



Effective fatigue management

May 2019

Issues paper

Report outline

Title	Effective fatigue management
Type of report	Issues paper
Purpose	For public consultation
Abstract	In May 2018, the Transport and Infrastructure Council directed the National Transport Commission to review the Heavy Vehicle National Law. This is one of eight issues papers that seek your feedback on the HVNL as it is, and opportunities to improve it.
Submission details	The NTC will accept submissions until Friday 16 August 2019 online at www.ntc.gov.au or by mail to: National Transport Commission Public submission – Effective fatigue management Level 3, 600 Bourke Street Melbourne VIC 3000
Attribution	This work should be attributed as follows: Source: National Transport Commission 2019, <i>Effective fatigue management</i> , Issues paper, NTC, Melbourne. If you have adapted, modified or transformed this work in any way, please use the following: Source: Based on National Transport Commission 2019, <i>Effective fatigue management</i> , Issues paper, NTC, Melbourne.
Key words	Heavy Vehicle National Law Review, HVNL, heavy vehicles, fatigue
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Have your say

Submit your advice

The National Transport Commission wants to give everyone affected by the Heavy Vehicle National Law an opportunity to have their say on what is working, what is not working and how to improve the law. We seek your advice on the problems identified and whether we have accurately and comprehensively covered the key issues.

Your advice (whether by written submission or other form) will assist the NTC to conduct a regulatory impact assessment of policy reform options.

There are many ways to provide your feedback including:

- written submission
- online feedback through the interactive consultation website
- workshops and engagement activities
- through industry associations.

You can register on the [HVNL review website](#)¹ to stay updated on the project. Planned engagements will be publicised on the website and in regular newsletters.

When to submit

The NTC invites written submissions and online feedback on this issues paper by Friday **16 August 2019**.

The NTC cannot guarantee submissions or feedback received after this date will be fully considered.

How to submit

Any individual or organisation can make a submission to the NTC.

Written submission

 Visit www.ntc.gov.au and select 'Submissions' from the navigation menu, or send a hard copy to:

 National Transport Commission
Public submission – Effective fatigue management
Level 3, 600 Bourke Street
Melbourne VIC 3000

Where possible, you should provide supporting evidence with your submission.

¹ www.hvnireview.ntc.gov.au

Publishing your submission

Unless you clearly ask us not to, we publish online all the submissions we receive. We will not publish submissions that contain defamatory or offensive content.

The *Freedom of Information Act 1982* (Cwlth) applies to the NTC.

Online feedback

For stakeholders who may prefer not to make a formal written submission, we also welcome feedback on this issues paper via our HVNL review microsite.

 Visit www.hvnlreview.ntc.gov.au and select 'Effective fatigue management' to participate in surveys, forums and polls relating to this issues paper.

Like written submissions, online feedback will inform the NTC's regulatory impact assessment of policy reform options.

Publishing your online feedback

Any content published to the interactive consultation website is subject to a moderation policy.² Content that violates the moderation policy will be rejected and the submitter notified.

² www.hvnlreview.ntc.gov.au

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Purpose of this paper

The National Transport Commission (NTC) is reviewing the Heavy Vehicle National Law (HVNL).

The NTC has adopted a first-principles approach to the HVNL review. Rather than simply looking to the existing law as a starting point, assumptions underpinning the existing law are being drawn out and tested.

The goal of the HVNL review is an entirely new law.

This is one of eight issues papers.

The purpose of this issues paper is to:

- summarise the current fatigue management provisions in the HVNL and compare them with other transport modes in Australia and heavy vehicle driver fatigue management elsewhere
- examine the issues with the current law and how it is applied
- identify the high-level principles that a revised law should cover
- seek feedback on whether this paper has captured all the relevant issues.

The NTC wants to give everyone affected by the HVNL an opportunity to have a say. We seek your advice on the problems identified and whether we have accurately and comprehensively covered the key issues.

Note: A list of common terms and abbreviations is included at the end of this paper.

Executive summary

Context

The Transport and Infrastructure Council has directed the National Transport Commission to review the Heavy Vehicle National Law (HVNL) from first principles. The HVNL began in 2014 and has been amended many times since then. Despite this, there is a view shared by a wide range of stakeholders that it's not functioning as effectively as it could.

The primary purpose of the HVNL is to ensure a safe and efficient heavy vehicle journey. This is made up of a safe driver, a safe vehicle and a suitable route. This issues paper covers a key component of what it means to be a safe driver: fatigue management. This has been identified as a high priority for review.

Managing fatigue in the transport sector

The primary goal of the HVNL's fatigue management requirements is to prevent drivers from driving while fatigued. The key risk controls are primary duties, work and rest hours, work diaries and record keeping.

In practice, the main control for driver fatigue is a combination of maximum work hours and minimum rest hours, typically demonstrated by a work diary. This control is not applied in the same way for all heavy vehicle drivers.

Work diaries and record-keeping requirements vary depending on the distance driven and the applicable work and rest hours option. The National Heavy Vehicle Regulator (NHVR) can exempt operators from fatigue management requirements in some cases.

Western Australia and the Northern Territory do not participate in the HVNL. These states take a work health and safety approach to regulating fatigue for drivers of heavy vehicles. Similar approaches are taken in other transport modes.

