

# REVIEW OF LIVESTOCK MASS, DIMENSION AND LOADING ARRANGEMENTS

Discussion Paper

June 2022



## 1 ABOUT THIS DISCUSSION PAPER

The National Heavy Vehicle Regulator (NHVR) is conducting a review of the state-based heavy vehicle livestock loading arrangements to identify opportunities for:

- Standardising and rationalising access arrangements, to minimise the compliance burden on livestock transportation in Australia, as far as reasonably practicable.
- Simplifying cross-border transport and improving last-mile access on local government roads.
- Improving safety, productivity and efficiency for the livestock transportation industry.

The information in this Discussion paper has been informed by reviewing related policies and legislation, engineering analysis and discussions with industry and state and territory road authorities.

This preliminary work has assisted the NHVR to identify opportunities to streamline cross border operating requirements and reduce regulatory burden on the heavy vehicle industry. These opportunities include (further detail provided in sections 6 to 10):

- Maintaining and where possible, broadening the application of access and productivity benefits offered by volumetric loading
- Adopting a national set of eligible livestock vehicles to ensure seamless operation across borders
- Reducing the regulatory and administration burden on industry by;
  - removing the requirement to enrol in a scheme
  - removing prescriptive requirements for livestock driver training, and
  - broadening and harmonising the current definition of livestock.

The NHVR is seeking feedback on these opportunities from industry, government of all levels, and other interested stakeholders. A number of questions have been proposed throughout the Discussion Paper focused on:

- Current arrangements.
- Current known issues experienced by industry, road managers, the NHVR and other relevant parties.
- Options proposed for reform of livestock transport access arrangements.

The questions are located at the end of each section (6-10). To assist, Appendix 9 collates all questions to which we are seeking feedback. Stakeholders do not have to respond to all questions, and they may provide additional information of benefit to the review at their discretion.

Feedback on these questions will assist the NHVR to determine the best way forward to work with industry and governments to improve livestock transportation in Australia, to deliver a safe, productive and efficient livestock industry.

## 2 ABOUT THE NHVR

The NHVR is Australia's dedicated, statutory regulator for all vehicles over 4.5 tonnes.<sup>1</sup>

The establishment of the NHVR was agreed upon under an intergovernmental agreement between all Australian states and territories. It formally opened for business on 21 January 2013. The NHVR's purpose and functions are established by the *Heavy Vehicle National Law Act 2012* (Qld) (HVNL), and its activities are guided by its statutory mandate.

The NHVR's vision is to have a safe, efficient and productive heavy vehicle industry serving the needs of Australia.

It aims to achieve this by working collaboratively with industry, states and territories, and partner agencies to:

- Minimise the compliance burden
- Reduce duplication of and inconsistencies in heavy vehicle regulation across state and territory borders
- Provide leadership and drive sustainable improvement to safety, productivity and efficiency outcomes across the heavy vehicle transport sector and the Australian economy.

Some state and territory road transport authorities, and other government agencies deliver various frontline services on the NHVR's behalf. These arrangements are formalised through service agreements and appropriate delegations.

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<sup>1</sup> A heavy vehicle is defined in the HVNL as a vehicle that has a gross vehicle mass (GVM) or aggregate trailer mass (ATM) of over 4.5 tonnes.

### 3 CONSULTATION

This Discussion Paper is the first stage of our review into livestock access arrangements.

Depending on feedback received, we may publish further papers. We will continue to consult with stakeholders.

#### 3.1 Making a submission

There is no prescribed format or maximum length for submissions, which may contain facts, opinions, arguments or recommendations. However, to make submissions most useful, the questions attached as Appendix 9 provide a good guide to structuring your submission. Please note, you are not required to answer all of the questions.

Unless clearly indicated (e.g. 'IN CONFIDENCE' or 'CONFIDENTIAL'), submissions received may be made public at the NHVR's discretion at [www.nhvr.gov.au/about-us/consultation](http://www.nhvr.gov.au/about-us/consultation).

The NHVR will consider all submissions received by close of 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 [www.nhvr.gov.au/law-policies/privacy](http://www.nhvr.gov.au/law-policies/privacy)

For further information on making a submission, please making a submission, please email [info@nhvr.gov.au](mailto:info@nhvr.gov.au), marked "Attention: Livestock Review".

#### 3.2 Deadline for submissions

Submissions must be submitted via email to [info@nhvr.gov.au](mailto:info@nhvr.gov.au) by 5pm Tuesday 26 July 2022.

#### 3.3 Contact information for enquiries about this consultation process

National Heavy Vehicle Regulator  
PO Box 492 Fortitude Valley QLD 4006  
Ph: 1300 696 487  
Email: [info@nhvr.gov.au](mailto:info@nhvr.gov.au)  
[www.nhvr.gov.au](http://www.nhvr.gov.au)

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## 4 INTRODUCTION

Livestock is transported throughout Australia—to and from farms, sale yards, feedlots, abattoirs and ports (for live export)—with road transport being the most common form of transport used.

Transporting livestock has unique challenges, including the movement of live animals in vehicles and animal welfare issues, such as stress, injury or death to the animal during loading, unloading or transport. The movement of live animals can also present vehicle safety risks related vehicle rollover, and compliance risks related to uncertainty in axle mass or animal welfare.

The livestock industry is subject to a variety of national, state and territory transport and non-transport laws.

- *The Heavy Vehicle National Law (HVNL)* governs driver fatigue, vehicle standards, mass, dimension and loading.
- State and territory transport laws include road rules, such as vehicle speed limits, and licencing.
- Non-transport laws include animal welfare laws, quarantine, biosecurity, export controls, land transport standards and guidelines for animal welfare, food standards and traceability of product, and work health and safety laws.

This Discussion Paper briefly considers non-transport laws, specifically land transport standards and guidelines, but does not propose their reform.

This Discussion Paper is principally concerned with the movement of livestock vehicles within HVNL participating states and territories. This is authorised through ten livestock access notices and five livestock loading schemes. These arrangements were predominantly developed prior to the HVNL and the NHVR commencing in 2013.

Appendix 1 lists the ten notices and Appendix 3 lists the five livestock loading schemes in HVNL-participating states and territories.

Notices are legal instruments made under the HVNL that enable certain types of restricted access vehicles, to operate without an access permit on approved networks, subject to compliance with stated conditions of the notice.

Livestock loading schemes are conditions of operation for some of the notices listed in Appendix 1. Of note are the five state and territory Class 3 livestock transportation exemption notices, where enrolment in and compliance with the corresponding scheme is a requirement. The various schemes are each administered by the relevant state or territory.

## 5 SCOPE

This Discussion Paper focuses on current access arrangements for transporting livestock across all HVNL-participating states and territories (i.e. all states and territories except the Northern Territory and Western Australia). The scope includes:

- Heavy vehicle mass, dimension and standards requirements.
- A focus on notice-based access rather than permits.
- Livestock loading schemes.

**Note:** the use of the term eligibility in this Discussion Paper refers to access under notice, unless otherwise specified (e.g. where permit access is discussed).

The following are out of scope:

- Load restraint requirements—including the loss of effluent from livestock transport carriers.
- HVNL Chain of Responsibility (CoR) and Primary Duties requirements.
- HVNL driver fatigue requirements.
- Reform of Australian animal welfare laws, including the Standards and Guideline for the Land Transportation of Livestock.

## 6 DEFINING LIVESTOCK

The term ‘livestock’ is not defined in the HVNL, instead the law provides a height exemption if vehicles are built to carry cattle, sheep, pigs or horses; these vehicles are eligible to exceed the prescribed height limit of 4.3m.

The notices and livestock loading schemes apply similar terminology about the description of livestock as the HVNL with some subtle variations.

### 6.1 Key issues with defining of livestock

This review identified that notices have varied in how they define livestock. This inhibits cross-border transport, where one livestock type is eligible (through a notice or scheme) in one state but not another.

Table 1 provides a summary of the livestock types described across nine publications related to livestock notices and livestock loading schemes.

Table 1 List of livestock types in nine livestock publications

Title of publication	Livestock species					
	Cattle	Sheep	Pigs	Horses	Goats	Other livestock
<i>Heavy Vehicle (Mass, Dimension and Loading) National Regulation</i>	Yes	Yes	Yes	Yes	No	No
<i>National Class 2 4.6m High Livestock Carrier Authorisation Notice 2019 (No.1)</i>	Yes	Yes	Yes	Yes	Yes	No
<i>New South Wales and Victoria Class 3 Long Livestock Semitrailer Deck Length Exemption Notice 2019 (No.1)</i>	Yes	Yes	Yes	Yes	No	No
<i>New South Wales Class 3 Heavy Vehicle Livestock Tri-Axle Group Mass Limit Exemption Notice 2019 (No. 1)</i>	Yes	Yes	Yes	No	Yes	No
<i>Victoria Class 3 Carrier (Goats) Mass Exemption Notice 2020 (No. 1)</i>	No	No	No	No	Yes	No
<i>Victoria Class 3 Heavy Vehicle Livestock Carrier Mass Exemption Notice 2019 (No. 1)</i>	Yes	Yes	Yes	Yes	No	No
<i>Victorian Information Bulletin – Livestock Transport</i>	Yes	Yes	Yes	No	No	No
<i>South Australia Class 3 Articulated Motor Vehicle and B-double Livestock Loading Mass Exemption Notice 2019 (No. 1)</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Tasmania Information Bulletin for the Livestock Loading Scheme</i>	Yes	Yes	Yes	No	No	No

## 6.2 Options for defining livestock

### 6.2.1 Option 1: Status quo

The definitions of livestock would remain unchanged as referenced in Table 1.

Due to variations between the MDL regulation and various notices, the option would not achieve national uniformity and would mean that inefficiencies in livestock transport across borders would continue.

### 6.2.2 Option 2: National uniform livestock definition

The NHVR would work with states and territories and industry members to establish a single national list of livestock definitions.

The term livestock would be defined by a list of approved animals. An approved animal under livestock would determine:

- Number of decks available to carry the animal; and
- The approved height and dimensions of the combination carrying the animal.

## 6.3 Preferred option

The NHVR prefers Option 2: National uniform livestock definition.

This option would remove the need for additional notices for different species of livestock and reduce the regulatory and administrative burden on industry.

## 6.4 Questions

1. Are there any potential issues with Option 2 about which the NHVR should be made aware?
2. Does Table 1 list all types of livestock that would benefit from being included in livestock notices and livestock loading schemes, or are any missing?

