to-satisfy solutions for design and manufacture, installation, type and quantity to be carried, and servicing.
- The NSCV is being progressively rolled out to cover all aspects of domestic commercial vessels. As a result, there are aspects of domestic commercial vessels that are not currently covered by the NSCV, such as special purpose vessels and novel vessels.

Transitional Vessel Arrangements

- Relevant transitional arrangements are enabled under the primary legislation and regulations, and may include general exemptions or be facilitated through Marine Orders.
- For example, as the national regulator, AMSA may separate vessels up to a certain year from the NSCV, which applies to new vessels, by using ‘existing vessel’, 'transitional vessel' and 'new vessel' categories. This means domestic commercial vessel owners can make certain changes to their 'existing vessel' without having to meet all requirements that apply to a 'new vessel' – up to a certain point in time or when certain updates are made to the vessel that would make it a ‘transitional vessel’, which triggers a need for the current standards to be complied with.

5.2.3 Use of an interim standard to accelerate introduction of new technologies

The innovative nature of the PBS approach means vehicles do not always have to comply with the prescriptive standards and regulations applied to conventional vehicles. To allow for improved vehicle design, PBS vehicles may be granted exemptions from certain vehicle standards and regulations, such as those contained in the Australian Design Rules, the *Heavy Vehicle (Vehicle Standards) National Regulation* and the *Heavy Vehicle (Mass, Dimension and Loading) National Regulation (MDL Regulation).* The HVNL allows PBS vehicles to receive exemptions from the following prescriptive regulations:

- combination length
- trailer length, including swing radius, wheelbase and rear overhang
- vehicle height
- vehicle width
- drawbar length
- tow coupling overhang and location.

The HVNL and supporting regulations could be amended to further expand the list of exemptions offered to PBS vehicles, where it can be shown that safety performance will not suffer as a result.

Further, under section 9 of the *Heavy Vehicle (General) National Regulation* (made pursuant to section 26 of the HVNL), the NHVR is able to approve PBS designs that do not comply with one or more Standards under the *Standards and Vehicle Assessment Rules*. This is done very rarely and only when the NHVR has conducted an assessment to ensure the vehicle does not pose any additional risk to safety or infrastructure. This approval may also require special conditions being placed on the vehicle.

The above two outcomes create a premise for the PBS scheme to deviate from traditional regulated requirements, subject to confidence in performance and safety. The NHVR sees this premise as an opportunity to accelerate the testing and inclusion of new technologies in the PBS scheme. An interim standard could temporarily enable field testing of technology not already in existing Standards. Three outcomes from this trial process would include:

- tested technology incorporated into an existing Standard
- development of an entirely new Standard
- a decision that the technology is not appropriate and not worthy of further consideration.

The intent of this proposal is to identify opportunities to improve safety or other means to satisfy the Standards, to increase the options available to industry, and enable innovation and the adoption of new technology.

There is currently no legal basis for an interim standard, and the NHVR would need to engage with stakeholders to develop a process for implementing an interim standard. This would include:

- the proposal development process and governance arrangements
- decision-making and risk management framework
- liability and responsibility (e.g. if a crash occurred)
- how an interim standard would transition to a permanent inclusion in the PBS scheme.

5.3 Questions

Question 1

The NHVR suggests that it should take responsibility for owning and maintaining the *Standards and Vehicle Assessment Rules* and the *Performance Based Standards – Network Classification Guidelines.* The NHVR proposes two options, described below. Is there an option that you prefer and why? Is there an option that the NHVR has not considered? Refer to section 5.2.1 for further detail.

- Option 1: The NTC retains ownership and responsibility, but may delegate responsibility to the NHVR. Decisions continue to be made by ITSOC for minor changes, and Ministers for major changes.
- Option 2: The HVNL, its subordinate regulations, section 21 of the Standards and Vehicle Assessment Rules should and section 5 of the *Performance Based Standards – Network Classification Guidelines* be amended to introduce a tiered approval process. The NHVR has full ownership and responsibility. Minor changes are decided by the NHVR Board. Major changes continue to be decided by responsible Ministers via ITSOC.

Question 2

The NHVR suggests that an accelerated process be established to update the Standards to ensure PBS vehicles remain at the forefront of innovation. This process may be initiated by any interested stakeholder, must be supported by a robust and rigorous proposal and engagement process, and PAG should provide an advisory function. Do you support this approach (why/why not)? Is there an option the NHVR has not considered? Refer to section 5.2.2 for further detail.

Question 3

The NHVR suggests the adoption of interim standards to temporarily enable field testing of technology not already in the PBS scheme. What are your thoughts on the soundness of this concept and how interim standards could potentially be developed (particularly in reference to the below aspects). Refer to section 5.2.3 for further detail.

- The proposal development process and governance arrangements
- Decision-making and risk management framework
- Liability and responsibility (e.g. if a crash occurred)
- How an interim standard would transition to permanent inclusion in the PBS scheme.

6 ACCESS AND TRANSITION FRAMEWORK

6.1 Opportunity statement

PBS vehicles are designed and built to perform their tasks as productively, safely and sustainably as possible, and to operate on networks that are appropriate for their level of performance. The benefits of PBS vehicles compared to the prescriptive fleet are well-documented (section 2.4). Despite these benefits, uptake of the PBS scheme continues to be stifled by network access uncertainty,[6] as well as the time and cost associated with participating in the PBS design and approvals processes.

Underpinning objectives of the PBS scheme are to minimise regulatory burden and increase safety and productivity. These can be achieved by eliminating permit requirements and reducing inconsistent access arrangements across state and territory borders. However, road managers will need to be confident that PBS vehicles adhere to the highest safety and infrastructure standards.

The PBS scheme was also designed to be a testing ground for innovative heavy vehicle concepts, some of which could transition out of the PBS scheme and into a higher performing fleet. Processes to transition PBS vehicles out of the scheme will contribute to the uptake of safer, more productive and more environmentally friendly vehicles (PBS or PBS-like), proven to be of minimal risk.

To overcome uptake issues, the NHVR proposes a framework that uses templates (based on common and mature PBS vehicles), where both PBS and non-PBS vehicles meeting the specifications could be granted greater levels of access and productivity under notice (i.e. permit-less access). This template approach could help circumvent some of the design approval and vehicle certification processes in the PBS scheme. These outcomes will improve industry and government confidence and enhance the appeal of PBS as an alternative to the prescriptive fleet.

6.2 Limitations of the current notice and network access approach

PBS vehicles do not comply with the prescriptive mass and dimension requirements of the HVNL and must only operate on roads under a mass or dimension authority (i.e. a notice or permit). Notices are an instrument that provides access to gazetted networks or areas approved by road managers. The NHVR's preferred approach is that PBS vehicles are granted access under notice (i.e. permit-less access).

The HVNL outlines the legal requirements for the development of notices. Notices are made in a two-step process. This process separates the powers of the NHVR as the maker of the notice and those of road managers as the regulated parties that must consent to access before a notice can be gazetted.

Step 1: The NHVR makes a notice

The NHVR partners with road managers to negotiate and agree to eligible vehicles, the mass or dimension exemptions, conditions of access, and the networks to which the notice applies.

There needs to be a greater focus on how the NHVR and road managers can work together in a consistent and disciplined manner to achieve better national outcomes. It is also essential that access and certainty are not considered achieved if it means accepting the lowest common denominator.

Step 2: Road managers consider and respond to a request for consent to the notice from the NHVR

Road managers may choose to grant access, not grant access, or grant access under certain conditions.

If the NHVR is not satisfied with a response, it may only negotiate with road managers to change their consent (e.g. to amend or remove a condition). Alternatively, the NHVR may refer a decision to a road authority.