Around the world, managing fatigue for heavy vehicle drivers varies. Work and rest hours are used, but there are examples of flexibility in their application.

Examination of HVNL fatigue management

The HVNL is not stopping people impaired by fatigue from driving heavy vehicles. Drivers of heavy vehicles are still dying in fatigue-related crashes, and fatigue is still a factor in many major crashes involving heavy vehicles.

Fatigue management under the HVNL is based on deficient assumptions about fatigue risks and causes. It doesn't consider the complexity of fatigue risks and causes and how they interrelate.

The HVNL focuses on fatigue risk prevention controls rather than mitigation controls or outcomes.

The HVNL doesn't have the flexibility to accommodate sophisticated fatigue management systems and practices, even though they may be more effective. Operators with these systems are still bound by the prescriptive controls in the HVNL.

The heavy vehicle transport industry is diverse. It includes a wide range of operators, tasks, regions and risk profiles. The HVNL's 'work and rest' approach doesn't adequately recognise or accommodate this diversity.

The complex and highly prescriptive fatigue management requirements are hard to understand and comply with. They cause problems that include misunderstanding the prescriptive work and rest hour regimes, onerous administration and inconsistency between jurisdictions.

Enforcement options in the HVNL are limited and do not necessarily reflect differences in risk severity. Instead, the HVNL encourages an inefficient and sporadic use of enforcement resources without always focussing on improving safety.

Aspirations for a new law

Through this issues paper, the NTC seeks your views on how we can regulate fatigue management in a new HVNL to achieve:

- safer outcomes
- effective fatigue risk management
- continuous improvement in risk controls
- a harmonised approach (rather than a uniform one)
- simple and flexible compliance options
- efficient enforcement and proportional sanctions.

Questions

The NTC will consult on the following questions until **Friday 16 August 2019**.

List of questions

- Question 1: How can we change our approach to fatigue management so we reduce fatigue-related incidents and deliver Australia's road transport task efficiently and safely? 44
- Question 2: What fatigue risks that are currently out of scope for the HVNL should be brought into scope? What is in scope that shouldn't be? 45
- Question 3: What are the key risk factors associated with long hours, night shifts and other work schedule factors? How do we account for the fact that not all work hours have the same risk without introducing excessive complexity? 45
- Question 4: How should a new HVNL address driver health and lifestyle factors? What kinds of controls could be effective? 45
- Question 5: How do we ensure the HVNL is agile enough to adopt best practice fatigue management as it emerges? How do we encourage continuous improvement? Can training help? 46
- Question 6: How can we better accommodate emerging technologies? How can the new HVNL get the best value from technology and data? Do you think fatigue monitoring technology can supersede work and rest hour requirements? 47
- Question 7: How can the new HVNL meet the needs of all Australian states and territories? What should the new HVNL adopt from Western Australia and the

	Northern Territory, other transport modes and other industries' fatigue management approaches?.....	47
Question 8:	Are prescriptive rules desirable in a new HVNL? If so, how can we simplify rules in the HVNL to make them easier to understand so that they're easier to comply with?	48
Question 9:	Would the compliance options described in section 4.5 be a more effective approach to regulating fatigue management? If so, what should be included in the new HVNL, its subordinate documents, or elsewhere, such as in work health and safety laws? How would the appropriate fatigue management option be allocated to an operator – by self-selection or other means?	48
Question 10:	Should the new HVNL give operators the option of taking full responsibility for risk management? What would be the roles of the regulator and roadside enforcement in such a system?	48
Question 11:	How can we get the best overall value from a compliance and enforcement strategy for fatigue management? How are scarce resources best allocated, and what tools do regulators need? What provisions in the law do operators need?	49
Question 12:	What else would you like to tell us about effective fatigue management?	49

1 About this project

Key points

- The Transport and Infrastructure Council has directed the National Transport Commission to review the Heavy Vehicle National Law (HVNL) from first principles.
- The HVNL began in 2014. Despite numerous amendments to the law over the years, there is a view shared by a wide range of stakeholders that it's not functioning as effectively as it could.
- This issues paper covers an area of the HVNL identified as a high priority for review – fatigue management.

1.1 Project objectives

1.1.1 Purpose of the review

The goal of the HVNL review is to deliver a modern, outcome-focused law regulating the use of heavy vehicles. The review is being undertaken by the National Transport Commission (NTC) from a first-principles perspective. This means that instead of making changes to the existing law, we intend to create a completely new law. The aim is that the new HVNL will:

- improve safety for all road users
- support increased economic productivity and innovation
- simplify the HVNL, its administration and enforcement of the law
- support the use of new technologies and methods of operation
- provide flexible, outcome-focused compliance options.

1.1.2 Background

The HVNL was passed in 2012 and came into effect in 2014. It replaced 13 model laws and six state and territory transport-related laws. The aim of the reform was to put in place a seamless, national, uniform and coordinated system of heavy vehicle regulation in a way that:

- promoted public safety
- managed the impact of heavy vehicles on the environment, road infrastructure and public amenity
- promoted industry productivity and efficiency
- encouraged and promoted productive, efficient, innovative and safe business practices.