## 7 THE REGULATION OF CONDITIONS WITHIN A HVNL NOTICE

### 7.1 Overview

A standard HVNL notice includes conditions on eligible heavy vehicle types (B-doubles, road trains etc.), mass and dimension limits. Each state livestock notice incorporates a state-specific livestock loading scheme, which includes conditions beyond just the standard mass and dimension limits. The scheme requirements are summarised in Appendices 2 and 3. Appendix 4 provides a list of state-based conditions.

Each scheme consists of:

- A requirement for operators to enrol
- Conditions of enrolment
- Business rules and practices of their administration by the relevant state or territory.

The livestock loading schemes pre-date the NHVR and the HVNL. They were developed, administered and maintained by the relevant state or territory. Some schemes conditions are beyond the HVNL's scope.

### 7.2 Assessing the need to retain scheme elements

Figure 1 shows how we have split what have historically been referred to as livestock loading schemes into:

- Core HVNL access notice elements
- Non-HVNL scheme elements

In this section of the paper, we address:

1. Whether the HVNL authorises us to retain the non-HVNL scheme elements.
2. The value of retaining them.
3. Were they retained – how they may better support national outcomes.

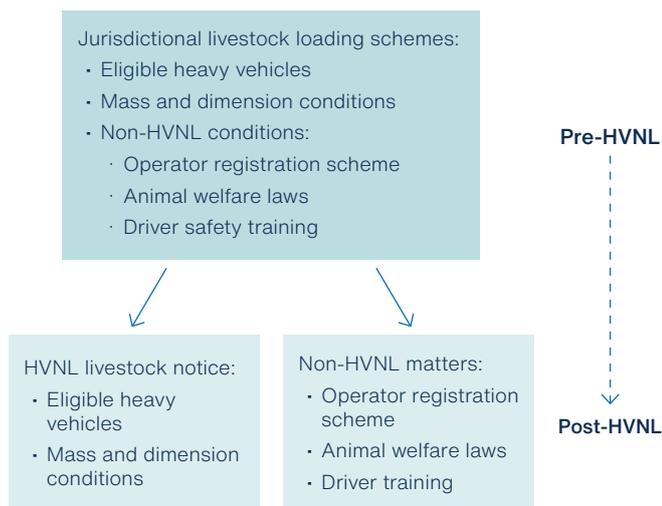


Figure 1. Conceptual diagram of how livestock loading schemes may evolve under the HVNL.

### 7.3 Driver training

Livestock driver training is a prerequisite of livestock schemes applying in New South Wales, Tasmania, and Victoria. The driver training modules, amongst the different training providers, may be different with respect to method of training delivery and the training topics covered.

Fundamentally, the training modules address a range of core topics, including safe practices for loading livestock, driving of livestock vehicles, managing driver fatigue and planning trips.

There is no official mutual recognition between the different state training modules. While livestock operators' scheme enrolment in one state is recognised by another – the scheme requirements are not. This appears to mean that a driver certified as having completed the Victorian driver training module would be required to complete the New South Wales module when traveling in that state (and vice versa). This imposes unnecessary time and costs on livestock transport operators.

Each of the outcomes addressed by the driver training modules falls within the scope of other existing laws – including for work health and safety, animal welfare protection and HVNL primary safety duties. This means that operators are potentially obliged to provide the same types of training in the livestock schemes as these other laws – whether or not they were required by the schemes (i.e. duplication of cost and effort to meet the same training requirements across various HVNL and non-HVNL laws).

### 7.4 Animal welfare

Animal welfare protection is prescribed by state-based legislation. They place a legal duty on people in charge of animals to meet those animal needs in an appropriate way. *The Australian Animal Welfare Standards and Guidelines for Cattle* were agreed by State and Territory Governments in 2016 and are regulated into Animal Welfare Acts across Australia. The Australian Animal Welfare Standards and Guidelines primary purpose is to provide advice on ensuring livestock welfare while in transport. Enforcement of breaches of animal welfare are the responsibility of the following agencies in each participating jurisdictions are listed in Table 2.

Table 2 Responsible bodies for enforcing animal welfare laws by state

State/territory	Responsible body	Applicable law
New South Wales	RSPCA NSW Animal Welfare League NSW	<i>Prevention of Cruelty to Animals Act 1979, No. 200 (NSW)</i> <i>Animals Research Act 1985 (NSW)</i> <i>Exhibited Animals Protection Act 1986 (NSW)</i>
Victoria	RSPCA Victoria's Inspectorate	<i>Prevention of Cruelty to Animals Act 1986 (VIC)</i>
South Australia	RSPCA Biosecurity Officers	<i>Animal Welfare Act 1985 (SA)</i>
Tasmania	RSPCA	<i>Animal Welfare Act 1993</i>
Queensland	Biosecurity QLD (DAF)	<i>Animal Care and Protection Act 2001</i>
Northern Territory	NT Parks and Wildlife Commission NT Department of Industry, Tourism and Trade including Animal Welfare Alice Springs Town Council.	<i>Animal Welfare Act (NT)</i>
Australian Capital Territory	Transport Canberra and City Services Directorate	<i>Animal Welfare Act 1992 (ACT)</i>
Western Australia	Department of Primary Industries and Regional Development (DPIRD)	<i>Animal Welfare Act 2002 (WA)</i>

## 7.5 Scheme enrolment

Operators are required to enrol in state and territory-administered livestock loading schemes as a condition of participation. Enrolment is administered by state and territory road agencies. Enrolment serves as a means of verifying that operators have complied with scheme-entry conditions, i.e. evidence that:

- Drivers have completed an accredited driver training course.
- Their heavy vehicles are eligible to operate under the scheme.

## 7.6 The different state schemes cause inefficiencies

The different state livestock loading scheme requirements form a barrier to cross-border access and require operators to comply with duplicate scheme elements (e.g. completing different driver training modules in two or more states). These barriers are additional to other notice differences (e.g., mass limits and eligible vehicle types).

Operators are required to enrol in only one state livestock loading scheme but must still comply with each different scheme's requirements as they cross state borders. This is an inefficient arrangement for interstate operators and one in which compliance can be confusing – for both industry members, states and territories and the NHVR.

To date, little has been done to mutually recognise and harmonise scheme requirements.

## 7.7 Options

### 7.7.1 Option 1: Status quo

Under this option, the existing state and territory schemes and associated requirements would be retained.

### 7.7.2 Option 2: Remove the scheme requirements as a notice condition

This would mean removing requirements in HVNL access notices for operators to:

- Enrol in a livestock loading scheme.
- Comply with scheme conditions for drivers to complete an approved driver safety course and comply with relevant animal welfare laws/guidelines.

The NHVR is of the view that improved consistency would be provided by reducing the duplication of requirements that are already provided for under other state-based laws. For instance, operators must still comply with animal welfare protection laws – whether or not they are included as HVNL notice conditions.

Livestock driver safety training requirements across states are different. Other laws exist to address driver training requirements – principally those for driver licensing. In addition, more specific livestock driver training is often undertaken by individual operator companies. A suite of tools exist that could be delivered nationally to support improved safety in the transport of livestock, such as the development of specific livestock regulatory advice and Codes of Practice.

If a consistent approach of eligible vehicles is adopted national, enforcement would then be simplified and the need for enrolling in a scheme to identify eligible vehicles would not be required. The discussion about eligible vehicles is further detailed in Section 9.2.

Some state livestock notice requirements that are described as part of their schemes are within the HVNL's scope. This particularly includes requirements for maximum vehicle tare masses (e.g., S10 in Queensland). Discontinuing schemes does not necessarily mean removing all these requirements. We have considered them as part of section 9.3 Maximum unladen mass.

## 7.8 Preferred option

The NHVR prefers Option 2: Remove the scheme requirements as a notice condition.

This option would mean that the NHVR would cease regulating elements of livestock transport schemes outside the scope of a HVNL access notice. However, an alternative would be to provide supporting products and information relating to these elements for industry to self-regulate – e.g., NHVR Regulatory Advices, online educational material etc.

## 7.9 Questions

1. Considering the respective roles of the HVNL/NHVR, and those other laws (e.g. for animal welfare protection) and their state and territory regulators (transport agencies or otherwise) - which of the two options would be best?
2. Is there evidence to support safer outcomes of mandating livestock loading driver training? Or are workplace health and safety laws, and the HVNL general safety duty adequate to ensure drivers are appropriately trained and skilled?
3. Are the livestock loading schemes still required to regulate conditions outside the powers of the NHVR? If so, what purpose would the livestock loading schemes serve and which organisation should administer them? What other options are there to manage scheme enrolment?
4. After enrolment in a scheme, when is unladen vehicle tare mass checked?

## 8 MASS LIMITS

### 8.1 Overview

There are four mass limit categories associated with the transport of livestock:

GML General Mass Limits	CML Concessional Mass Limits	HML Higher Mass Limits	Volumetric loading
Prescriptive numerical mass limits (axle group masses)			Density loading based on available space

Table 3. Factors influencing total mass under volumetric loading

Measure	Control means	Control type	Variability
Maximum available deck space	Mass Dimension and Loading Regulation	Regulatory (HVNL)	Nil
Maximum vehicle tare mass	Access notice condition	Regulatory (HVNL)	Nil (varies by state and territory)
Livestock unit mass and size	Access notice condition restricts breed types Intra-breed characteristics still vary	Regulatory (HVNL)	Yes (varies from head to head)
Livestock loaded density (number of head per square metre)	Livestock welfare consideration	Commercial Regulatory (non-HVNL)	Yes (operator decision for how many livestock to load in available space)
Effluent and water intake and expulsion	Livestock welfare consideration	Commercial Regulatory (non-HVNL)	Yes (fluid balance affects total mass)

Table 2 describes the factors influencing a livestock vehicle's total mass under volumetric loading. These are split between:

1. Vehicle criteria.
2. Livestock loading criteria.

Vehicle criteria are those limiting the maximum available deck space and vehicle tare mass. The deck space limits the number of livestock able to be loaded onto the heavy vehicle. The maximum tare mass limits the component of total mass associated with vehicle design and construction. These criteria are fixed and should not vary from trip-to-trip.

Variations in livestock heavy vehicle mass arise principally from the livestock loading criteria. These include the livestock unit mass and size. Heavier livestock may cause the total loaded mass to increase – although they also tend to be larger and allow a lesser number to be loaded.