Road authorities hold a special power not available to the NHVR, in that they may override the decision of a road manager that is not itself a road authority (HVNL section 163). This may include adding, removing or modifying conditions of access, or changing the approval/refusal response entirely.

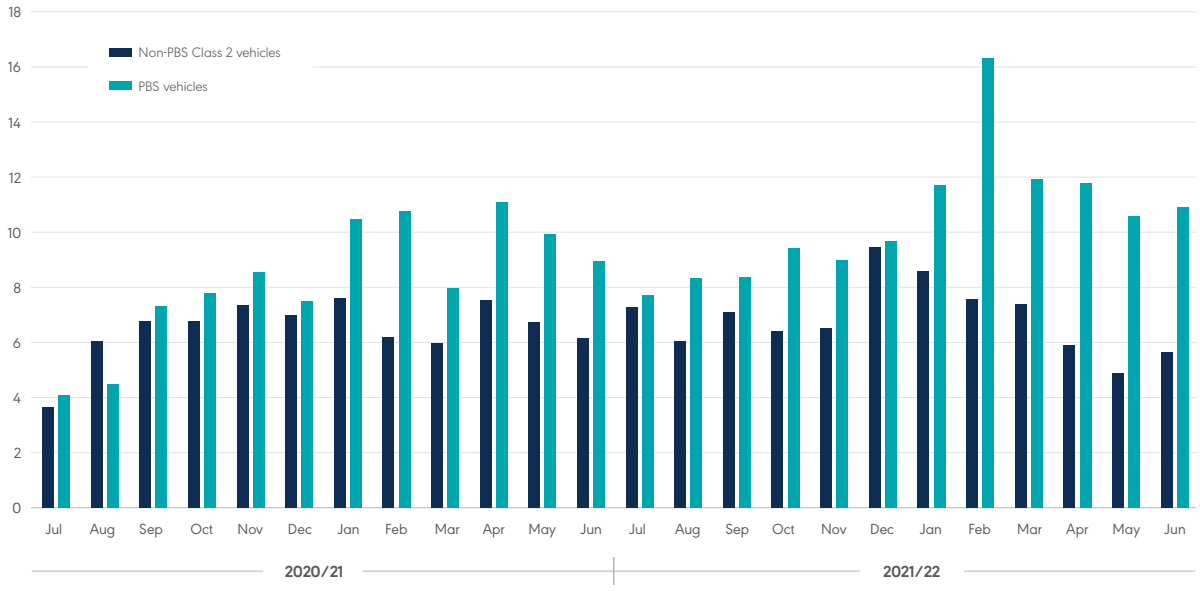


Figure 4: Average time consent was with road manager. Source: NHVR Portal Data

6 National Transport Commission, Reforming the Performance-Based Standards Scheme, p.2, 2018.

Before providing consent to the notice and determining suitable networks of operation, road managers undertake some level of assessment to ensure public safety, public amenity or infrastructure protection. In some cases an acceptable risk for one road manager may be considered unacceptable by another.

NHVR data for the last two financial years indicates that road managers take more time to assess PBS vehicles compared to other Class 2 vehicles (Figure 4). Generally, this is due to the need to undertake infrastructure assessments.

6.3 Limitations of the design and vehicle approval approach

The Design Approval (DA) process ensures that a potential PBS design meets the requirements of the *Standards and Vehicle Assessment Rules*. The Vehicle Approval (VA) process ensures built vehicles are assessed, certified and declared as being in accordance with the DA. The VA serves as evidence that the vehicle has been accepted into the PBS scheme, and is used to apply for an access permit or to be eligible for access under notice.

Figure 5 illustrates the PBS approval process, prior to access considerations.

The DA and VA processes are a barrier to participation, in terms of the time and cost to industry, particularly smaller operators.

The HVNL requires all DA applications to be submitted to the PRP for review and advice. The NHVR views this as unnecessary for individual vehicle concepts as PBS vehicles should be standards driven, which by nature should not be open to influence by individuals. Performance and safety should distinguish between appropriate and inappropriate PBS vehicle concepts.

To simplify the DA process, the NHVR implemented a procedure that enables well-known and common PBS designs to be 'pre-advised' by the PRP. This allows the NHVR to assess and issue a DA without submitting the application to the PRP.[7] Since implementation, processing times for pre-advised designs have on average reduced from four weeks to three business days. To date, most major designs have been pre-advised by the PRP, and 90% of all DAs qualify for the simplified pre-advised DA process.

Another avenue currently offered to assist industry is PBS blueprints, which are approved PBS designs. They are more detailed than pre-advised designs, and focus on a specific vehicle rather than a group of combinations. Blueprints offer limited design and procedural value for industry, and are therefore not widely used.

While pre-advised designs and PBS blueprints may assist in reducing some of the time and cost barriers associated with PBS, access still remains as a significant deterrent. There are currently no provisions within the HVNL that guarantee access or compel road managers to consent to a network following a VA. The risk therefore lies with industry, and road manager decisions can keep a PBS vehicle from operating, even if there is a perceived rather than actual risk.

In response to this issue, some operators seek to mitigate the risk associated with permit access by seeking in-principle support from road managers before pursuing a VA. However, in-principle support is not a binding agreement and does not guarantee access after a VA is issued. In some cases, when the operator requests a permit after a vehicle has been built and issued a VA, the road manager has changed their position, either refusing access or imposing new prohibitive conditions. There may be legitimate reasons for this decision change, such as environmental changes or new information on asset condition.

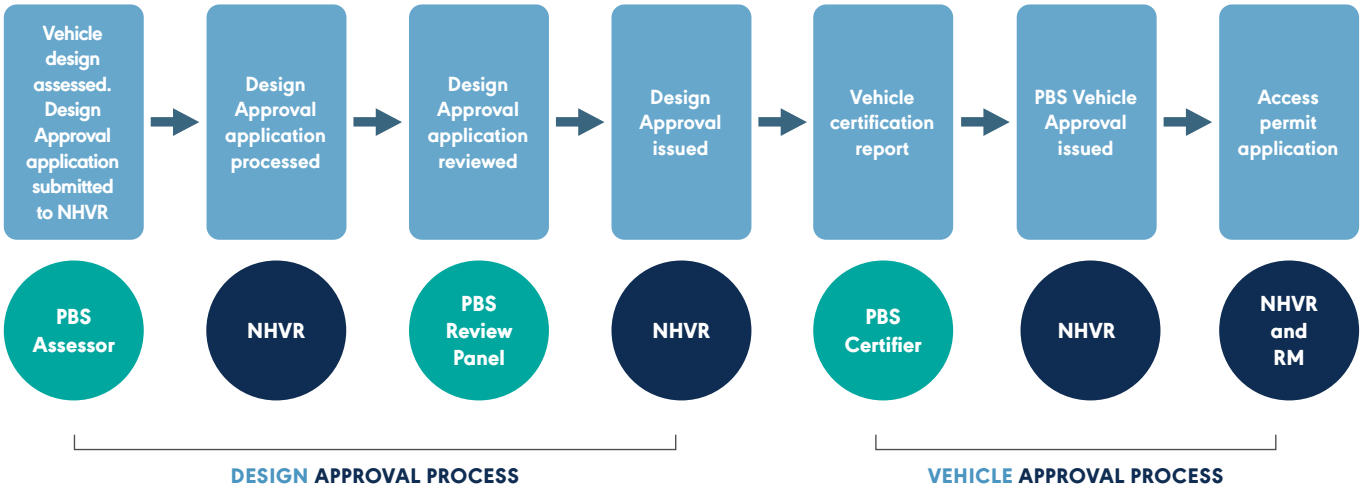


Figure 5: PBS approval process

7 NHVR, 2018, Performance Based Standards – Updates to the PBS pre-advised design approval process.

6.4 Providing access and certainty through a template approach

The NHVR seeks to implement a new template approach for a broader range of potential vehicle concepts to be provided access under notice. The intent is to make it quicker and easier to get both PBS and PBS-like vehicles onto roads, thus making the PBS scheme more attractive to new market entrants.