In many ways, the HVNL represents a compromise between the views of jurisdictions, industry and other key stakeholders. The result has been inconsistency. Two jurisdictions have not adopted the HVNL. Participating jurisdictions derogate (depart) from the HVNL in their local HVNL application laws. There is inconsistent application and enforcement of the HVNL.

The HVNL comprises more than 800 sections and is supported by five sets of regulations. Together these provisions can be inconsistent in approach, difficult to read and interpret, and onerous for industry to follow. They are also difficult for the National Heavy Vehicle Regulator (NHVR) to administer.

Many parts of the HVNL are complex and prescriptive. They reflect an era when access to digital technology and innovation wasn't a consideration.

The HVNL doesn't adequately recognise that a 'one size fits all' approach to regulation isn't appropriate for many locations or in different industries.

In this context the Transport and Infrastructure Council agreed in May 2018 that the NTC should bring forward the planned review of the HVNL and supporting regulations by two years, to begin in January 2019.

In November 2018 the council agreed to the terms of reference³ for the HVNL review.

1.1.3 NTC's approach to the review

In January 2019 the NTC published its approach⁴ to the review. It outlines and explains the project framework, governance, deliverables and consultation.

The NTC adopted a first-principles approach to the HVNL review. Rather than simply looking to the existing law as a starting point, the assumptions behind it are being drawn out and tested. The aim is to deliver an entirely new law.

This is one of eight issues papers in the review, and one of four that cover 'what is regulated' under the HVNL (see Figure 1). It outlines how we regulate fatigue management under the HVNL and how we might do so in the future.

The first issues paper, published in March 2019, looked at how we regulate the use of heavy vehicles under the HVNL.

The other three issues papers that cover 'what is regulated' include access to suitable routes, safe people and practices, and safe vehicles.

The two issues papers that follow this set of four will address more specific 'how to regulate' matters. They will cover accrediting operators to deliver best practice and managing compliance, including the regulatory role technology and data could play.

The last issues paper will cover policy matters not covered in the other issues papers.

Figure 1. HVNL review issues papers

<i>Foundation</i>	<i>What is regulated</i>				<i>How to regulate</i>		<i>Other</i>
Risk-based regulation	Fatigue	Safe vehicles	Safe people and practices	Suitable routes	Accrediting operators	Managing compliance	Other policy matters

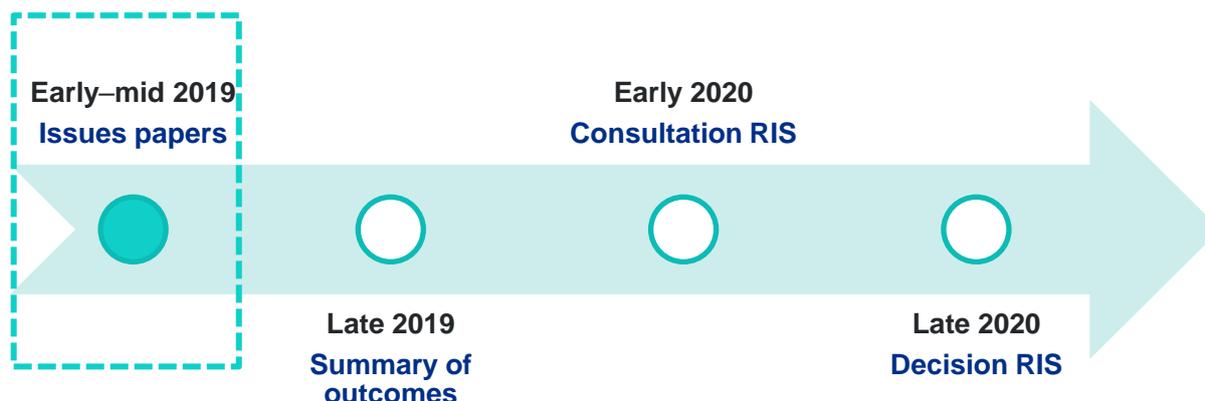


³ www.hvnlreview.ntc.gov.au

⁴ www.hvnlreview.ntc.gov.au

We will produce a summary of outcomes from the issues papers. This will bring together all your feedback and advice and form a basis to conduct a regulatory impact assessment (RIS) (see Figure 2).

Figure 2. HVNL review timeline



1.2 This issues paper

1.2.1 Background – why we regulate fatigue

Safety is a fundamental goal of the HVNL. The HVNL specifies that one of its aims is to regulate heavy vehicles in a way that ‘promotes public safety’ and encourages ‘safe business practices’ (s 3 of the HVNL).

Fatigue is widely acknowledged to be a key risk to safety. The HVNL lists managing fatigue as one of the specific ways to achieve its aim. The goal is to ‘[prevent] drivers of heavy vehicles from driving while fatigued’ (s 4 of the HVNL).

1.2.2 Objectives of the paper

The purpose of this issues paper is to:

- summarise current HVNL fatigue management provisions and compare them with other transport modes and alternative heavy vehicle driver fatigue management regimes
- examine the issues with the current law and how it is applied
- identify the high-level principles that a revised law should cover
- seek feedback on whether this paper has captured all the relevant issues.