Livestock loaded density is how tightly they are loaded. While operators have an incentive to maximise the number of head loaded onto a vehicle, this is limited by their legal and commercial imperatives to ensure their welfare.

Lastly, livestock may need to be fed water and effluent expelled from the vehicle during a trip. This will affect the vehicle's mass.

The Queensland, South Australia, Tasmania, and Victoria transport agencies have each implemented varying forms of volumetric for livestock transport. The Australian Capital Territory and New South Wales governments have applied prescriptive numerical mass limits that are above GML. Appendix 3 provides an overview of the scheme requirements in each state.

### 8.2 Prescriptive numerical mass limits

Prescriptive numerical mass limits for the purpose of this paper include General Mass Limits (GML), Concessional Mass Limits (CML) and Higher Mass Limits (HML) - each under the HVNL. These each limit axle group and total combination mass.

### 8.3 Volumetric loading

In response to the difficulties with loading to prescriptive numerical mass limits and simultaneously meeting animal welfare requirements, some states and territories introduced volumetric loading – under which livestock may be loaded into the available vehicle deck space. Initial industry feedback favours volumetric loading over numerical mass limits.

### 8.4 Current mass limits by state

Mass limits for heavy vehicles transporting livestock vary between states and heavy vehicle combination type.

Queensland is the only state where volumetric loading is authorised for all eligible combination types, however:

- Total vehicle mass limits are specified for rigid trucks and prime movers.
- Tri-axle groups on B-triples only are limited to 26.0t.
- Tri-axle converter dollies on any combination are limited to 20.0t.

In South Australia, Tasmania and Victoria, volumetric loading is authorised only for single semitrailers and B-doubles. Prescriptive numerical mass limits apply to other combination types. However, in South Australia, livestock carriers are currently ineligible to access CML and HML under notice. The Department of Infrastructure and Transport (DIT) in South Australia are working together with the NHVR to resolve access constraints (see section 8.4.1 Developments during consultation).

In New South Wales, volumetric loading is unavailable. Prescriptive numerical mass limits apply to some combinations only. These include mass limits similar to HML but with a 'floating' axle mass limit that allows any axle group to be loaded by up 0.5t above its nominal limit – so long as the equivalent mass is shed from another axle group.

The Australian Capital Territory is the only participating state or territory under the HVNL not to authorise access to livestock carrier combinations over 4.3m height in a specific livestock dimension or mass exemption notice. Table 3 summarises the permitted mass limits across participating states and territories.

**Table 4 Permitted mass limits for 4.6m high livestock carrier combinations**

Vehicle type	NSW	QLD	SA	TAS	VIC
Rigid truck	GML	Total vehicle mass limit	No	GML	GML
Rigid truck and trailer	No	Volumetric Rigid Truck towing 5 or 6-axle dog trailer	No	GML	No
Semitrailer	HML (variation)	Volumetric	Volumetric	Volumetric	Volumetric
B-doubles	HML (variation)	Volumetric	Volumetric	Volumetric	Volumetric
Type 1 road train	HML (variation)	Volumetric	GML HML access via Permit	No	GML* HML access via Permit
Type 2 road train	GML#	Volumetric	GML HML access via Permit	No	No

\* The Victorian Road Train network consists of six approved roads marked in green on the Victorian Road Train Map. Additional access is required by permit.

# The Type 2 NSW Road Train Network consists of one approved road.

### 8.4.1 Developments during consultation

South Australia DIT is currently in consultation with the NHVR to remove CML and HML restrictions from the South Australian schedule of the *National Class 2 4.6m High Livestock Carrier Authorisation Notice 2019*. The outcome will remove the requirement for livestock road trains to obtain an HML permit to gain access to the HML Road Train network (i.e. permit less access for these combinations).

## 8.5 Road infrastructure effects analysis

Some jurisdictions have expressed concern about the road infrastructure effects of volumetric loading. As there are no numerical mass limits, it is difficult to accurately assess them.

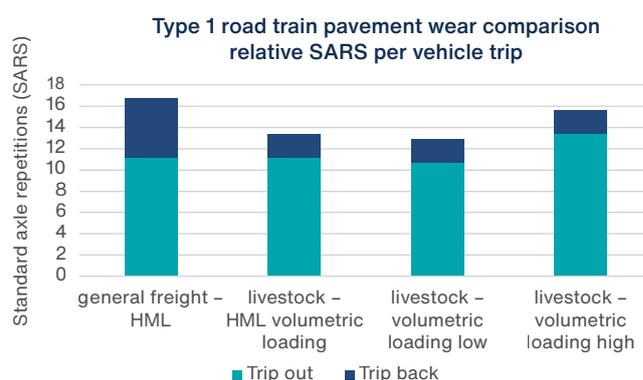
Using estimates of vehicle and axle loads, we can assess these effects on pavement wear using the established method of Standard Axle Repetitions (SARs).

Figure 2 compares pavement wear between type 1 road trains used to transport livestock and general freight. Even at very high volumetric loading masses (e.g. 18.5t on tandem axles and 23.0t on tri-axles), the relative pavement wear is only moderately greater than general freight at HML.

The vertical scale in Figure 2 displays SARs. It shows the relative pavement wear (in SARs) between type 1 road trains that would occur per vehicle trip, between each of the freight tasks (general freight and livestock transport) and mass limits (HML, and high and low estimates of volumetric loading). While the total pavement wear (SARs) would increase as a given trip increased in length – the relative wear would remain proportionate – which is what Figure 2 shows and is most useful for comparing pavement effects of the different mass limits types.

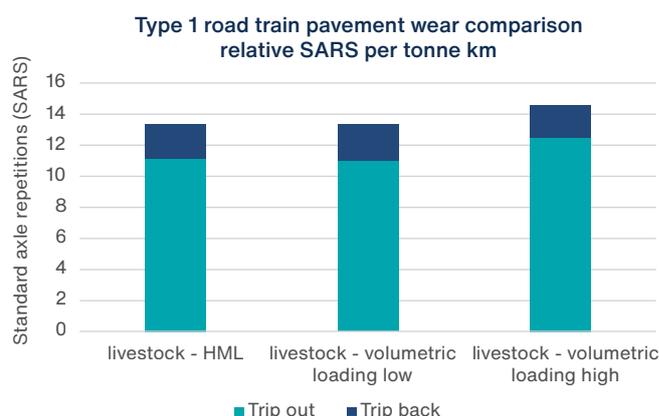
The low pavement wear for livestock vehicles is partly as they generally operate at volumetric loading only 50% of the time. Livestock transport is mostly in one direction (to abattoirs and feedlots and moving drought stock). There is rarely a backload from those destinations. This difference is indicated by Figure 2 which shows the greater pavement wear under fully (the green shaded area) and unloaded (the blue shaded area) conditions.

Figure 2 also shows how livestock travel at HML causes less pavement wear than general freight at the same masses. We have estimated that general freight carries backloads on 50% of trips.



**Figure 2. Pavement wear comparison for livestock and general freight heavy vehicles – per vehicle round trip.**

The pavement wear effects of livestock loading are further decreased when adjusted for the fact carrying more livestock will need less trips to move a given number of head. Figure 3 shows a similar comparison of pavement wear to Figure 2, but adjusted by payload. With this adjustment, the pavement wear at even the high range estimate for volumetric loading is only marginally greater than at HML – 14.6 to 13.4. We have excluded general freight from this comparison, as comparing the freight task with livestock transport by tonne-km travelled is not meaningful.



**Figure 3. Pavement wear comparison for livestock heavy vehicles only – per tonne-km payload.**

In summary, axle masses may be greater under volumetric loading than other mass limits (e.g., HML). But once adjusted for the broader range of factors characterising livestock transport, the overall pavement wear effects could be more moderate than the perceived impacts that raw axle mass limits may initially suggest.

Further discussion of the assumptions and methodology for these assessments is in Appendix 8.

## 8.6 Volumetric loading is more practicable

Livestock operators have long emphasised the difficulties they have faced complying with numerical mass limits. They usually load cattle from paddocks where it is difficult to accurately determine loaded mass. For their welfare, livestock need to be loaded closely together to support one another while being transported.

There are options for managing mass limits. TfNSW has published a Livestock Loading Calculator to help operators plan where on a combination to load livestock and in which quantities. But it is more complicated than for most other freight types, where livestock masses can only be estimated and accurately distributing numbers into different pens is logistically more challenging than loading other freight types.

A key question is whether the planning, effort, and complexity of complying with numerical mass limits in livestock transport is justified by the benefits – principally in protecting road infrastructure from damage caused by overloading. Our analysis in section 8.5 Road infrastructure effects suggests it may not be.

## 8.7 Different mass limits inhibit cross-border transport.

Different mass limits apply for different livestock carrier combinations operating under notice in states and territories. This means that the same livestock carrier loaded to mass limits applying in one state could breach those applying in another.

For example, a road train carrying livestock may use volumetric loading in Queensland but is limited to prescriptive numerical mass limits similar to HML when crossing into New South Wales.

Inconsistent mass limits (see Table 4) impact the productivity of interstate livestock transport and reduces the competitiveness of the local businesses and industries where mass limits are lower. Operators are limited to the lowest mass limit among the states in which they are travelling, as operating at the highest mass limit will result in non-compliance with conditions in at least one state.

They require operators to apply for permits (e.g. Type 1 roads train travelling from Victoria to South Australia must apply for two HML permits to operate in both states). This imposes administrative costs on operators, the NHVR and road managers.

## 8.8 Options

### 8.8.1 Option 1: Status quo

Under this option, the mass limits for livestock transport would continue as they do now – with varying requirements between states and territories.

### 8.8.2 Option 2: Volumetric mass limits

Under this option, the mass is practically limited by the available space in which livestock can be loaded. No actual mass requirement would apply to heavy vehicles operating under the notice.

This option involves developing a national notice for livestock loading – through which volumetric mass limits would be uniformly applied.

### 8.8.3 Option 3: Prescribed HML, floating mass limit

This option would use HML but allow for a 'floating' axle mass limit. The total combination mass would be limited to that determined under HML, but individual axle group mass limits may be adjusted within a range. (e.g., allow 25t on a tri-axle group, instead of the default 22.5t HML). To comply with the fixed total combination mass limit, the mass on another axle group(s) would need to be less than the prescribed limit (e.g., 15.5t instead of the 17.0t limit on a tandem axle, to offset the increase to 25t on the tri-axle group).