There are four fundamental components of a notice: defining and listing eligible vehicles; specifying the network on which eligible vehicles may travel; vehicle, road and travel conditions that apply to all eligible vehicles; and additional road and travel conditions that may be requested by road managers as part of their consent (refer Figure 6).

For the NHVR's proposed approach, the eligible vehicles identified within the notice will be a reference to templates.

The NHVR envisions two parts to a template:

- the design approval, consisting of a schematic and the specifications that typically accompanies a PBS DA
- the network developed by road authorities in conjunction with road managers, specific to the DA.

For the purposes of the proposed type of DA under notice, the specifications may include a range that captures many potential built vehicles (e.g. axle spacings) or provide specified detail as per a traditional PBS DA.

Figure 6 illustrates the proposed relationship between a notice, template and the DA.

In addition, this template approach could be implemented in a manner that enables PBS-like vehicles access to the road network, obtaining the same productivity benefits as PBS, while still providing the NHVR and road managers with confidence in safety, sustainability and infrastructure protection. This could offer the opportunity for mature PBS vehicles to exit the PBS scheme, eliminating barriers to entry by removing the PBS approval process entirely.

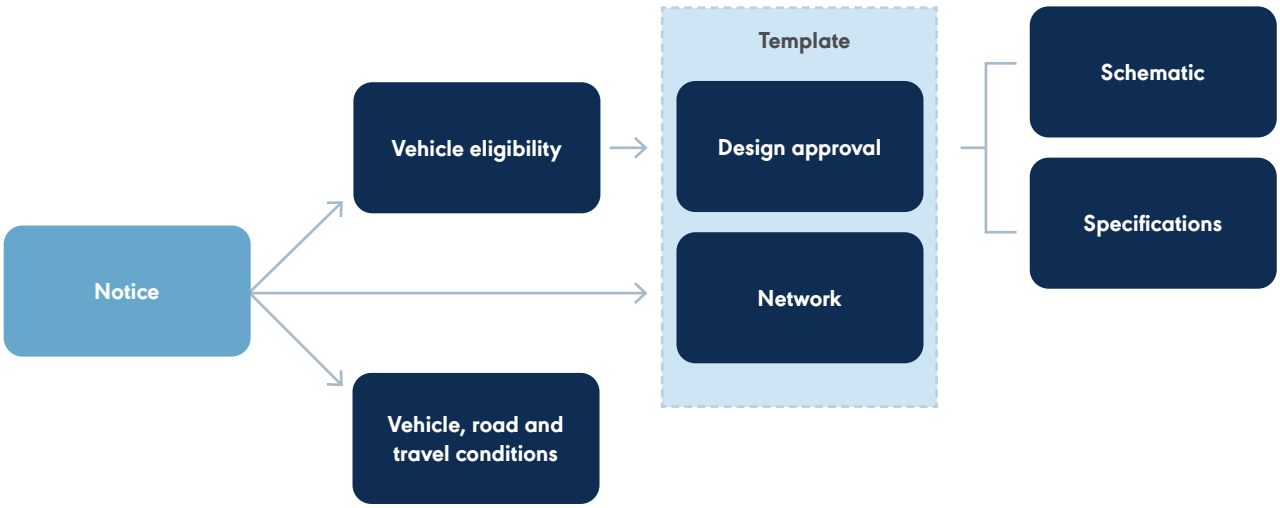


Figure 6: The notice and template framework

6.5 Transitioning out of the PBS scheme

The Access and Transition Framework intends to pursue two complementary streams, comprising four potential pathways, to deliver industry network access for PBS and PBS-like vehicles. These streams and pathways also intend to avoid PBS approval processes as much as practicable within the boundaries of the current HVNL, or what could be achieved with changes to the HVNL. This is illustrated in Figure 7.

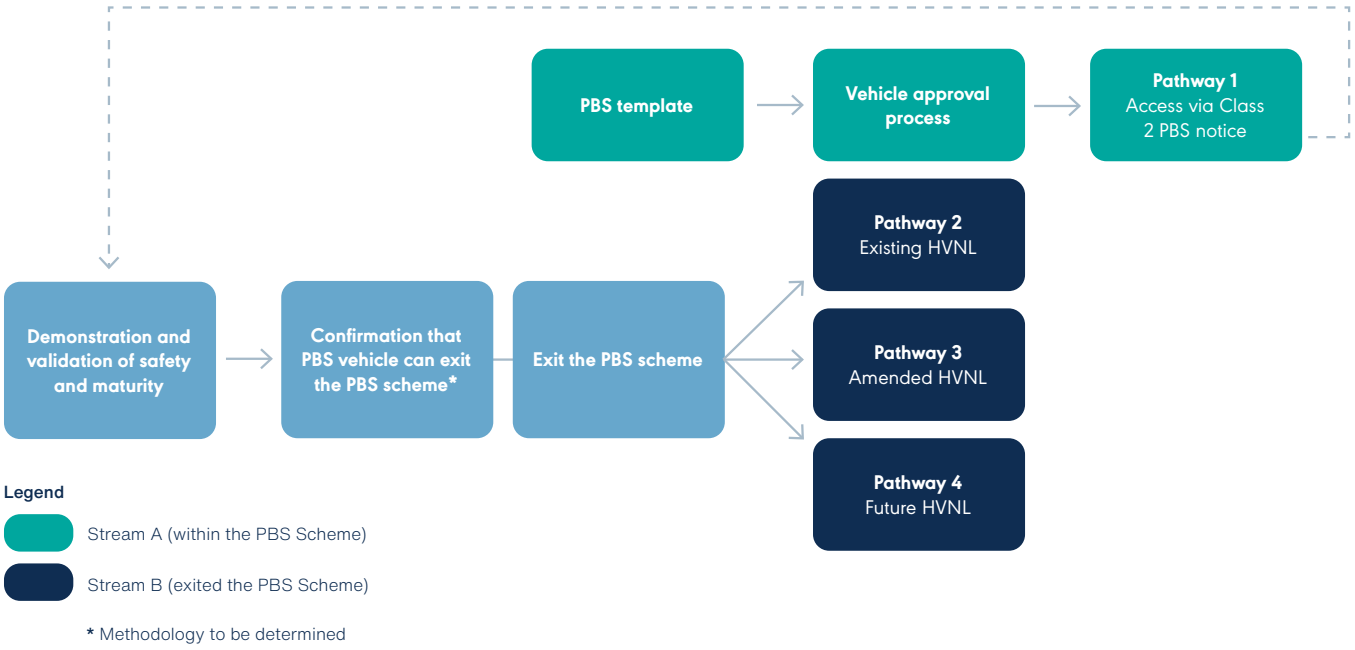


Figure 7: Two potential streams to expedite the approvals process

6.5.1 How would Stream A and Stream B work to provide permit-less access?

Table 1 summarises the components of potential notices for Stream A and Stream B. Both are complementary and preferred by the NHVR.