1.2.3 Scope of the paper

The primary purpose of the HVNL is to ensure a **safe and efficient heavy vehicle journey**. This comprises:

- a **safe driver** – one who is well-trained, competent, fit for duty and alert when driving
- a **safe vehicle** – one that is registered, roadworthy and safely loaded
- a **suitable route** – one that minimises public safety risks and excessive impacts on road infrastructure (given a heavy vehicle’s mass and dimensions).

This issues paper covers a key aspect of a **safe driver**: managing fatigue. It uses the approach of the first issues paper, *A risk-based approach to regulating heavy vehicles*.

The issues paper does not cover safe vehicle, suitable route or other aspects of a safe driver such as training. These topics are explored in detail in other issues papers.

2 Managing fatigue in the transport sector

Key points

- Across transport modes in Australia and around the world, fatigue is a key risk to be controlled.
- The key risk controls in the HVNL are primary duties, work and rest hours, work diaries and record keeping.
- In practice the main control for driver fatigue is a combination of maximum work and minimum rest hours, typically demonstrated by a work diary. This control is not applied in the same way for all heavy vehicles.
- Work diaries and record-keeping requirements vary depending on the distance driven and the applicable work and rest hours option. The NHVR can exempt operators from fatigue management requirements in some cases.
- Fatigue management requirements in the HVNL are complex and prescriptive.
- Western Australia and the Northern Territory take a work health and safety approach to regulating fatigue for drivers of heavy vehicles. Similar approaches are taken in other transport modes.
- Around the world, managing fatigue for heavy vehicle drivers varies. Work and rest hours are used, but there are examples of flexibility in their application.

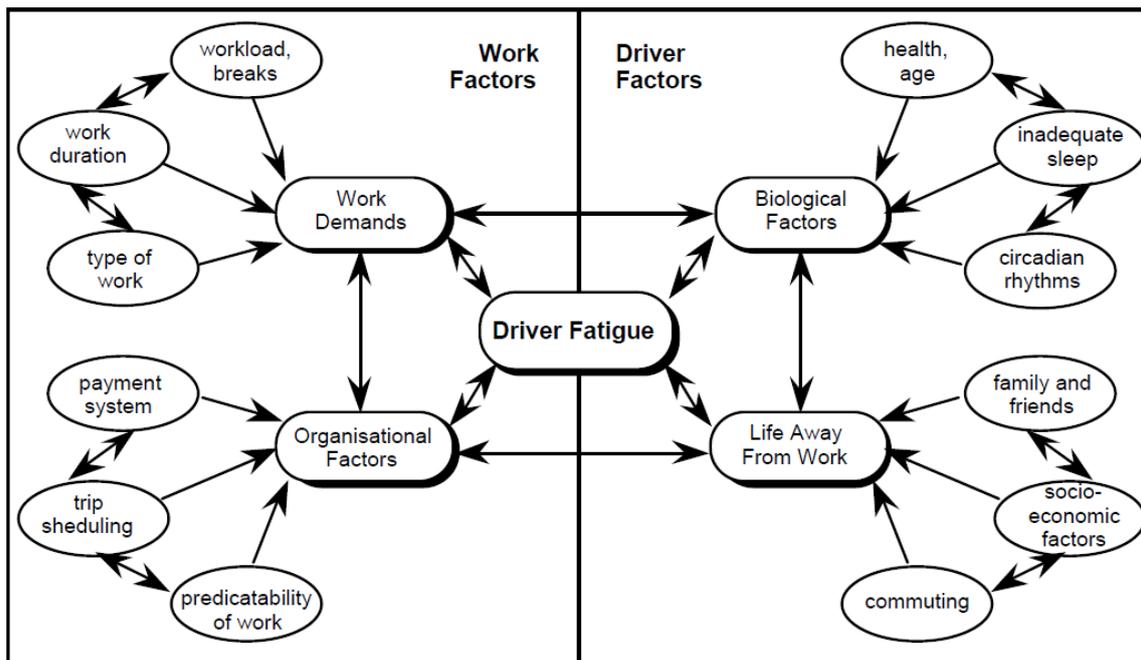
2.1 Driver fatigue – an overview

The primary goal of the HVNL's fatigue management requirements is to prevent drivers from driving while fatigued.

Experts have found that there are many causes of fatigue, which are complex and interdependent. These causes include work demands such as workload, breaks and rest outside of work, and biological factors such as the driver's natural body clock (Figure 3).

Figure 3. Factors contributing to driver fatigue

Source: Fatigue Expert Group, 2001



It is difficult to establish how common unsafe levels of driver fatigue are. Heavy vehicle drivers are susceptible to a degree of fatigue due to common industry practices and the nature of their job. This is reflected in the recent findings from the Heavy Vehicle Fatigue Project (Cooperative Research Centre for Alertness, Safety and Productivity, 2019), which used alertness-monitoring technology to assess the impacts of work shifts on driver alertness. It shows the greatest risk of high levels of drowsiness occur with:

- long driving hours
- night driving
- shift work, especially early shifts, night shifts and backward shift rotations
- long shift sequences
- shift sequences where a shorter break allows for less sleep.

Fatigue remains the main cause of fatal single heavy vehicle crashes. Drivers themselves have highlighted it as an ongoing risk in their industry.

While the numbers of fatigue-related heavy vehicle crashes are decreasing, the Australian community has a very low tolerance for risk when it comes to heavy vehicles. Governments' risk appetite reflects public sentiment.