## 8.9 Preferred option

The NHVR prefers Option 2: Volumetric mass limits for two key reasons:

1. Our analysis in section 8.5 Road infrastructure effects analysis shows that the road infrastructure effects under volumetric loading are in aggregate more moderate than they are sometimes suspected of being.
2. Volumetric loading is more practicable for livestock transport, the nature of which makes accurately determining masses difficult, if not impracticable.

There may be opportunity to develop an alternative volumetric loading proposal to uniformly apply on a dedicated network across borders (e.g., between the low and high loading scenarios), that may balance productivity and infrastructure protection. This could be an optional addition to the status quo arrangement for industry.

## 8.10 Questions

1. How well are operators managing compliance with prescriptive numerical mass limits? Are there any particular challenges?
2. Are there regulatory requirements (other than the HVNL) affecting how operators manage livestock loading?
3. Are there any issues associated with livestock transport mass limits not addressed in this paper?
4. Do you agree with our assessments of volumetric loading and its effect on road infrastructure?



## 9 ELIGIBLE VEHICLES

### 9.1 Overview

Heavy vehicles used to transport livestock are typically built to load livestock on multiple decks and up to 4.6m high (i.e., greater than the standard 4.3m limit and restricting their operation to approved roads).

Eligibility of a heavy vehicle used for livestock transport carriers depends on:

- Combination type (B-double, semi-trailer, etc.)
- Vehicle dimensions (typically up to 4.6m height)
- Vehicle loaded and tare mass.

Eligible combination types, and the upper mass limits applicable to these combination types, vary between states and territories. There are ten access notices that provide a range of mass and dimension exemptions for livestock transportation.

**Table 5 Eligible vehicles 4.6m High Livestock Carriers Notice (GML)**

Vehicle type	NSW	QLD	VIC	SA	TAS
<b>PBS vehicles</b>	No	No	No	No	No
<b>Rigid truck</b>	4.6m high network	General access	General access	No	General access
<b>Rigid truck and trailer</b>	No	General access	No	No	General access
<b>Semitrailer</b>	4.6m high network	General access	General access	General access	General access
<b>B-double</b>	4.6m high B-double network	B-double network	B-double network	B-double network	B-double network
<b>Type 1 road train</b>	4.6m high road train network <sup>1,2</sup>	Type 1 road train network	Road train network <sup>4</sup>	Road train network <sup>2</sup>	No
<b>Type 2 road train</b>	4.6m high type 2 A-double network <sup>3</sup>	Type 2 road train network	No	Road train combination network <sup>2</sup>	No

1 excluding rigid combinations

2 the applicable combination network in the National Class 2 Road Train Notice

3 The Type 2 NSW Road Train Network consists of one road

4 The Victorian Road Train network consists of six approved roads marked in green on the Victorian Road Train Map. Additional access is required by permit.

**Table 6 Mass limits applying to different livestock vehicle types across each state and territory**

Vehicle type	NSW	QLD	VIC	SA	TAS
<b>PBS Vehicles</b>	No	No	No	No	No
<b>Rigid truck</b>	GML	Volumetric	GML	No	GML
<b>Rigid truck and trailer</b>	No	Volumetric <sup>2</sup>	No	No	GML
<b>Semitrailer</b>	HML <sup>1</sup>	Volumetric	Volumetric	Volumetric	Volumetric
<b>B-double</b>	HML <sup>1</sup>	Volumetric	Volumetric	Volumetric <sup>3</sup>	Volumetric
<b>Type 1 road train</b>	HML <sup>1</sup>	Volumetric	GML <sup>4</sup>	GML <sup>4</sup>	No
<b>Type 2 road train</b>	GML	Volumetric	No	GML <sup>4</sup>	No

1 Variant includes a floating mass allowance and excludes type 1 rigid road train combinations

2 Rigid truck towing 5- or 6-axle dog trailer

3 Includes access for 27.5m B-double

4 HML access via permit

### 9.3 Maximum unladen mass

States and territories that provide for volumetric loading limit the unladen mass of eligible vehicles. As volumetric loading does not apply a numerical (measurable) mass limit, it is important to take other practical measures to limit laden vehicle mass. Specifying a maximum unladen mass is one.

### 9.2 Current eligible livestock carrier configurations

Eligible combination types, and the upper mass limits applicable to these combination types, vary between states and territories. State-by-state summaries of livestock transport vehicle eligibility and networks (up to 4.6m high) are shown in the following tables:

- Table 4 summarises the eligible vehicles operating at GML and their approved networks.
- Table 5 summarises the eligible vehicles and the maximum mass limits.

Eligible vehicles are shown in the tables shaded green, with restricted vehicles shaded blue. In most cases, livestock vehicles are authorised under notice to access the corresponding state/territory combination type network (e.g., livestock carrying B-doubles are restricted to B-double and 4.6m high approved networks).

Limits set by participating states and territories are shown in Table 6. The limits vary by state. There are no limits in New South Wales – in which volumetric loading does not apply.

Table 7 Maximum unladen masses for different combinations, states and territories

State or territory	Maximum unladen mass (tonnes)			
	Prime mover	Semitrailer (combined with prime mover)	B-double trailer set (combined with prime mover)	B-triple trailer set (combined with prime mover)
Australian Capital Territory	No applicable notice			
New South Wales	N/A (no volumetric loading)			
Queensland	N/A	15	22	32
South Australia	12	15 (27)	27 (39)	N/A
Tasmania	11	12 (22)	21 (32)	N/A
Victoria	11	12 (22)	21 (32)	N/A

These differing limits present a challenge for establishing a uniform arrangement to support seamless, cross-border access. The de facto national limits are the lower values (i.e., those of Victoria and Tasmania).

## 9.4 Number of decks

Livestock notices specify maximum deck numbers for specific breeds. These are consistent between states and territories. These are a maximum of:

- 2 decks for cattle
- 3 decks for pigs
- 4 decks for sheep.

These limits are applied to limit the total number of head practicably loaded onto a vehicle. They also support limiting the total vehicle mass and rollover stability. The NHVR would propose to continue with these limits.

### 9.4.1 Performance Based Standard (PBS) livestock vehicles

The NHVR has received some queries from industry members on whether and how it is possible to use PBS heavy vehicles to transport livestock.

Under the current PBS rules, there is no restriction on using a PBS vehicle to transport livestock. However, there are some key differences between the regulations for prescriptive (non-PBS) livestock vehicles:

- PBS vehicles must be approved to operate under the conditions they were assessed as meeting the PBS safety standards. For livestock, this means assessing the vehicle with livestock loaded in a way that allows it to pass the standards. This provides less flexibility than for how non-PBS livestock vehicles may be loaded and makes compliance difficult.
- An important factor in assessing a vehicle against the PBS standards is determining the mass and position of the load. This limits, if not rules out, approving a PBS vehicle under volumetric loading – in which operators need not accurately determine operating masses.
- Were that limitation somehow overcome – the PBS Infrastructure Standards extend only to HML and not to volumetric loading. It is possible for the NHVR to provide an exemption to the Infrastructure Standards – but there is no existing road network under which the exempted vehicle could operate.

These factors limit (though not prevent) the practical use of PBS vehicles in livestock transport. Since 2014, thirteen PBS livestock vehicle designs have been approved – including the truck and pig trailer combination shown in Figure 2.

The NHVR is conducting a review of the PBS scheme with an objective of identifying options for making it simpler, more affordable, and flexible for operators. Options for making PBS more practical for livestock operators will be considered as part of that separate review, rather than this one.



Figure 4 PBS-approved truck and pig trailer



## 9.5 Key issues with vehicle eligibility

### 9.5.1 Different vehicle requirements impede cross border access

Eligible livestock transport vehicle types vary between states and territories. Differences include:

- Eligible combination types (B-double, road train, etc.).
- Axle group types.
- Mass (including tare mass) and dimension limits.
- Other equipment requirements, including road friendly suspension and telematics.

Some differences exist for material reasons. For example, road trains (livestock or otherwise) have no road access in the Australian Capital Territory – meaning those traveling from New South Wales cannot enter the ACT. While an access barrier, it is not one due to varying conditions on livestock transport.

## 9.6 Options

### 9.6.1 Option 1: Status quo

Under this option, the arrangement in which heavy vehicle types eligible under existing state and territory notices would continue.

### 9.6.2 Option 2: National uniform set of eligible vehicles

Under this option, we would develop a national notice with a uniform set of eligible vehicles – i.e., those already granted access by states and territories now. Those vehicle combinations are:

- Rigid truck
- Rigid truck and trailer
- Semitrailer
- B-double
- Type 1 and 2 road trains.

Each of these vehicles would be eligible to operate under the mass and dimension exemptions of a national livestock notice. The notice would limit road access to that available to the combination type.

We would also specify maximum unladen masses for each combination type – where they were operating under a volumetric loading arrangement.

The option to progress innovative vehicles carrying livestock will still be open under the PBS scheme.

## 9.7 Preferred option

The NHVR prefers Option 2. This would provide the most efficient and seamless cross-border access for livestock vehicles. The option would not compel road managers to provide access to any given (eligible) combination. That authority would continue to rest with the relevant road manager.

## 9.8 Questions

1. Is Option 2 suitable to harmonise eligible vehicle types across borders? What other options are there?
2. Have we excluded any factors that should be used to assess vehicle eligibility for livestock transport?
3. How have jurisdictions assessed which vehicles to make eligible under their state notices?
4. Are there options to better utilise PBS vehicles in livestock transport and overcome the identified barriers?

## 10 ROAD NETWORKS

### 10.1 Overview

Broadly, there are three types of access under the HVNL:

- General access – for heavy vehicles complying with all general access mass and dimension requirements, and not otherwise subject to restricted road access.<sup>2</sup>
- Notices – authorisations under which a category of vehicle is granted access to a road network or area (i.e., permit less access applies to all vehicles that meet the requirements of the notice)
- Permits – authorisations under which the operator of a vehicle is granted access to an approved route, network or area not covered by a notice (i.e., permit applies to an operator or a vehicle, and not available to non-permit holders).

In most states and territories, livestock carriers are authorised under notice to access the road network applying to that combination type. For example, B-doubles transporting livestock have access to the general B-double road network.

- Single semitrailers transporting livestock are restricted to an approved 4.6m high road network.
- Queensland is the only state to grant road train livestock carriers access to the GML road train network and under volumetric loading. Other states/territories grant access to the HML or dedicated livestock loading networks.