Table 1: Summary of notice components for Stream A and Stream B

Stream	Eligible vehicles	Notice development and conditions	Specified network and network maps
Stream A	A single notice could comprise a suite of eligible vehicle schematics and specifications. These may be specially developed, informed by pre-advised PBS designs, or taken from previous successful notices. A range of performance envelopes will exist that apply to a broad spectrum of potential built vehicles. For example, designs may have regard to a range of axle mass spacing and axle configurations, for structural assessment reasons.	No change to the current notice development approach. Vehicle, road and travel conditions applicable to all eligible vehicles will be negotiated and agreed to with road authorities and listed in the notice. Additional road and travel conditions requested by road managers as part of their consent will be identified on the network maps and not within the notice.	Each eligible vehicle will be agreed with road authorities and correspond to a specific network/s that would be approved for the vehicle/s. A single notice could comprise a range of networks. The network maps will be illustrated spatially via the NHVR Portal.
Stream B	As per Stream A, but schematics and specifications would be primarily informed by successful Class 2 PBS notices. This has the effect of creating a transition path out of PBS.		

Stream A seeks to strengthen the PBS scheme by utilising templates to circumvent certain PBS scheme processes.

- **Benefit for industry**: Increasing the range of templates will allow an operator to select the best vehicle for their task. An operator could choose to purchase/build a vehicle that conforms to the notice and receive certainty of network access after a VA.
- **Benefits for road managers:** The road manager has confidence that all vehicles adhere to the PBS safety and infrastructure standards and that risk can be managed. Repeat route assessments are eliminated and workflow improved, allowing efforts to be focused on other complex access permit requests.

Stream B offers the opportunity for PBS vehicles to exit the PBS scheme and become more broadly available via a non-PBS pathway. Vehicle designs are informed by successful PBS concepts, where there is a historic demonstration and validation of safety and maturity.

- **Benefit for industry:** An operator could choose to purchase/build a vehicle and receive immediate network access without a DA or VA. This approach reduces time, cost and risk for industry.
- **Benefits for road managers:** As per Stream A. To give road managers additional confidence, Stream B would need to be supported by penalties for non-compliance with schematics, specifications and networks, and potentially an assurance condition (e.g. telematics monitoring).

The intended function of Stream B would be similar to the *National Class 2 Performance Based Standards (High Productivity) Authorisation Notice 2021 (No.2).*

CASE STUDY: National Class 2 Performance Based Standards (High Productivity) Authorisation Notice 2022 (No.2)

The National Class 2 Performance Based Standards (High Productivity) Authorisation Notice 2022 (No.2) authorises access to specified networks by eligible PBS vehicles within New South Wales and Victoria.

- Eligible vehicles are identified via schematics, which are maintained by the respective jurisdictions .
- Eligible vehicles work within performance envelopes, with limitations to mass, length and axle spacings.
- Eligible vehicles have their unique network, with special road and travel conditions listed.
- Road and travel conditions are identified on the network (e.g. mass restrictions on structures).

A precedent for the Stream B approach has been set by the *National Class 3 20m Long 3-axle Truck and 4-axle Dog Trailer Mass and Dimension Exemption Notice 2022 (No.1).*

CASE STUDY: National Class 3 20m Long 3-axle Truck and 4-axle Dog Trailer Mass and Dimension Exemption Notice 2022

This notice grants mass and dimension exemptions to Class 3 combinations consisting of a truck and dog trailer that meet the requirements of a schematic and specification envelope. An eligible vehicle must meet certain Australian Design Rules standards relating to braking and roll stability. An eligible vehicle is also required to meet the PBS Tier 1 bridge formula.

- The notice points to a schematic for eligible vehicles allowed to operate on a designated network.
- Eligible vehicles were determined based on the dimensions of truck and dog combinations that already participate in the PBS scheme, particularly as regards axle mass spacings. A Class 3 schematic and specification envelope was built from an assessment of these combinations.
- The schematic and specification envelopes are conservative to provide confidence that the Class 3 vehicle would pass the PBS Standards. This means that some truck and dog trailers with ambitious or unique designs will not be eligible under the Class 3 notice, and will still need PBS approval.

6.5.2 Pathways to exit the PBS scheme

Pathway 1 under Stream A is considered the testing ground for heavy vehicle innovation and is maintained within the current PBS scheme. This pathway is complementary to, and can inform, Stream B pathways.

For Stream B, the NHVR is proposing the introduction of a High Performance Fleet (HPF) as a separate, quasi-prescriptive category of heavy vehicle, providing the opportunity for mature PBS vehicles to transition out of the PBS scheme. This would eliminate barriers to entry by removing the PBS approval process entirely.

All Stream B pathways are mutually exclusive.

The relationship between Stream A and Stream B pathways is illustrated in Figure 8.

Pathway 2 transitions PBS vehicles out of the PBS scheme via a Class 3 Notice. This eliminates the PBS process and the mass and dimension requirements of the MDL. While no change is required to the HVNL to achieve this outcome, templates that transition from Pathway 1 to Pathway 2 will require road manager consent, as there is a regulatory difference in the existing HVNL between Classes 2 and 3.

Pathway 3 would look to exempt certain agreed and mature vehicles from PBS, but keep these vehicles within Class 2. For templates transitioning from Pathway 1 to Pathway 3, it is envisaged that road manager consent would not be required to be re-sought, as long as the vehicles, networks and conditions are like-for-like (i.e. the only change is removing the PBS process). The approach is equivalent to the expedited consent process (i.e. road manager opts out). This expedited process would require PBS-like vehicles to remain in Class 2. As they will be above MDL requirements, a major amendment to the existing HVNL would need to occur to facilitate this.

Pathway 4 transitions PBS vehicles out of the PBS scheme through a classless HVNL (potential future state). For templates transitioning from Pathway 1 to Pathway 4, it is envisaged that road manager consent would not be required to be re-sought, as long as the vehicles, networks and conditions are like-for-like (i.e. the only change is removing the PBS process). The approach is equivalent to the expedited consent process (i.e. road manager opts out).

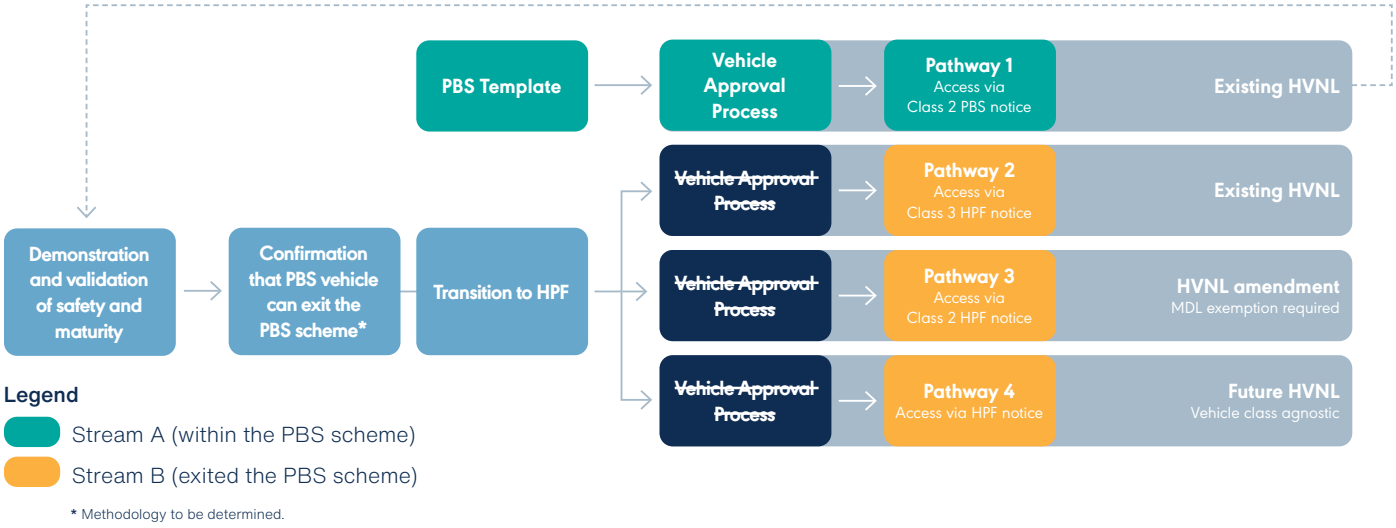


Figure 8: Pathways to exit the PBS scheme

Table 2: Summary of main differences between the access and transition pathways

Stream	Pathway	PBS scheme	Access	Eligible vehicles	Is a DA required?	Is a VA required?	Road manager consent	HVNL
Stream A	Pathway 1	Inside PBS scheme	Class 2 PBS notice	PBS	No	Yes	Yes	Existing
Stream B	Pathway 2	Exited from PBS scheme (does not preclude PBS scheme vehicles)	Class 3 HPF Notice	PBS or PBS-like vehicles	No	No	Yes	Existing
	Pathway 3		Class 2 HPF Notice				No	Amended
	Pathway 4		HPF Notice				No	Future HVNL