Heavy vehicle crashes due to fatigue are a threat to overall public safety and are perceived to be avoidable – if the right controls can be put in place.

2.2 Managing fatigue under the HVNL

2.2.1 Overview

Most fatigue management requirements are covered under Chapter 6 of the HVNL. It aims to safely manage the fatigue of drivers of **fatigue-regulated heavy vehicles** while they are driving on a road (s 220 of the HVNL).

In general terms, the HVNL specifies that:

- a person must not drive a fatigue-regulated heavy vehicle on a road while impaired by fatigue
- managing driver fatigue is a responsibility shared by all parties in the chain of responsibility
- parties must take all reasonable steps to make sure a person does not drive a fatigue-regulated heavy vehicle while impaired by fatigue.

Fatigue management provisions in the HVNL include:

- safety duties (primary and fatigue-specific) and accountability under the chain of responsibility
- maximum work and minimum rest hours
- work diaries and record keeping
- fatigue management accreditation schemes – Basic Fatigue Management (BFM) and Advanced Fatigue Management (AFM).

2.2.2 Coverage and scope

Definition of fatigue

The HVNL primarily defines fatigue based on how a driver feels and observation of driver behaviour. Fatigue includes, but is not limited to, any combination of:

- feeling sleepy
- feeling physically or mentally tired, weary or drowsy
- feeling exhausted or lacking energy
- behaving in a way that is consistent with any of the above (s 223 of the HVNL).

The HVNL doesn't define fatigue based on what causes or contributes to fatigue such as hours of sleep the previous night. But it does allow the courts to consider causes of fatigue and any relevant body of fatigue knowledge (s 224 of the HVNL).

Fatigue-regulated heavy vehicles

Although general safety duties apply to all heavy vehicles, the fatigue management requirements in the HVNL only apply to fatigue-regulated heavy vehicles. These are:

- vehicles with a gross vehicle mass (GVM) of more than 12 tonnes
- combinations with a GVM of more than 12 tonnes
- buses weighing more than 4.5 tonnes and fitted to carry more than 12 adults (including the driver)

- trucks, or combinations including a truck, that have a machine or implement attached and a total GVM of more than 12 tonnes (s 7 of the HVNL).

Work diaries and record-keeping requirements

Work diary requirements apply if a fatigue-regulated heavy vehicle driver is at least one of the following:

- not limited to driving in an area with a radius of less than 100 kilometres from the driver's base (100+km work) (s 289 of the HVNL)
- accredited or exempted to operate under alternative fatigue management arrangements (s 294 of the HVNL).

Drivers exclusively undertaking work up to 100 kilometres from the driver's base (local work) and operating without fatigue accreditation or exemption do not have to complete a work diary.

However, a record keeper must keep records of specific information about all drivers of fatigue-regulated heavy vehicles. The record keeper can be an employer, the accredited operator or the driver themselves if they are an owner-driver or self-employed.

Drivers must provide their record keeper with their relevant work and rest hour totals and any other relevant vehicle information the record keeper may not have access to.

Exemptions

The NHVR is empowered to exempt drivers and operators from certain fatigue management requirements by notice (for more general exemptions) or permit (for specific exemptions).

Under certain circumstances, the NHVR can exempt drivers from:

- work and rest requirements (Part 6.3, Division 8 of the HVNL)
- work diary requirements (Part 6.4, Division 8 of the HVNL).

The NHVR can also exempt operators from record-keeping requirements (Part 6.4, Division 8A of the HVNL).

The following general exemptions are in place:

- Primary production transport is exempted from work diary requirements up to 160 kilometres from the driver's base (similar to 100+km work but over a greater radius).
- Drivers of certain fatigue-related heavy vehicles in New South Wales are exempted from work diary requirements.⁵

2.2.3 Fatigue as a risk to be managed

The hazard

The NTC has expressed the fatigue risk such that the hazard is driving while *unacceptably* fatigued (acknowledging that fatigue is a continuum).

⁵ See NHVR website: <https://www.nhvr.gov.au/safety-accreditation-compliance/fatigue-management/fatigue-management-exemptions/work-diary-exemption>

Framing the risk around this hazard allows a greater specificity and fidelity of threats and consequences, and associated controls. That is, we can examine fatigue in a way that doesn't muddle this issue with other contributors to the broader concept of the safe and efficient journey (as expressed in the first issues paper, *A risk-based approach to regulating heavy vehicles*).

Threats

The threats, therefore, are related to:

- drivers starting the journey already prone to fatigue due to health issues or other lifestyle factors that may make them unfit to start a shift
- effects of the shift itself in inducing fatigue in the driver, such as long hours, night or shift work, or unreasonable work demands.

These threats are not always mutually exclusive. There may be complex interrelationships and compounding effects between them.

Consequences

When the risk is expressed with driving while fatigued as the hazard, the immediate consequences relate to a higher propensity for a motor vehicle crash or, over time, impacts on the physical and mental health of the driver.

Rather than expressing the immediate risk as a crash, we chose to express it as a propensity for a motor vehicle crash. This is because we want to focus on controls for mitigating fatigue risk, and not the broader risks associated with the crash itself.

We believe it's important to highlight the imbalance between prevention and mitigation controls for fatigue risk under the HVNL.