New South Wales is the only state to have published a separate road network for livestock carriers operating under a livestock loading mass exemption.

- Transport for NSW has also introduced the Farm Gate Access Project. This is an initiative to assist with access to low-volume local council roads. The project aims to improve permit application time frames. Applicants complete a farm gate access risk assessment checklist with their permit application. The checklist provides local councils with additional information to support the consideration of granting access. The project is active in 18 New South Wales participating councils.

### 10.2 Key issues with road networks

#### 10.2.1 First-and last-mile access

Livestock is typically loaded at farms or at feedlots, which are commonly accessed via local roads managed by local governments. Most of these roads are not part of approved notice networks, which are primarily state or territory-controlled roads.

This means that operators require a permit to complete their journey. Having to apply for permits increases the administrative cost to operators, reduces industry productivity, and increases the administrative burden on the NHVR and road managers.

Transport for New South Wales has led development of the recent Farm Gate Access<sup>3</sup> initiative. It is a scheme aimed at supporting local government road managers in providing broad, area-based road access for heavy vehicles transporting livestock (and grain). This enhanced access is intended to connect the existing access on predominantly major roads to the more minor ones at the farm gates – eliminating the need for operators to seek permits.

After a one-year pilot and as of 19 May 2022, twelve local governments and 34 operators are participating in the scheme. TfNSW is reviewing an evaluation report and consulting with the Farm Gate Access Working Group on next steps.

#### 10.2.2 Over-reliance on permits

Many road managers rely on using permits to grant access for livestock transport. This includes on state/territory roads, and not just for managing first- and last-mile access. For instance, in Victoria, notice access for road trains transporting livestock at GML extend to a total of six roads – with the Victorian Department of Transport having consented to pre-approval of twelve-month duration for an extended network.

Road managers often prefer permits over notice access, due to the perceived greater transparency they provide around who is operating on their roads and when. A drawback is that permits contribute to delays in operators being granted access and incur costs for all parties (industry and government). The NHVR encourages road managers to weigh up the benefits of the enhanced transparency that permits provide with the additional administrative burden. It is likely that as that burden increases, some operators are less likely to apply for permits.

### 10.3 Options

Road access consent decisions (i.e., granting consent to a notice, a permit or refusing access) are made on a case-by-case basis by road managers and not the NHVR. Each road manager has the authority to determine how they grant access, for each request on every applicable road. The NHVR recommends that road managers consider the issues we have described here in how they manage that access.

### 10.4 Question

Are there options for the livestock industry, state, and territory transport agencies and the NHVR to better support road managers in improving livestock transport access, such as by helping them with gazetting more roads under notice?

Is Transport for New South Wales' Farm Gate initiative an approach that could be adopted in other states and territories, as an initiative to improve livestock transport access?

<sup>2</sup> Other than livestock transporting poultry, almost all livestock transport heavy vehicles require some kind of mass or dimension authority (i.e. permit or notice), and do not qualify for general access due to the height or mass of the vehicle.

<sup>3</sup> More information on the Farm Gate Access scheme is available at <https://roads-waterways.transport.nsw.gov.au/business-industry/heavy-vehicles/farm-gate-access/index.html>.

## 11 APPENDICES

### Appendix 1 – Livestock Notices

State or territory	Title	Instrument	Notice expiry	Purpose
QLD, NSW, VIC, SA, TAS	<i>National Class 2 Heavy Vehicle 4.6m High Livestock Carrier Authorisation (Notice) 2019 (No. 1)</i>	National Notice	9 February 2024	The purpose of this Notice is to authorise the use of livestock carriers from 4.3 to 4.6 metres in height in stated areas or stated routes, during stated hours of stated days and to state the conditions under which these livestock carriers may be used.
NSW	<i>New South Wales Class 3 Livestock Transportation Mass Exemption 2019 (No.1)</i>	State Notice	9 February 2024	This Notice provides mass exemptions that support the New South Wales Livestock Loading Scheme. This Notice works with the New South Wales Livestock Loading Scheme and gives effect to the exemptions and conditions of that Scheme. Compliance with the scheme is a condition of this Notice.
NSW	<i>New South Wales Class 3 Heavy Vehicle Livestock Tri-Axle Group Mass Limit Exemption Notice 2019 (No. 1)</i>	State Notice	9 February 2024	The purpose of this Notice is to exempt the stated categories of Class 3 heavy vehicles transporting livestock from the mass limit for a tri-axle group with single tyres with section widths of at least 375mm, or dual tyres, in Table 1 (Axle mass limits table) of Part 2 of Schedule 1 of the <i>Heavy Vehicle (Mass, Dimension and Loading) National Regulation</i> (the National Regulation) and to specify the conditions of the exemption under this Notice.
NSW, VIC	<i>New South Wales and Victoria Class 3 Heavy Vehicle Long Livestock Semitrailer Deck Length Exemption (Notice) 2019 (No. 1)</i>	State Notice	9 February 2024	The purpose of this Notice is to exempt semitrailers used to carry livestock from the limit on the deck length available for the carriage of animals stated in section 4(6) of Schedule 6 of the <i>Heavy Vehicle (Mass, Dimension and Loading) National Regulation</i> (the Regulation).
VIC	<i>Victoria Class 3 Heavy Vehicle Livestock Carrier Mass Exemption Notice 2019 (No. 1)</i>	State Notice	9 November 2024 <sup>f</sup>	The purpose of this Notice is to exempt a stated category of class 3 heavy vehicles from the mass requirements prescribed in Schedules 1 to 5 of the <i>Heavy Vehicle (Mass, Dimension and Loading) National Regulation</i> (the National Regulation).
VIC	<i>Victoria Class 3 Livestock Carrier Mass and Dimension Exemption Notice 2019 (No.1)</i>	State Notice	9 February 2024	This Notice provides mass and dimension exemptions that support the Victorian livestock loading scheme. This Notice is intended to work with the Information Bulletin for the Livestock Transport (Victoria) issued by VicRoads, and compliance with the rules in that Bulletin is a condition of this Notice  <b>Note:</b> This Notice works with the <i>Information Bulletin for the Livestock Transport</i> (Victoria) issued in August 2013 by VicRoads. Certain references in the Bulletin may be made to previous Victorian Government Gazettes, and to previous Victorian Law. In such cases, these references are deemed to be made to the corresponding sections of this Notice, and to the Heavy Vehicle National Law.
VIC	<i>Victoria Class 3 Carrier (Goats) Mass Exemption Notice 2020 (No. 1)</i>	State Notice	25 May 2024	The purpose of this Notice is to exempt a stated category of class 3 heavy vehicles from the mass requirements prescribed in Schedules 1 to 5 of the <i>Heavy Vehicle (Mass, Dimension and Loading) National Regulation</i> (the National Regulation).
SA	<i>South Australia Class 3 Articulated Motor Vehicle and B-double Livestock Loading Mass Exemption Notice 2019 (No. 1)</i>	State Notice	9 February 2024	The purpose of this Notice is to exempt the use of Class 3 Articulated Motor Vehicles and B-doubles from:  (a) stated mass limits in Schedule 1 of the <i>Heavy Vehicle (Mass, Dimension and Loading) National Regulation</i> (the Regulation) and  (b) To allow for a specific length exemption for specific 27.5m B-doubles carrying livestock on a specific route.
QLD	<i>Queensland Class 3 Livestock Loading Exemption Notice 2019 (No.2)</i>	State Notice	9 February 2024	1. This Notice provides mass dimension exemptions that support the Queensland Livestock Loading Scheme. This Notice is intended to work with the Queensland Livestock Loading Scheme, and compliance with that Scheme is a condition of exemptions contained in this Notice.  2. This Notice revokes and replaces the <i>Queensland Class 3 Livestock Loading Exemption Notice 2019 (No.1)</i> .  <b>Note:</b> The Queensland Livestock Loading Scheme is managed by the Queensland Department of Transport and Main Roads (TMR), in conjunction with the NHVR,  This Notice replaces the <i>Queensland Guideline for Livestock Loading Form 3</i> . The <i>Queensland Class 3 Livestock Loading Exemption Notice 2019 (No.1)</i> never came into force. The current version of this Notice corrects minor errors in the original Notice that were detected before it came into force.
TAS	<i>Tasmania Class 3 Livestock Transportation Exemption Notice 2019 (No.1)</i>	State Notice	9 February 2024	This Notice provides mass and dimension exemptions that support the Tasmanian Livestock Loading Scheme. This Notice is intended to work with the Tasmanian Livestock Loading Scheme, and compliance with that Scheme is a condition of this Notice.  <b>Note:</b> This Notice operates in conjunction with the current Information Bulletin for the Livestock Loading Scheme (Tasmania) maintained by the Tasmania Department of State Growth

## Appendix 2 – Livestock loading Schemes Documents

State or territory	Title	Notice expiry	Purpose
NSW	NSW Livestock Loading Scheme Business Rules	Until expired	Roads and Maritime Services (Roads and Maritime) administers and maintains the NSW Livestock Loading Scheme (NSWLLS or the Scheme) in conjunction with NHVR and Transport for NSW. The purpose of these Business Rules is to provide the administrative framework for the NSWLLS.
VIC	Livestock Transport Information Bulletin	Until expired	The Information Bulletin provides information that is relevant to operators and drivers involved in the transportation of livestock. It details what is required to join the Victorian Livestock Loading Scheme, including operating conditions driver training and compliance
SA	Transport of livestock		Scheme documentation not located – Livestock loading mass exemption information bulletin located in regards to changes in scheme
QLD	Livestock Loading Scheme in Queensland operator's guide	Until expired	<p>The scheme recognises the difficulty of estimating the mass of livestock when it is being loaded and transported throughout Queensland. It also recognises that livestock travels better when loaded to a comfortable density which provides better load stability and improved safety.</p> <p>While the scheme allows for exemptions from some strict mass and dimension regulations, loaded mass is effectively controlled by three key principles:</p> <ol style="list-style-type: none"> <li>1. Internal trailer dimensions (deck length) are specified and checked as part of the certification process.</li> <li>2. Trailer unladen mass is regulated and checked as part of the certification process.</li> <li>3. Manufacturer's ratings for all components must not be exceeded.</li> </ol>
	Modification code S10 Concessional livestock loading – vehicle rating		Summary of the ratings which may be approved by officers authorised with modification code S10 – Concessional Livestock Loading Vehicle Rating.
TAS	Information Bulletin for the Livestock Loading Scheme	Until expired	<p>The Tasmanian Livestock Loading Scheme is an agreement between the Department of Infrastructure, Energy and Resources (DIER) and the Livestock Transport Association. It is designed to facilitate the safe and efficient</p> <p>Transportation of livestock by reducing the chances of animals being injured; Increasing the productivity of livestock transportation; protecting road and bridge infrastructure, and reducing the chances of vehicles rolling over.</p>