6.5.3 At what point do PBS vehicles transition out of Pathway 1?

The point at which a PBS vehicle can transition out of Pathway 1 has not been determined and, subject to the agreement of stakeholders, would be explored during implementation of PBS 2.0. Broadly speaking, there needs to be a demonstration and validation of safety and maturity via agreed measures through which the NHVR can make a determination, with advice from the PAG.

Given the significant variety and complexity of PBS vehicles, the NHVR will work with governments and industry to develop a transparent methodology to identify and prioritise PBS vehicle designs that may be able to transition out of PBS and into the HPF fleet. Reviewing the eligibility of pre-advised designs and designs from previous PBS notices is considered a logical first step.

6.5.4 Engagement with road authorities and road managers

Effective collaboration with road authorities and road managers will be a determinant for success for all potential pathways.

Road authority involvement at the early stages will help ensure that relevant issues and risks are managed in the notice and template development processes, and that commitment is obtained to ensuring networks will be available that are of actual value to industry.

While all templates may not be agreed by all road managers, this issue may be partially overcome by having a range of eligible vehicles and networks, with potential for overlapping.

Opportunity exists to broaden permit-less access for safe and productive vehicles (e.g. under a notice developed with, and consented to, by road managers) that are better for the environment and communities. This could be achieved by having multiple templates, compared to previous notices where there was less flexibility for vehicle design.

The NHVR would progress the overall process, regardless of road manager interest. Networks could be made available by road managers and grow over time (e.g. in response to infrastructure upgrades, new information or industry demand).

The NHVR would seek assistance from road authorities and industry to accelerate network growth.

6.5.5 NHVR Portal

The NHVR Portal would need to host key components of a notice, making it easy for operators to comply.

It is envisaged that the NHVR Portal would present a range of eligible vehicle schematics allowable under a notice. By selecting the schematic that meets an operator's need, the associated network would be shown spatially, along with the relevant road and travel conditions relevant to that specific network, and the vehicle specifications required relevant to the schematic and network (refer Figure 9).

HPF library

The specifications would be maintained in a living HPF Library, which would host specifications for all HPF vehicles. The purpose of the HPF Library would be two-fold:

- Management of vehicle standards – enabling a grandfathering approach, whereby standards are advanced over time, previous eligible vehicles continue to have access, and confidence in safety and performance is maintained.
- Maintenance management – indicating the minimum maintenance requirements for continued participation.

The HPF Library would help provide assurance to road managers, industry and the general public that the safety, sustainability and productivity outcomes achieved through the PBS scheme were not lost after exiting the PBS scheme.

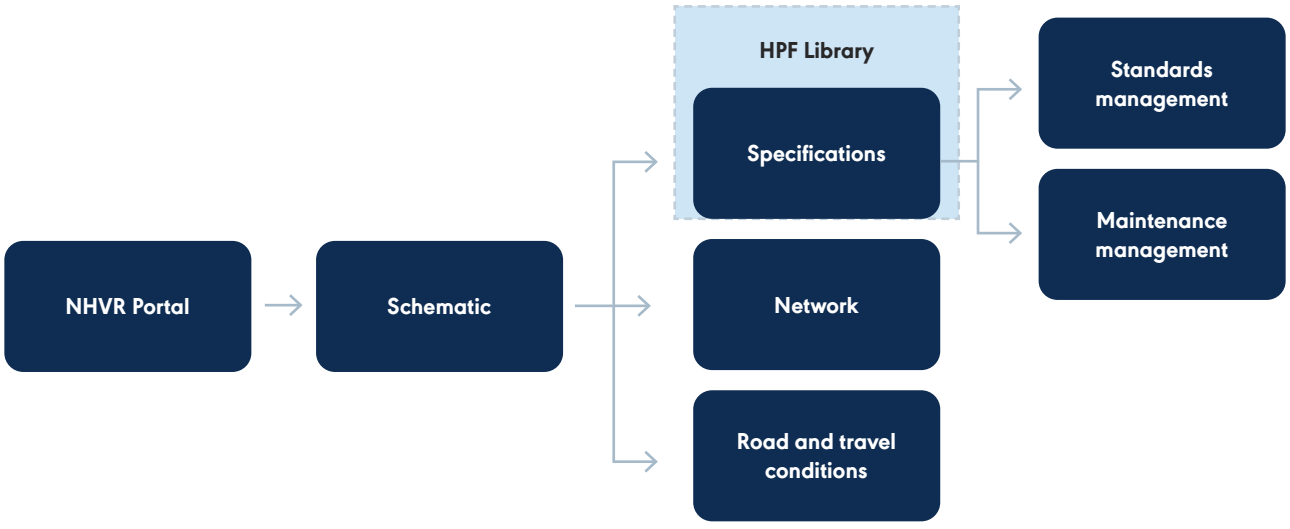


Figure 9: NHVR Portal architecture

6.6 Questions

Question 4

Is a single notice, speaking to many templates, schematics and networks, an appropriate approach to access for PBS and PBS-like vehicles? Is there an alternative approach that has not been considered? Refer to section 6.4 for further detail.

Question 5

The Access and Transition Framework pursues two complementary streams, comprising four potential pathways, to deliver industry network access for PBS and PBS-like vehicles. These streams and pathways intend to avoid PBS processes as much as practicable within the boundaries of the current HVNL, or what could be achieved with changes to the HVNL. Are there other reasonable pathways that have not been considered? Refer to section 6.4 for further detail.

Question 6

The NHVR is proposing a High Performance Fleet as a separate, quasi-prescriptive category of heavy vehicle, providing the opportunity for mature PBS vehicles to transition out of the PBS scheme. Do you support the transition of PBS vehicles out of the PBS scheme? Is there are a particular pathway that you support? Is there are a pathway that you would not be willing to support? Please justify your response. Refer to section 6.5 for further detail.

Question 7

At what point do you believe PBS vehicles should transition out of the PBS scheme, if at all? How should that decision be made, and what role should the PAG, road authorities and road managers have in this process? Refer to section 6.5.1 for further detail.

7 ASSURANCE FRAMEWORK

7.1 Opportunity statement

The PBS scheme introduced new accreditation and certification services, as well as creating internationally leading design and manufacturing capability:

- PBS assessors play a vital role in the design and performance modelling of PBS vehicles. They are appointed by the NHVR and are bound by the PBS Assessor Accreditation Rules.
- PBS certifiers are responsible for a crucial step in the PBS approval process, inspecting vehicles to confirm the built vehicle meets the design requirements specified in the DA issued by the NHVR. They are appointed by the NHVR and are bound by the PBS Vehicle Certification Rules.
- While many Australian manufacturing sectors are losing market share to international markets, the Australian heavy vehicle manufacturing and supplier sector is a standout in terms of its high-quality, purpose designed and built equipment.