This way of presenting consequences also highlights the immediate and ever-increasing problem of driving fatigued, rather than allowing inference that a journey without a crash was necessarily safe.

Controls

The main risk controls under the HVNL are the primary safety and fatigue safety duties, which set the principles of managing fatigue, along with prescriptive work and rest requirements. Work diaries and records are used to verify compliance with work and rest requirements.

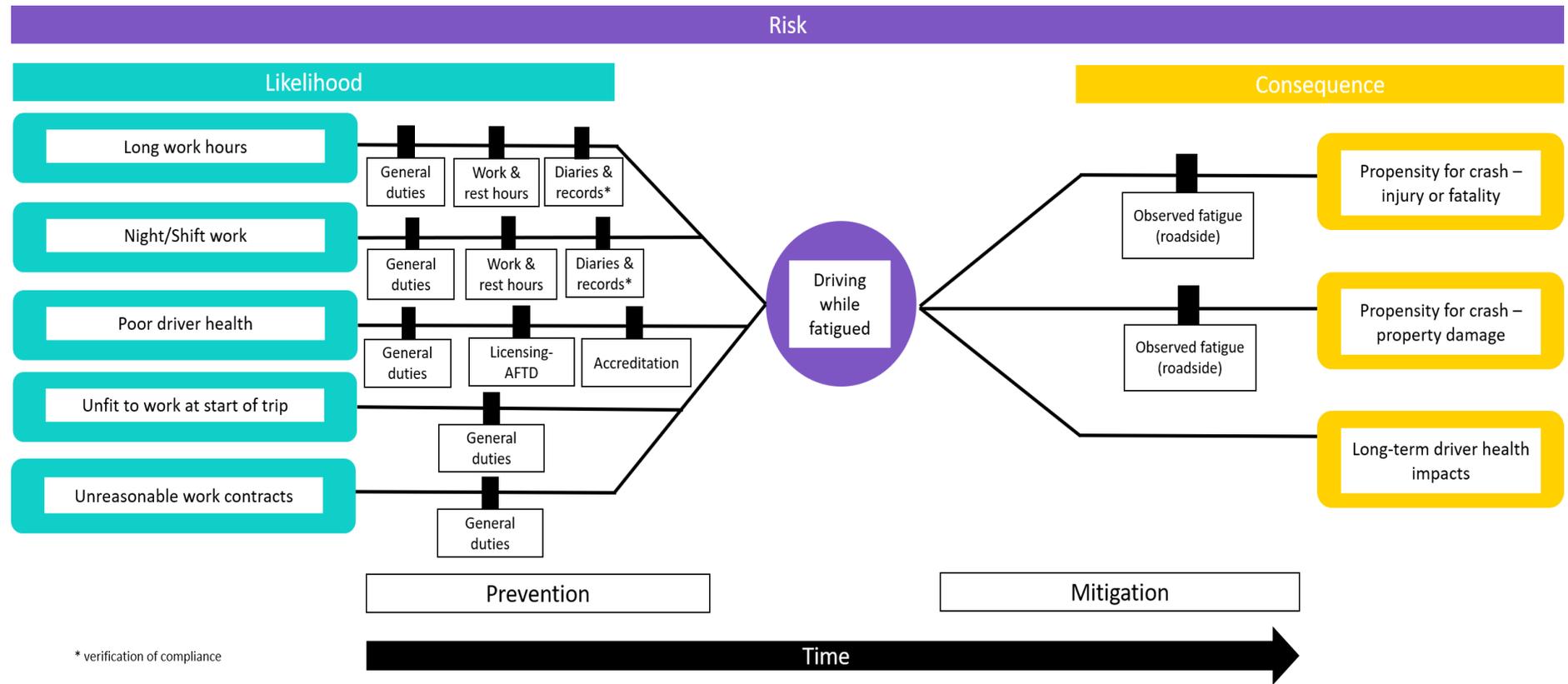
Controls relating to driver health are covered under licensing (through the *Assessing fitness to drive* guidelines) and the fatigue management accreditation schemes.

Most fatigue risk controls focus on preventing the driver from driving while fatigued, with responses to observed fatigue the only control able to mitigate the consequences of driving fatigued (see Figure 4). Fatigue observation relies on at least one of the following:

- a driver – who is impaired by fatigue – making a sound judgement
- an operator contacting the driver to 'check in'
- a roadside stop by enforcement officers.

Effectively, the fatigue risk is controlled by an 'open loop', with extremely limited feedback to ensure the prevention controls are working as intended.

Figure 4. Fatigue risks and controls



AFTD = Assessing fitness to drive

2.2.4 Examining current controls

Primary duties

The HVNL includes an overarching primary duty for each party in the chain of responsibility (s 26C). Each party must make sure everything they do relating to the vehicle and its journey is done as safely as possible. This includes eliminating public risks and, if that is not reasonably practical, minimising the public risk. This primary duty came into effect on 1 October 2018 as part of the chain of responsibility reforms.

There is also a specific primary duty relating to fatigue (Chapter 6 of the HVNL). A driver must not drive a fatigue-regulated heavy vehicle on a road while impaired by fatigue. This responsibility sits with both the driver and any parties in the chain whose actions influence the driver's behaviour.