### Appendix 3 – Overview of State Livestock Loading Schemes

State	Mass limits	Requirements	Extras	Notes
NSW	<b>HML Limits</b> Single articulated: 45.5 tonnes B-doubles up to 19m: 57.0 tonnes B-doubles up to 26m: 68.0 tonnes Type 1 road trains with tandem axle dollies: 85 tonnes Type 1 road trains with tri-axle dollies: 90.5 tonnes B-triples: 90.5 tonnes AB-triples with tri-axle dollies: 113.0 tonnes	Road-Friendly suspension for all combinations (listed in the Notice) IAP for B-Triples and AB-Triples (listed in the Notice) Driver training for all combinations NHVAS maintenance module for all combinations (Listed on the RMS Livestock Page) Vehicle Safety Compliance Certification for any prime mover, and any trailer that is to be used as part of a B-Triple or AB-Triple,	0.5-tonne floating tri-axle mass concession Can exceed the mass limits relating to axle spacing set out in clause 3 and Table 2 of Schedule 1 to the Road Transport (mass, Loading and Access) Regulation 2005 by: <ul style="list-style-type: none"> <li>• 0.5 tonnes for each tandem axle groups fitting with RFS</li> <li>• 2.5 tonnes for each tri-axle group fitted with certified road-friendly suspension</li> </ul>	NSW livestock loading enforces HML limits, which align with Animal Welfare Laws. Number of decks not specified.
SA	<b>Unladen mass</b> Prime mover: ≤12.0 tonnes Semi-trailer used in an articulated motor vehicle: ≤ 15.0 tonnes Second semitrailer of a B-double: ≤15.0 tonnes Lead semitrailer in a B-double: ≤12.0 tonnes. Manufacturer's ratings of at least: <ul style="list-style-type: none"> <li>• Steer axle: 6.0 tonnes</li> <li>• Drive axle group: 17.3 tonnes</li> <li>• GVM: 23.3 tonnes</li> <li>• GCM (articulated mv): 48.3 tonnes</li> <li>• GCM (B-double): 73.3 tonnes</li> </ul> HML – Permit required A-double with tandem axle dolly: 85 tonnes A-double with tri-axle dolly: 91tonnes A-triple with tandem axle dolly: 124.5 tonnes	Annual DIT roadworthy and specification inspection OR NHVAS maintenance module Dual axle tyres	Exemptions from prescribed mass limits: An articulated motor vehicle or B-double from the <ul style="list-style-type: none"> <li>• Mass limit applicable to a tandem axle group fitted with dual tyres; and the</li> <li>• Mass limit applicable to a tri-axle group fitted with dual tyres;</li> </ul> An articulated motor vehicle from the GCM limit in Schedule 1, part 1, clause 2(1)(a)(iv), and the upper limit of 42.5t in Part 2, Table 2, and A B-double from the upper limit of 62.5t in Part 2, Table 3.	Exempt from complying with vehicle mass limits, but must comply with manufacturer's ratings The number of decks is limited to <ul style="list-style-type: none"> <li>• 2 decks for cattle</li> <li>• 3 decks for pigs</li> <li>• 4 decks for sheep and goats</li> </ul>
VIC	6 axle articulated vehicle or 9 axle B-double No mass limits, only mass limits for a prime mover PM: 11 tonnes (tare) Semitrailers: 12 tonnes (tare) <22 tonnes with a prime mover B-doubles: <21 tonnes, <32 tonnes with a prime mover Manufacturer's ratings of at least: <ul style="list-style-type: none"> <li>• Steer axle: 6.0 tonnes</li> <li>• Drive axle group: 17.3 tonnes</li> <li>• GVM: 23.3 tonnes</li> <li>• GCM (single articulated): 46.3 tonnes</li> <li>• GCM (B-double): 68.0 tonnes</li> </ul>	Driver training Road-friendly suspension 01/01/2000+ Air suspension 01/01/98 – 31/12/99 Semitrailers: <ul style="list-style-type: none"> <li>• tri-axle with 4 tyres per axle</li> <li>• Manufacturer's rating of at least 25.0 tonnes</li> <li>• Axle spacings:               <ul style="list-style-type: none"> <li>• 4.0 metres between the centre of the steering axle to the centre of the rear axle of the prime mover</li> <li>• 6.2 metres from the centre of the rear axle of the prime mover to the centre of the first axle of the semitrailer</li> </ul> </li> </ul> B-doubles: the axle and axle group spacings in Table 3 in Schedule 1 of the MDL	Exempt from complying with vehicle mass limits but must comply with manufacturer's ratings. The number of decks is limited to <ul style="list-style-type: none"> <li>• 2 Decks for Cattle</li> <li>• 3 Decks for Pigs</li> <li>• 4 Decks for Sheep</li> </ul> Operators are required to carry a Victorian LLS certificate signed by an authorised VicRoads Officer showing vehicle ratings	

State	Mass limits	Requirements	Extras	Notes
TAS	<p>6 axle articulated vehicle or 9 axle B-double</p> <p>No mass limits, only mass limits for a prime mover.</p> <p>PM: 11 tonnes (tare)</p> <p>Semitrailers: 12 tonnes (tare) &lt; 22 tonnes with a prime mover</p> <p>B-doubles: &lt; 21 tonnes, &lt; 32 tonnes with a prime mover</p> <p>Manufacturer's ratings of at least:</p> <ul style="list-style-type: none"> <li>Steer axle: 6.0 tonnes</li> <li>Drive axle group: 17.3 tonnes</li> <li>GVM: 23.3 tonnes</li> <li>GCM (single articulated): 46.3 tonnes</li> <li>GCM (B-double): 68.0 tonnes</li> </ul>	<p>Driver Training</p> <p>Dual tyres</p> <p>Road-friendly suspension 01/04/2001+</p> <p>Low profile semi-trailers</p> <p>Semitrailers:</p> <ul style="list-style-type: none"> <li>tri-axle with four tyres per axle</li> <li>manufacturer's rating of at least 25.0 tonnes</li> </ul> <p>Axle spacings:</p> <ul style="list-style-type: none"> <li>4.0 metres between the centre of the steering axle to the centre of the rear axle of the prime mover</li> <li>6.2 metres from the centre of the rear axle of the prime mover to the centre of the first axle of the semitrailer</li> </ul> <p>B-doubles: the axle and axle group spacings in Table 2 in Schedule 1 of the MDL</p>		<p>Exempt from complying with vehicle mass limits but must comply with manufacturer's ratings.</p> <p>Requires LLS vehicle plates to be displayed on vehicles (in the scheme but not enforced).</p> <p>The number of decks is limited to:</p> <ul style="list-style-type: none"> <li>2 decks for cattle</li> <li>3 decks for pigs</li> <li>4 decks for sheep.</li> </ul>
QLD	<p>Rigid truck</p> <p>Rigid truck and 5- or 6-axle dog trailer</p> <p>Articulated vehicle</p> <p>B-double</p> <p>B-triple</p> <p>Road train</p> <p>When a prime mover is a hauling unit:</p> <ul style="list-style-type: none"> <li>its GCM rating must equal or exceed the unladen mass of the prime mover + the unladen mass of all trailers in combination + 26 tonnes for each semi-trailer or dog trailer in combination</li> </ul> <p>When a rigid truck is a hauling unit:</p> <ul style="list-style-type: none"> <li>its GCM rating must equal or exceed the GVM of the rigid truck + the unladen mass for all trailers towed + 26 tonnes for each trailer in combination</li> </ul> <p>The maximum single steer axle mass for tyres of:</p> <ul style="list-style-type: none"> <li>Less than 375 millimetres is 6.5 tonnes</li> <li>At least 375 millimetres is 7.1 tonnes</li> </ul> <p>Twin Steer: 12 tonnes</p> <p>Tri-axle dolly: 20 tonnes</p> <p>Tri-axle groups on a B-triple: 26 tonnes</p> <p>Unladen Mass</p> <p>Semitrailer 15 tonnes</p> <p>B-double trailers 22 tonnes</p> <p>B-triple trailers 32 tonnes</p>	<p>Vehicle Rating (S10)</p> <p>Minimum D Value requirements for couplings specified</p> <p>Twin Steer must be fitted with load sharing</p>		<p>Tri-drive axle or Tridem axle require permit for access</p> <p>The number of decks is limited to:</p> <ul style="list-style-type: none"> <li>2 decks for cattle</li> <li>3 decks for pigs</li> <li>4 decks for sheep.</li> </ul> <p>No mass specified, as per <i>Guideline for Multi-combination Vehicles in Queensland – Form Number 1</i></p>