The strengthening of local accreditation, certification and manufacturing capability has a large correlation with the PBS scheme; however, there has been no meaningful reform to the functions of parties involved in designing and delivering PBS vehicles.

To ensure continued success and confidence in the PBS scheme, there is a need for continuous incremental improvement of both assessor and certifier capability, as well as reducing administrative and regulatory burden for industry. This can be realised through stringent assurance processes, and enabling external parties to manage certain NHVR operational functions under a formal delegation arrangement.

7.2 Expanding the role of assessors, certifiers and manufacturers

Currently, the regulatory approach is restrictive and only enables some activities to be conducted by assessors and certifiers; while manufacturers play a limited role. There is an opportunity to progress towards a more co-regulatory approach, where processes currently undertaken by the NHVR could be delegated under contractual arrangements, resulting in lower costs, fewer processes, quicker processing, and more control for assessors, certifiers and industry (Figure 10).

To enable external delegation, the NHVR Portal would require further enhancement to digitise the PBS approval process. This would also ensure the NHVR is still the key gateway along the process chain. Key enhancements could include:

- incorporating additional business rules relating to the commercial arrangements of the delegation
- creating new system logic in accordance with the various PBS rules
- automating processes as far as possible and removing need for human intervention
- eliminating errors associated with free-text fields and using more ‘drop-boxes’ with pre-set responses.

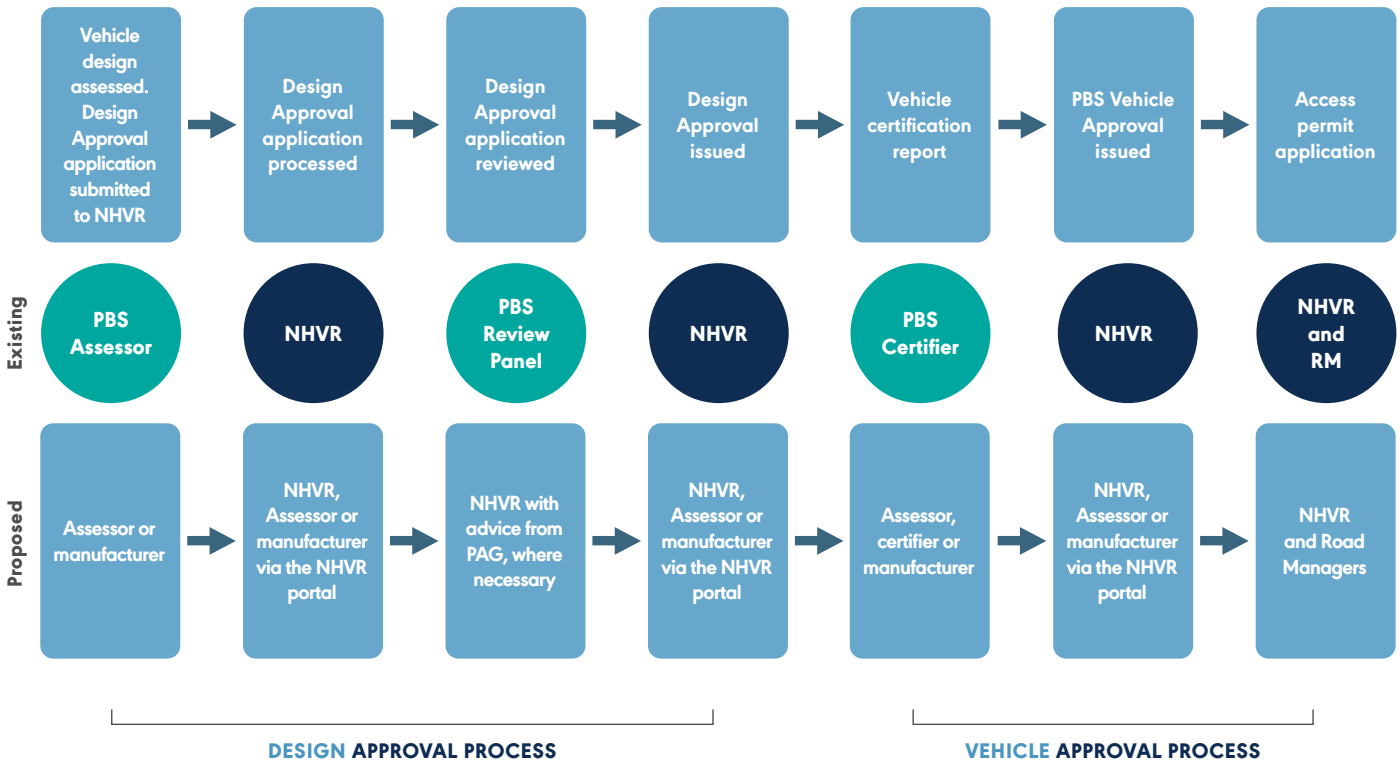


Figure 10: PBS approval process

7.2.1 Phase 1: PBS assessors and PBS certifiers

A co-regulatory approach needs to be supported by robust assurance mechanisms, designed to verify that assessors and certifiers comply with their obligations and meet the safety outcomes expected, and to maintain trust that the PBS scheme is safe. A precedent already exists to this effect in both the assessor and vehicle certification rules.

PBS Assessor Accreditation Rules:

- Set out the eligibility requirements for assessors who are to carry out assessments of vehicle designs and vehicles for the purposes of the PBS scheme.
- Provide for how those assessors are to carry out their duties.
- Provide for the audit, monitoring and review of those assessors.
- Set out the requirements related to the suspension and termination of a person appointed as a PBS assessor and the process to be followed.

PBS Vehicle Certification Rules:

- Specify the eligibility requirements for a person wishing to be appointed to carry out certifications of vehicles for the purposes of the PBS scheme.
- Specify when, where and how certifications for the purposes of the PBS scheme are to be undertaken.
- Specify various forms for the purposes of certifications.
- Set out the requirements related to the suspension and termination of a person appointed as a PBS vehicle certifier and the process to be followed.

Expanding the role of assessors and certifiers to consolidate and expedite the end-to-end PBS approval process must be accompanied by a series of enhanced and new 'Rules' and other supporting binding agreements. These include:

- establishing contractual obligations and associated penalties for non-conformance
- increasing the minimum eligibility requirements to undertake additional responsibilities (Figure 11)
- amending the Rules to specify and describe the broader range of responsibilities
- establishing more robust application, review and approval process for appointment to undertake broader responsibilities
- undertaking more stringent audits of assessors and certifiers, including associated documentation and procedures (predetermined schedules and random). The level of risk, past performance, and nature of responsibility will influence the type, rigour and frequency of audits.

Stakeholders that do not meet minimum standards, and continue to fail to do so after improvement notices and plans are initiated, will be terminated (relative to the severity and frequency of the risk and behaviour).

- An improvement notice enables corrective actions to be devised and implemented, to ensure safety and compliance quickly, with the NHVR monitoring the required activities to remedy the situation.
- This aspect not only relates to additional delegated responsibility, but base responsibilities and expectations of all assessors and certifiers under the various existing PBS Rules (i.e. this is already a contractual obligation).

For stakeholders that are appointed to perform both DA and VA functions independent of the NHVR, there need to be clear barriers to separate responsibilities to maintain integrity and confidence in the PBS scheme. Limiting ability to influence outcomes could include organisational structure, systems separation, and ensuring governance includes different parties undertaking work, making decisions and signing off at key stages. This could be achieved through an ISO 9001:2015 framework or similar. ISO 9001:2015 specifies requirements for a quality management system when an organisation:

- needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements
- aims to enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.