Work and rest hours

As well as the primary duties, the main risk controls in the HVNL are work and rest requirements and associated records. The HVNL sets out maximum work and minimum rest requirements. Under the HVNL, **work** is defined as:

- driving
- instructing or supervising another person driving
- sitting in the driver's seat while the engine is running
- any task related to the use of a fatigue-regulated heavy vehicle.

Rest is defined as any activity that is not work.

Not everything we think of as work counts as work under the HVNL. Instead, the HVNL considers tasks that do not involve the use or future use of a fatigue-regulated heavy vehicle as rest. For example, farming work such as harvesting doesn't count as work for the purposes of the HVNL.

There are three work and rest options that a driver may be working under:

- **Standard hours** are mandated work and rest hour arrangements for different periods of time. Drivers can only work the maximum work hours and must take breaks at least as long as the minimum rest requirements.
- **Basic Fatigue Management** allows longer work hours and, if the longer hours are not fully used, more flexible work and rest hour arrangements. Operators must be accredited under the National Heavy Vehicle Accreditation Scheme (NHVAS) and must meet six specific BFM standards.
- **Advanced Fatigue Management** allows for flexibility in work schedules as part of a compliant fatigue management system. Operators must be accredited under the NHVAS and must meet specific AFM standards.

The various rules for work and rest hours are complex and vary based on vehicle type, accreditation status and driving arrangement (solo drivers versus two-up drivers). Appendix A details work and rest requirements under the HVNL.

- 24-hour periods must be counted forward from the relevant major rest break. The whole 24-hour period is then counted. The time doesn't reset if drivers have another major rest break in the middle of the original 24-hour period.
- The driver must count and record time according to the time zone of their base, regardless of the time zone they operate in.

There are also complex rules prescribing how to count time if a driver is working between participating and non-participating jurisdictions.

The HVNL also allows for an electronic work diary (EWD) to be used as an alternative to a written work diary. While it is allowed, no EWDs have been approved for use yet.

Record keeping

In addition to the driver's work diary, the HVNL also has extensive record-keeping requirements. These are used to assess whether chain of responsibility obligations are met.

A record keeper can be an employer, an accredited operator or the driver themselves if they are an owner-driver or self-employed. If the driver is also the record keeper, they still have to keep the full set of extra records, even if it duplicates information in the work diary.

Driver health

A driver's fitness to drive is assessed as part of the heavy vehicle licensing process. This is done by applying the commercial standard in the *Assessing fitness to drive* guidelines. BFM and AFM operators also must regularly assess their drivers' health against these guidelines.

In addition, the HVNL has a general obligation that a driver must be fit to drive a heavy vehicle. This means the driver is visibly physically and mentally fit to drive the vehicle and not visibly affected by alcohol or drugs (s 5 of the HVNL).

2.3 Managing driver fatigue in Western Australia

2.3.1 Overview

In Western Australia fatigue is regulated under the work health and safety legislative framework. This framework includes:

- the *Occupational Safety and Health Act 1984* (OSH Act)
- the *Occupation Safety and Health Regulations* (OSH Regulations)
- the *Code of practice: Fatigue management for commercial vehicle drivers*.

2.3.2 Coverage and scope

Under the OSH Regulations, specific fatigue management requirements apply to drivers of commercial vehicles greater than 4.5 tonnes if at least one of the following is true:

- Work time is more than 60 hours per week.
- More than once a week, work time is more than 10 hours out of any 24-hour period.
- More than once a week, work time includes the period from midnight to 5am.

Work time is defined as driving and all the activities that are associated with driving a commercial vehicle. It includes breaks from driving of less than 30 minutes.

Individuals and organisations may need a permit or notice to perform a transport task as part of a commercial business. This generally applies to vehicles with a mass of more than 42.5 tonnes. In these circumstances, Western Australian heavy vehicle accreditation is mandatory. Accreditation involves fatigue and vehicle maintenance modules. Operators must incorporate the module requirements into their daily work practices.

2.3.3 Current controls

General duties

Under the OSH Act, there are general duties for employers, employees and self-employed people.

Employers have a duty to provide a safe work environment. This includes making sure the work doesn't harm people who are not employees such as other road users who may be affected by a driver suffering from fatigue.

Employees and self-employed people have a duty to take reasonable care for their own safety and health at work. They must make sure their work activity doesn't result in harm to another person, both in workplaces and on the road.

Work and rest hours

The OSH Regulations also prescribe work and rest requirements, though they're more flexible than those of the HVNL. Importantly, the requirements must be met 'so far as is practicable'. In practice this means that drivers may vary their work hours but only under certain circumstances.

Variations must be minor, reasonable, not a regular occurrence and not increase the risk of fatigue. Schedules should be organised to meet the standard, but it's accepted that there may be situations where drivers are delayed and the schedule may need to be adjusted.

For more details about the Western Australian work and rest requirements, see Appendix A.

Recording work and rest times

Under the OSH Regulations a responsible person at a workplace must keep an up-to-date record of a driver's work time, breaks from driving and non-work time. The record must be:

- set out in a clear and systematic manner
- available for inspection by an inspector at all reasonable times
- kept for at least three years from the date of the last entry on the record.

There are no prescribed forms or standard record-keeping books. The format of the record can vary depending on the workplace and the nature of the work.