## Appendix 4 – Livestock loading conditions across the states

	NSW	QLD	VIC	SA	TAS
<b>NHVAS</b>	Yes, a requirement for B-double operating CML under the National Class 2 B-double gazette.				
<b>Maintenance Management accreditation</b>	Yes, a requirement if seeking additional mass exemptions above GML or a B-triple or AB-triple under the <i>National Class 2 Heavy Vehicle Road Train Authorisation</i> .	N/A	N/A	Yes, requirement of annual inspections or maintenance management under the <i>South Australia Class 3 Articulated Motor Vehicle and B-double Livestock Loading Mass Exemption Notice 2019</i> and the <i>National Class 2 B-double Authorisation Notice 2019</i> .	N/A
<b>Animal welfare standards</b>	All states require complying with animal welfare protection regulation a condition of participating in their notice.				
<b>Driver training</b>	Yes, condition of the LLS. The RMS redesign will require operators to complete the NSW program.	N/A	Yes, condition of the LLS. Must complete a Victorian program.	N/A	Yes, condition of the LLS; enforceability is subjectable.
<b>Intelligent Access Program</b>	Yes, condition for B-triples and AB-triples under the <i>NSW Class 3 Livestock Transportation Exemption Notice</i> .	N/A	N/A	N/A	N/A
<b>Annual vehicle inspections</b>	Heavy vehicles require inspections to be registered in NSW and to renew their registration. This is not included in gazette or LLS	Heavy vehicles require inspections in order to be registered in QLD and to renew their registration. This is not included in gazette or LLS.	N/A	Yes, requirement of annual inspections or maintenance management under the <i>South Australia Class 3 Articulated Motor Vehicle and B-double Livestock Loading Mass Exemption Notice 2019 &amp; National Class 2 Road Train Authorisation Notice 2020</i> .	N/A
<b>Livestock loading plates/labels</b>	NSW issues a label with a unique ID to all nominated vehicles, which need to be affixed.	QLD vehicles must be fitted with LLS S10 plate under the <i>QLD Class 3 Livestock Loading Exemptions Notice</i> .	VIC issues LLS Plates to all vehicles registered in the scheme, and this is a condition of the LLS	Yes, South Australia issues LLS labels to vehicles inspected and registered in the Scheme.	Tasmania issues plates to be attached to the nominated vehicle; enforceability is subjectable.
<b>Vehicle Safety Compliance Certification Scheme</b>	LLS require the prime mover, and any trailer that is to be used as part of a B-Triple or AB-triple must be certified by Vehicle Safety Compliance Certification Scheme Licensed Certifier.	N/A	N/A	N/A	N/A
<b>Pre-Transport Stock Preparation</b>	A requirement of NSW whenever transporting cattle, sheep, goats, horses, or non-indigenous animal – not covered under any gazette or LLS.	N/A	N/A	N/A	N/A

	NSW	QLD	VIC	SA	TAS
<b>Road-friendly suspension</b>	Yes, B-triple or AB-triple under the <i>National Class 2 Heavy Vehicle Road Train Authorisation</i> .	N/A	Yes, condition under the <i>Victoria Class 3 Livestock Carrier Mass and Dimension Exemption Notice 2019</i> .	N/A	Yes, condition under the <i>Tasmanian Class 3 Livestock Transportation Mass Exemption Notice</i> and LLS.
	Yes, a condition under the <i>NSW Class 3 Livestock Transportation Exemption Notice</i> for all axle groups on semi-trailers and for B-triples and AB-triples all axle groups are to be fitted.		Yes, a condition under the Victorian LLS is road-friendly suspension for vehicles registered 01/01/2000+ and air suspension for vehicles registered 01/01/98–31/12/99.		
<b>D-value ratings</b>	Vehicle Standard (Australian Design Rule 63/00 - Trailers Designed for Use in Road Trains) 2006 Australian Standard design code Section P Tow Couplings				
	Yes, <i>National Class 2 Road Train Authorisation Notice 2020</i>				
	N/A	Yes, varying D-value ratings for vehicle types under the <i>Queensland Class 3 Livestock Loading Exemption Notice 2019</i> .	N/A	Yes, D-value rating of 119 kN for the fifth wheel couplings and kingpins for a B-double under the <i>South Australia Class 3 Articulated Motor Vehicle and B-double Livestock Loading Mass Exemption Notice 2019i</i>	N/A

## Appendix 5 – Livestock loading conditions and meanings

Condition	Description of condition
<b>National Heavy Vehicle Accreditation Scheme (NHVAS) Maintenance Management accreditation</b>	<p>Accreditation is a requirement of the National Class 2 Road Train notice for B-Triples and AB Triples in NSW, and SA offers the option of the accreditation or annual vehicle inspections.</p> <p>The NHVAS was first offered to industry in 1999 as an alternative compliance scheme. It has since evolved as a formal process for recognising operators who have robust safety and other management systems in place. It is also increasingly being used to show compliance with general duty requirements under road transport law.</p> <p>Previously administered by state and territory road transport authorities, the NHVAS is now managed on a national basis by the NHVR.</p> <p>The NHVR is the administrator and single point of contact for all NHVAS business, including all enquiries, applications and maintaining accreditation.</p>
<b>Intelligent Access Program (IAP)</b>	<p>IAP is a requirement of the National Class 2 Road Train notice for B-Triples and AB Triples in NSW</p> <p>IAP is a national program developed in partnership with all Australian road agencies. It uses satellite tracking and wireless communication technology to remotely monitor where, when and how heavy vehicles are being operated on the road network.</p> <p>Under the HVNL, IAP can be imposed as a condition of a permit or Notice by a road manager. The way in which IAP is applied, or the sort of IAP applications that are made available to transport operators, may differ between states and territories. State and territory road transport authorities deliver all IAP services under the delegation of the NHVR.</p>
<b>Annual heavy vehicle inspections</b>	<p>Annual heavy vehicle inspections are a requirement of the National Class 2 Road Train notice in SA if the operator is not enrolled in NHVAS Maintenance Management Accreditation.</p> <p>Heavy vehicle inspections are performed by authorised agents or state authorities to certify the roadworthiness of the vehicle and its components.</p>
<b>Livestock loading plates</b>	<p>In QLD, the Livestock Loading S10 Plate is a requirement of the Queensland Class 3 Livestock Loading Exemption Notice 2019. The S10 plate is a vehicle ratings code specific to QLD. It confirms that checks of the vehicle's fuels, water, livestock capacity and distribution have been assessed, and when the vehicle is subjected to specified imposed loading.</p> <p>In TAS, prime movers and semitrailers are required to display a Tasmanian-issued plate signifying participation in the livestock loading scheme. Each plate is to be affixed in the vicinity of the registration plates on the front of the prime movers and at the rear of each semitrailer. There is no need for vehicles participating in another livestock loading scheme to display the Tasmanian LLS plates. With insufficient availability of LLS plates in Tasmania, this process is currently being omitted.</p>
<b>D-value</b>	D-value is the theoretical horizontal reference force between towing vehicle and trailer.

Condition	Description of condition
<b>Driver training</b>	<p>Driver training is a requirement of the NSW, VIC and TAS livestock loading schemes.</p> <p>In NSW and VIC, driver training courses are state-developed education and training programs. Each state has its own course and accredited assessors.</p> <p>TAS is currently omitting the condition, due to the lack of availability of accredited assessors.</p> <p>Modules in the course include livestock rollover prevention, job preparation, including disease transfer, and review of driver understanding of vehicle requirements, the loading scheme and notices.</p>
<b>Vehicle Safety Compliance Certification Scheme</b>	<p>In NSW, Vehicle Safety Compliance certification is a requirement for any prime mover and any trailer that is to be used as part of a B-triple or AB-triple. An assessment made by a suitably qualified NSW Vehicle Safety Compliance Certification Scheme Licensed Certifier, the assessment specifically addresses the construction, dimension, mass and operational standards that are set out in these operating conditions and relevant Australian Design Rules.</p>
<b>Road-friendly suspension</b>	<p>NSW, VIC and TAS schemes all require the use of road-friendly suspension. The definition of road-friendliness was first made in the European Union Directive 96/53/EC in 1996, as a performance standard that does not mandate any suspension type. Based on it, the suspension is tested when installed on a vehicle with the axle group loaded to its rating. The axle is lifted at least 80cm off the ground and then dropped, or driven off, an 80cm step, and the resulting vehicle oscillations are measured</p>

## Appendix 6 – Livestock loading state mutual recognition

State	What mutual recognition means
<b>Queensland</b>	<p>Where a vehicle has not been inspected and certified with the QLD S10 livestock plate, the operator must comply with all conditions of the registered state livestock loading scheme when operating in QLD. This includes mass limits, certification and accreditation. Operators are required to carry evidence of their state LLS registration, and present to a member of the Queensland Police Service or an Authorised Transport Inspector if requested.</p> <p>Where a vehicle has been inspected and certified with the QLD S10 livestock plate, the operator may benefit from the mass exemptions in the QLD livestock loading scheme. Operators are required to carry evidence of their state LLS registration and the vehicle certification, and present this to a member of the Queensland Police Service or an Authorised Transport Inspector if requested.</p>
<b>New South Wales</b>	<p>Interstate operators must comply with the NSW LLS, including vehicle standards, mass limits and operating conditions when in NSW. This includes completion of the driver training requirements and participation in the NHVAS Maintenance Management module and IAP for B-triples and AB-triples.</p>
<b>Victoria</b>	<p>Interstate operators must comply with the VIC LLS, including vehicle standards, mass limits and operating conditions when in VIC. This includes completion of the Victorian Driver Training program.</p> <p>Interstate operators are automatically included in the VIC LLS, provided they carry a copy of:</p> <ul style="list-style-type: none"> <li>• the registered state LLS</li> <li>• the VIC LLS bulletin,</li> <li>• weighbridge docket showing the tare of the prime mover and semi-trailers</li> <li>• a Victorian Driver Training certificate</li> </ul>
<b>South Australia</b>	<p>Interstate operators must comply with the SA LLS, including vehicle standards, mass limits and operating conditions, including SA labelling requirements when operating in South Australia.</p>
<b>Tasmania</b>	<p>Interstate operators are mutually recognised in the TAS LLS provided that they carry a copy of:</p> <ul style="list-style-type: none"> <li>• the registered state LLS</li> <li>• weighbridge docket showing the tare mass of the prime mover and semitrailer(s).</li> </ul> <p>The vehicles must also meet the TAS LLS required vehicle manufacturer's ratings and tare weight.</p> <p>There is no need for vehicles participating in another livestock loading scheme to display the TAS LLS plates.</p>

## Appendix 7 – Cattle loaded volumetrically with deck spacings of 12.5m x 2.4m as per animal welfare guidelines and standards –prime mover semitrailers

Table 8 Overview of a loaded prime mover according to the recommended minimum space for cattle under the AAWSG.

A	B	C	D	E	F	G	H	I
Weight of cattle	Floor space required under the AAWSG	No. of head of cattle under the AAWSG	Total payload weight on the head of cattle	Scheme tare weight of the configuration	Weight of cattle	Total payload and tare weight (total mass)	GML	HML
100	0.31	94	188	22,000	18,800	40,800	42,500	45,500
150	0.42	70	140	22,000	21,000	43,000	42,500	45,500
200	0.53	55	110	22,000	22,000	44,000	42,500	45,500
250	0.77	38	76	22,000	19,000	41,000	42,500	45,500
300	0.86	34	68	22,000	20,400	42,400	42,500	45,500
350	0.98	30	60	22,000	21,000	43,000	42,500	45,500
400	1.05	28	56	22,000	22,400	44,400	42,500	45,500
450	1.13	26	52	22,000	23,400	45,400	42,500	45,500
500	1.23	24	48	22,000	24,000	46,000	42,500	45,500
550	1.34	22	44	22,000	24,200	46,200	42,500	45,500
600	1.47	20	40	22,000	24,000	46,000	42,500	45,500
650	1.63	18	36	22,000	23,400	45,400	42,500	45,500

To determine the total masses of the combination using the table, column E has applied the maximum tare mass for a prime mover semitrailer under the schemes.