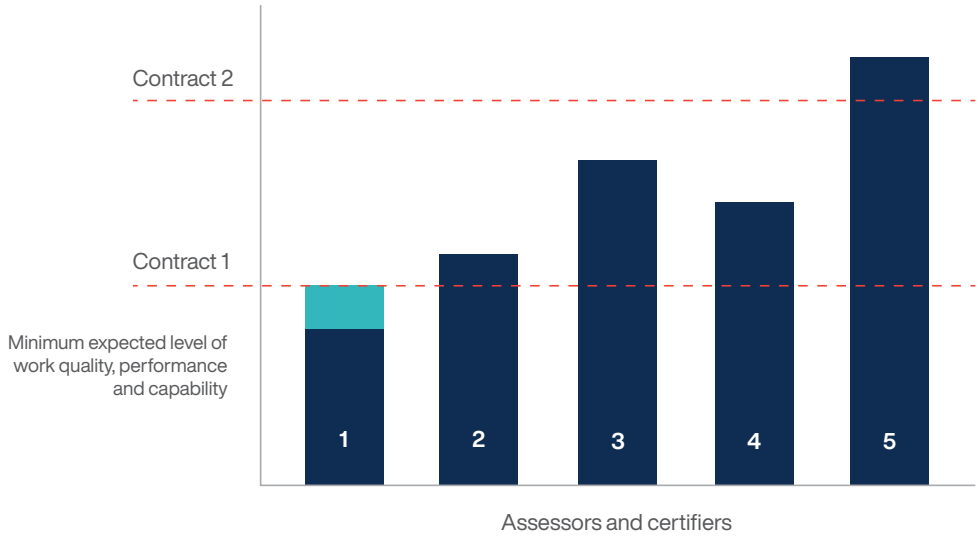


Figure 11: Hypothetical chart of assessor/certifier standard level to undertake additional PBS process responsibilities under contractual arrangements

7.2.2 Phase 2: Manufacturers

Currently, there are nine PBS assessors, around 20 PBS certifiers, and approximately 80 manufacturers of PBS vehicle components. Despite this broader involvement in the PBS scheme, the majority of assessment and certification processes are undertaken by a limited number of participants. Since 2014, 90% of new DAs have been assessed by five PBS assessors (Figure 12). In 2021 alone, four PBS assessors conducted approximately 96% of all PBS assessments. While not as pronounced, four PBS certifiers have been responsible for certifying approximately 48% of all PBS combinations since 2014 (Figure 13).

In the *Vehicle Certification Rules*, manufacturers can issue manufacturer's certificates for vehicles built in accordance with a previous certification by a PBS certifier (i.e. based on previously approved concepts). The current process does not allow for manufacturer self-certification of new concepts. Manufacturers do not currently perform PBS vehicle design and assessments against the *Standards and Vehicle Assessment Rules*.

Enabling manufacturer self-assessment and self-certification – that is, enabling them to take on assessor and/or certifier functions – would help minimise time and cost barriers to industry. It would also facilitate creation of competition in the PBS marketplace, foster collaboration and innovation (e.g. via manufacturer consortia), facilitate uplift of base capability across the PBS stakeholder cohort, and improve options and service delivery levels to industry.

Phase 2 would require manufacturers to adhere to the same type of contractual arrangements, performance and capability expectations, and assurance processes as PBS assessors and PBS certifiers (refer to section 7.2.1).

7.3 Questions

Question 8

Do you agree that additional PBS scheme processes should be digitised in the NHVR Portal to further improve the PBS approval process? What enhancements could be made that the NHVR has not already delivered or mentioned in this Discussion Paper?

Question 9

Would the barriers to participation in the PBS scheme be mitigated if PBS approval processes performed by the NHVR were delegated to assessors, certifiers and/or manufacturers? Why/why not? Refer to section 7.2 for further detail.

Question 10

Do you agree with the list of potential responsibilities that the NHVR could delegate to other PBS stakeholders? Why/why not? Are there others that the NHVR has not considered? Refer Figure 10.

Question 11

Do you agree with the phasing in section 7.2.1 and section 7.2.2? Fundamentally, are the below appropriate 'enablers' for external delegation of responsibilities from NHVR to other PBS stakeholders? Why/why not? How else could delegation work? Refer to section 7.2.1 for further detail.

- Establishing contractual obligations and associated penalties for non-conformance.
- Increasing the minimum eligibility requirements to undertake additional responsibilities.
- Amending the Rules to specify and describe the broader range of responsibilities.
- Establishing more robust application, review and approval process for appointment to undertake broader responsibilities.
- Undertaking more stringent audits of assessors and certifiers, including associated documentation and procedures (predetermined schedules and random). The level of risk, past performance, and nature of responsibility will influence the type and frequency of audits.
- Stakeholders that do not meet minimum standards, and continue to fail to do so after improvement notices and plans are initiated, will be terminated (relative to the severity and frequency of the risk and behaviour). This aspect not only relates to additional responsibility, but base responsibilities and expectations of all assessors and certifiers under the various PBS Rules – this is already a contractual obligation.

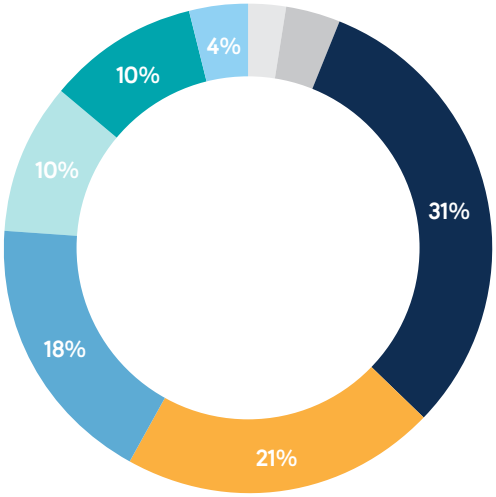


Figure 12: PBS combination count per PBS assessor (cumulative from 2014 and de-identified) as at 31 December 2021. Each colour represents a different PBS assessor

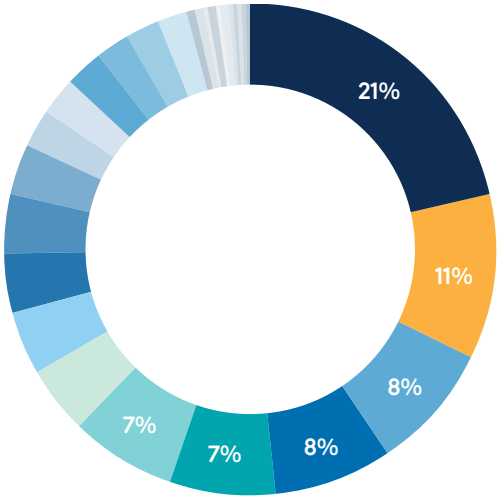


Figure 13: PBS combination count per PBS certifier (cumulative from 2014 and de-identified) as at 31 December 2021. Each colour represents a different PBS certifier

Question 12

Do you agree that a minimum level of demonstrated quality of work, performance and capability is required to undertake an assessment or certification function in the PBS scheme? Why/why not? Refer to section 8.2 for further detail

Note: This question relates to responsibilities already required by the PBS Rules, and also potential new responsibilities relating to external delegation of NHVR functions.

Question 13

Is the NHVR's proposed scaled approach to auditing and penalties, commensurate to activity and risk, appropriate – in particular relating to improvement notices and plans, and potential termination of ability to participate as an assessor or a certifier. Why/why not? Refer to section 8.2 for further detail

Note: This question relates to responsibilities already required by the PBS Rules, and also potential new responsibilities relating to external delegation of NHVR functions.