Column F indicates the maximum mass of cattle over two decks. Column G is the total mass of the tare and the cattle.

Column H and I provide the maximum GML and HML mass limits under the HVNL.

In columns G–I, grey indicates compliance with mass limits, pale blue specifies a GML has been exceeded, and darker blue determines HML has been exceeded.

## Appendix 8 – Modelling the pavement effects of volumetric loading

Section 12.5 Road infrastructure effects includes an assessment of how volumetric loading affects pavement wear – compared

with numerical mass limits. This appendix describes how the effects were modelled.

We used Equivalent Standard Axles (ESAs) as a measure of relative pavement wear. ESAs measure the rate at which a loaded axle and heavy vehicle cause pavement wear. The heavy vehicle combination we used to compare wear was a type 1 double road train.

The axle masses were those of the HVNL (for numerical Higher Mass Limits) and estimates under volumetric loading. Volumetric loading estimates These are all shown in Table 5.

We assumed that general freight and livestock transporters operate with back loads on 50 and zero percent of trips respectively.

Table 9 Estimated axle masses (in tonnes) for volumetric and numerical mass limits.

Applicable mass limits	Complying single steer axle	Tandem axle group	Tri-axle group	Total combination mass	Payload
<b>Numerical mass limits:</b>					
Higher Mass Limits	6.5	17.0	22.5	85.5	55.5
<b>Volumetric loading:</b>					
Low range estimate	6.5	17.5	21.0	83.5	53.5
High range estimate	6.5	18.5	23.0	89.5	59.5

Figure 5 compares single semi-trailer payloads under different loading schemes:

- The blue bars show net payloads resulting from recommended loading practices under The Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock (the AAWSG). (These vary with livestock unit mass)
- The orange bar shows net payload under HML.
- The green bars show net payload for the low and high range estimates under volumetric loading.
- The comparison shows that the estimated axle masses under volumetric loading are realistic. They are greater (more conservative) than the loads recommended by the AAWSG and under HML.

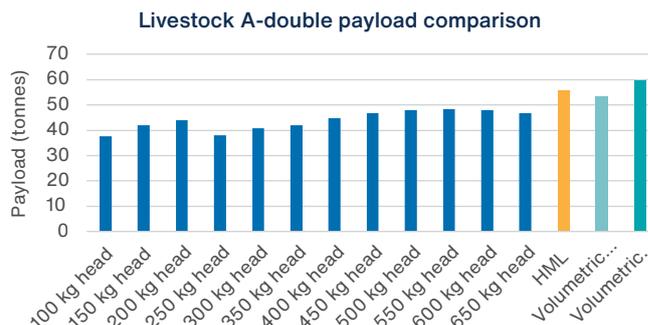


Figure 5. Comparison of A-double payloads under different loading arrangements

## Appendix 9 – Questions

### Section 6: Defining livestock

1. Have the notices/information bulletins covered all types of livestock farmed in Australia, where transport efficiency would rely on heavy vehicles to operate at a mass or dimensions above regulated limits? If not, which other livestock breeds should be considered?
2. Are there any potential issues with Option 2 about which the NHVR should be made aware?
3. Does Table 1 list all types of livestock that would benefit from being included in livestock notices and livestock loading schemes, or are any missing?

### Section 7: The regulation of conditions within a HVNL Notice

4. Considering the respective roles of the HVNL/NHVR, and those other laws (e.g. for animal welfare protection) and their state and territory regulators (transport agencies or otherwise) - which of the two options would be best?
5. Is there evidence to support safer outcomes of mandating livestock loading driver training? Or are workplace health and safety laws, and the HVNL general safety duty adequate to ensure drivers are appropriately trained and skilled?
6. Are the livestock loading schemes still required to regulate conditions outside the powers of the NHVR? If so, what purpose would the livestock loading schemes serve and which organisation should administer them? What other options are there to manage scheme enrolment?
7. After enrolment in a scheme, when is unladen vehicle tare mass checked?

### Section 8: Mass limits

8. How well are operators managing compliance with prescriptive numerical mass limits? Are there any particular challenges?
9. Are there regulatory requirements (other than the HVNL) affecting how operators manage livestock loading?
10. Are there any issues associated with livestock transport mass limits not addressed in this paper?
11. Do you agree with our assessments of volumetric loading and its effect on road infrastructure?

### Section 9: Eligible vehicles

12. Is Option 2 suitable to harmonise eligible vehicle types across borders? What other options are there?
13. Have we excluded any factors that should be used to assess vehicle eligibility for livestock transport?
14. How have jurisdictions assessed which vehicles to make eligible under their state notices?
15. Are there options to better utilise PBS vehicles in livestock transport and overcome the identified barriers?

### Section 10: Road networks

16. Are there options for the livestock industry, state, and territory transport agencies and the NHVR to better support road managers in improving livestock transport access, such as by helping them with gazetting more roads under notice?
17. Is Transport for New South Wales' Farm Gate initiative an approach that could be adopted in other states and territories, as an initiative to improve livestock transport access?

## 12 REFERENCES

- CSIRO Publishing, *The behaviour and bruising of cattle during transport at different space allowances* [www.publish.csiro.au/an/EA9880695](http://www.publish.csiro.au/an/EA9880695)
- Australian Trucking Association, *Trucksafe Animal welfare*, [www.trucksafe.com.au/truckcare/what-is-truckcare](http://www.trucksafe.com.au/truckcare/what-is-truckcare)
- Australian Bureau of Statistics, *Value of Agricultural Commodities*, [www.abs.gov.au/ausstats/abs@.nsf/mf/7503.0](http://www.abs.gov.au/ausstats/abs@.nsf/mf/7503.0)
- Australian Bureau of Statistics, *Livestock and Meat, Australia, Dec 2019* [www.abs.gov.au/ausstats/abs@.nsf/0/ACE69ED793CA68B5CA2576A400112991?Opendocument](http://www.abs.gov.au/ausstats/abs@.nsf/0/ACE69ED793CA68B5CA2576A400112991?Opendocument)
- Roads and Maritime Services, *NSW Livestock Loading Scheme* [www.rms.nsw.gov.au/business-industry/heavy-vehicles/schemes-programs/livestock-loading/index.html](http://www.rms.nsw.gov.au/business-industry/heavy-vehicles/schemes-programs/livestock-loading/index.html)
- Roads and Maritime Services, *Farm Gate Access* [www.rms.nsw.gov.au/business-industry/heavy-vehicles/farm-gate-access.html](http://www.rms.nsw.gov.au/business-industry/heavy-vehicles/farm-gate-access.html)
- Roads and Maritime Services, *Road Transport (General) Act 2005 Ministerial Declaration (Livestock Loading Scheme) order 2012* [www.rms.nsw.gov.au/documents/business-industry/heavy-vehicles/ministerial-order-livestock-loading-scheme.pdf](http://www.rms.nsw.gov.au/documents/business-industry/heavy-vehicles/ministerial-order-livestock-loading-scheme.pdf)
- Department of Transport and Main Roads Queensland, *Livestock Loading Scheme in Queensland* [www.publications.qld.gov.au/dataset/livestock-loading-scheme-in-queensland](http://www.publications.qld.gov.au/dataset/livestock-loading-scheme-in-queensland)
- The National Heavy Vehicle Regulator, *Modification code S10 Concessional Livestock Loading vehicle rating* [www.nhvr.gov.au/files/t138-vic-information-bulletin-livestock-transport.pdf](http://www.nhvr.gov.au/files/t138-vic-information-bulletin-livestock-transport.pdf)
- Department of Transport (DOT), *Livestock Transport Information Bulletin*, [www.nhvr.gov.au/files/t138-vic-information-bulletin-livestock-transport.pdf](http://www.nhvr.gov.au/files/t138-vic-information-bulletin-livestock-transport.pdf)
- Government of South Australia, *Transport of Livestock*, [www.sa.gov.au/topics/driving-and-transport/heavy-vehicles/operating-a-heavy-vehicle/livestock-loading](http://www.sa.gov.au/topics/driving-and-transport/heavy-vehicles/operating-a-heavy-vehicle/livestock-loading)
- Department of Infrastructure, *Energy and Resources Tasmania, Information Bulletin for the Livestock Loading Scheme*, [www.nhvr.gov.au/files/201706-0561-livestock-loading-scheme-info-bulletin.pdf](http://www.nhvr.gov.au/files/201706-0561-livestock-loading-scheme-info-bulletin.pdf)
- Department of Agriculture, Fisheries and Forestry, *Australian Animal Welfare Standards and Guidelines Land Transport of Livestock* [www.animalwelfarestandards.net.au/files/2011/02/Land-transport-of-livestock-Standards-and-Guidelines-Version-1.-1-21-September-2012.pdf](http://www.animalwelfarestandards.net.au/files/2011/02/Land-transport-of-livestock-Standards-and-Guidelines-Version-1.-1-21-September-2012.pdf)
- Department of Agriculture, Fisheries and Forestry, *Land Transport* [www.animalwelfarestandards.net.au/land-transport](http://www.animalwelfarestandards.net.au/land-transport)
- Trailer National PBS article *More sheep, more cattle* [www.trailermag.com.au/featured/article/more-sheep-more-cattle](http://www.trailermag.com.au/featured/article/more-sheep-more-cattle)
- Livestock Bulk and Rural Carriers Association, *LBACA committee meets to discuss PBS for Livestock trailers* [www.vision6.com.au/em/message/email/view.php?id=1549514&a=83105&k=D3mgvz4O2aA1O1OjOBMWhxU75wSYtutJVFwFKUshQME](http://www.vision6.com.au/em/message/email/view.php?id=1549514&a=83105&k=D3mgvz4O2aA1O1OjOBMWhxU75wSYtutJVFwFKUshQME)

**NATIONAL HEAVY VEHICLE REGULATOR**

**www.nhvr.gov.au**

**E** info@nhvr.gov.au

**P** 13 NHVR (13 64 87)

PO Box 492, Fortitude Valley QLD 4006

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