8 OPTIONS FOR THE FUTURE OF PBS

In developing potential solutions to improve the PBS scheme as part of the PBS 2.0 project (refer the Frameworks in sections 5 to 7), the NHVR has used the following guiding principles:

PBS 2.0 Guiding Principles

- Transparency and the sharing of responsibility.
- Reduction in regulatory burden.
- Increased access, investment and adoption certainty.
- Phased approach to development and implementation.

The above principles work alongside the original 2006 COAG-endorsed objectives and principles for the PBS scheme:

Objectives

- Improved freight productivity.
- Reduced impact on the environment in regard to vehicle emissions and CO_2.
- Reduced impact on society in regard to reductions in road trauma and congestion.

Principles

- Certainty of access.
- National consistency in operating and access conditions.
- Improved operational flexibility.
- Reduced compliance cost.
- Improved heavy vehicle operator (industry) participation.

8.1 Options

The success of the PBS scheme over the past decade is a clear statement of Australia's heavy vehicle industry's desire to innovate and be smarter. Both industry and government stakeholders have told the NHVR that barriers to the PBS scheme that potentially limit innovation need to be removed, to ensure future generations of PBS vehicles are safer, cleaner and even more productive. To achieve that goal, the current scheme framework needs to be continuously improved, and hurdles to the use of PBS need to be tackled to ensure Australia continues to lead the world in innovative regulation of heavy vehicles.

Table 3 lists three options to achieve these outcomes, based on the Frameworks in sections 5 to 7, and provides a description of the packages of work associated with each of the options.

To best position PBS in the future, the NHVR prefers Option 2.

Option 1 relates to continuing the current approach.

Option 3 relates to abandoning the prescriptive regime, and transitioning all heavy vehicles towards PBS. This has not been covered in detail in this Discussion Paper and would require separate dedicated consultation if preferred by stakeholders.

8.2 Questions

Question 14

Are the objectives and principles for the PBS scheme and PBS 2.0 appropriate? How could they be improved? Has appropriate consideration been given to these in the proposed improvements to the PBS scheme?

Question 15

What is your preferred option for how the PBS scheme should be managed into the future? Are there any other options the NHVR has not considered and how would they work?

Table 3: PBS 2.0 options

Option 1 – Within business as usual	Option 2 – "PBS 2.0" [PREFERRED]			Option 3 – "PBS is it"
Do minimum	Develop and implement a Standards Framework.	Develop and implement an Access and Transition Framework.	Develop and implement an Assurance Framework.	Removal of the prescriptive regime.
Continue to deliver PBS notices and other higher productivity vehicle notices (no template approach). Introduce more stringent audits and associated penalties for certifiers and assessors who do not meet minimum expected standards as per the existing PBS Rules. Automation of operational aspects of PBS scheme processes via the NHVR Portal to expedite the end-to-end process and eliminate unnecessary manual intervention.	Streamlined administrative and approval processes, supported by enhanced advisory mechanisms. Accelerate the review, management and upgrading of PBS Standards. Enable dynamic management of standards. Use of an interim standard to accelerate introduction of new technologies.	Provide a seamless pathway to increase access certainty for common PBS vehicles and enable mature PBS vehicles to exit the PBS scheme – increasing access certainty, and eliminating time and cost barriers for industry. Based on a template approach under notice. Networks grow naturally over time in response to demand.	Introduce more stringent audits and associated penalties for certifiers and assessors who do not meet minimum expected standards as per the PBS Rules. Delegate some decision-making functions via a risk-based approach and contractual relationship. Automation of operational aspects of PBS scheme processes via the NHVR Portal to expedite the end-to-end process and eliminate unnecessary manual intervention.	All future vehicles developed based upon the outcome-focused PBS approach that delivers improved safety and productivity outcomes. Grandfathering of existing fleet with limitations. Prescriptive fleet phased out over time.

9 CONSOLIDATED LIST OF CONSULTATION QUESTIONS

9.1 Standards framework

Question 1

The NHVR suggests that it should take responsibility for owning and maintaining the *Standards and Vehicle Assessment Rules* and the *Performance Based Standards – Network Classification Guidelines*. The NHVR proposes two options, described below. Is there an option that you prefer and why? Is there an option that the NHVR has not considered? Refer to section 5.2.1 for further detail.

- Option 1: The NTC retains ownership and responsibility, but may delegate responsibility to the NHVR. Decisions continue to be made by ITSOC for minor changes, and Ministers for major changes.
- Option 2: The HVNL, its subordinate regulations, section 21 of the *Standards and Vehicle Assessment Rules* should and section 5 of the *Performance Based Standards – Network Classification Guidelines* be amended to introduce a tiered approval process. The NHVR has full ownership and responsibility. Minor changes are decided by the NHVR Board. Major changes continue to be decided by responsible Ministers via ITSOC.

Question 2

The NHVR suggests that an accelerated process be established to update the Standards to ensure PBS vehicles remain at the forefront of innovation. This process may be initiated by any interested stakeholder, must be supported by a robust and rigorous proposal and engagement process, and PAG should provide an advisory function. Do you support this approach (why/why not)? Is there an option the NHVR has not considered? Refer to section 5.2.2 for further detail.

Question 3

The NHVR suggests the adoption of interim standards to temporarily enable field testing of technology not already in the PBS scheme. What are your thoughts on the soundness of this concept and how interim standards could potentially be developed (particularly in reference to the below aspects). Refer to section 5.2.3 for further detail.

- The proposal development process and governance arrangements
- Decision making and risk management framework
- Liability and responsibility (e.g. if a crash occurred)
- How an interim standard would transition to permanent inclusion in the PBS scheme.

9.2 Access and transition framework

Question 4

Is a single notice, speaking to many templates, schematics and networks, an appropriate approach to access for PBS and PBS-like vehicles? Is there an alternative approach that has not been considered? Refer to section 6.4 for further detail.

Question 5

The Access and Transition Framework pursues two complementary streams, comprising four potential pathways, to deliver industry network access for PBS and PBS-like vehicles. These streams and pathways intend to avoid PBS processes as much as practicable within the boundaries of the current HVNL, or what could be achieved with changes to the HVNL. Are there other reasonable pathways that have not been considered? Refer to section 6.4 for further detail.

Question 6

The NHVR is proposing a High Performance Fleet as a separate, quasi-prescriptive category of heavy vehicle, providing the opportunity for mature PBS vehicles to transition out of the PBS scheme. Do you support the transition of PBS vehicles out of the PBS scheme? Is there are a particular pathway that you support? Is there are a pathway that you would not be willing to support? Please justify your response. Refer to section 6.5 for further detail.

Question 7

At what point do you believe PBS vehicles should transition out of the PBS scheme, if at all? How should that decision be made, and what role should the PAG, road authorities and road managers have in this process? Refer to section 6.5.1 for further detail.

9.3 Assurance framework

Question 8

Do you agree that additional PBS scheme processes should be digitised in the NHVR Portal to further improve the PBS approval process? What enhancements could be made that the NHVR has not already delivered or mentioned in this Discussion Paper?

Question 9

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Note: This question relates to responsibilities already required by the PBS Rules, and also potential new responsibilities relating to external delegation of NHVR functions.

9.4 Options for the future of PBS

Question 14

Are the objectives and principles for the PBS scheme and PBS 2.0 appropriate? How could they be improved? Has appropriate consideration been given to these in the proposed improvements to the PBS scheme?

Question 15

What is your preferred option for how the PBS scheme should be managed into the future? Are there any other options the NHVR has not considered and how would they work?

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