There are also few specific rules for counting time under Western Australian legislation; maximum work time and minimum rest time should be counted from the start of work after a break of seven or more continuous hours.

Fatigue management plans

Under the OSH regulations an employer must have a fatigue management plan. The plan must include information on the organisation's approach to fatigue management and procedures to follow. It must cover:

- scheduling trips
- rostering drivers
- establishing drivers' fitness for work
- educating drivers in fatigue management
- managing incidents on or relating to commercial vehicles
- establishing and maintaining appropriate workplace conditions.

Health

Commercial drivers must have a current medical certificate demonstrating they are fit to drive. This is assessed against the commercial standard in the *Assessing fitness to drive* guidelines.

2.4 Managing driver fatigue in the Northern Territory

2.4.1 Overview

Driver fatigue is managed under the work health and safety legislative framework in the Northern Territory, much like it is in Western Australia. The Northern Territory framework consists of:

- the *Work Health and Safety (National Uniform Legislation) Act 2011* (WHS Act)
- the *Work Health and Safety (National Uniform Legislation) Regulations 2011* (WHS Regulations)
- the Northern Territory *Fatigue management road transport code of practice*.

2.4.2 Coverage and scope

Northern Territory operators must make sure they meet their duty of care obligations for providing a safe and healthy working environment. Workers have to ensure their actions don't negatively affect others. The WHS Act includes a vehicle under the definition of a workplace.

2.4.3 Current controls

The Northern Territory uses a performance-based system that focuses on outcomes, not processes. The WHS Act sets out general principles, including duties of care. The WHS Regulations capture the level of performance that has to be achieved to meet the obligations in the WHS Act.

Codes of practice in the Northern Territory provide practical detail on at least one way of achieving the outcome or performance level in the legislation. The *Road transport code of practice* is not mandatory, but it gives operators key principles to apply to fatigue management in the workplace. These include that drivers must:

- be in a fit state to undertake the task
- be fit to complete the task
- undertake minimum periods of rest.

Importantly, drivers must monitor their own work performance and take regular rest breaks so they don't work when tired. The principles also include operator responsibilities such as providing suitable vehicles and giving drivers support to help them meet their obligations.

2.5 Managing driver fatigue across borders

Generally, the driver's current location – not their origin, destination or usual base – determines which fatigue management regime applies. Journeys between participating and non-participating jurisdictions, for example, require compliance with multiple regimes.

Compliance is not with one or the other regime, however. The HVNL has a degree of 'reach' into non-participating jurisdictions, in that work and rest hour requirements extend back to recent activities regardless of what jurisdiction they occurred in. That is, an east-coast driver will still need to maintain an HVNL diary while working for a few days in Western Australia (if they intend to immediately return to work in a participating jurisdiction).

2.6 Managing fatigue in other Australian transport modes

2.6.1 Aviation

Aviation takes a tiered approach to managing fatigue. The tiers range from prescriptive requirements to a bespoke risk management system. This approach recognises that fatigue is a complex aviation safety issue with no 'one size fits all' solution.

- The first tier is a basic level of prescriptive requirements.
- The second tier is fatigue management. It still uses prescriptive rules but improves safety by emphasising the following, which operators manage:
 - risk controls
 - requirements for training
 - promoting awareness about fatigue.
- The third and most sophisticated tier is a complete fatigue risk management system. This system must be approved by the Civil Aviation Safety Authority.

Operators choose the level appropriate for their operational needs. They implement it with an overlying fatigue risk management strategy appropriate for their organisation.

2.6.2 Railway operations

The Rail Safety National Law is based on a primary safety duty and risk management. Operators must make sure, so far as is reasonably practicable, that rail safety workers do not do rail safety work while impaired by fatigue or if they're likely to become impaired. Rail safety workers also have a responsibility to take care of their own safety and that of others. This includes not carrying out rail safety work when fatigued.

All operators must have a safety management system approved by the rail safety regulator. The safety management system has to include preparing and implementing a fatigue risk management program, as set out in the supporting regulations. The regulations include key fatigue-related risk factors an operator must consider when preparing their fatigue risk management program.

2.7 Managing driver fatigue internationally

United States and Canadian requirements are presented given the relative similarity to the Australian driving task compared with other regions.

2.7.1 American regulations

Regulations for United States interstate travel focus on the number of hours a driver can drive per day as well as the total number of hours they can work per week. Requirements apply to:

- all commercial trucks with a weight greater than 10,000 pounds (equivalent to 4.5 tonnes GVM)
- buses with more than eight passengers
- dangerous goods vehicles.

Drivers can work for up to 14 hours per day, but driving is limited to 11 hours. Shifts must include any time for breaks, meals, fuel stops and the like. Electronic logging devices are mandatory.

For intrastate travel the respective state's regulations apply. Where they differ from interstate requirements, they tend to be less restrictive, allowing more on-duty and drive time.

2.7.2 Canadian regulations

Canadian regulations focus on the number of hours a driver can drive per day as well as the total number of hours they can work per week, but they're less restrictive than the American regulations. Requirements apply to commercial vehicles with a mass over 4.5 tonnes and buses that can carry 10 or more people.

The regulations allow for the remote driving task that is associated with operating north of the 60th parallel by extending the permitted driving time. They also include allowances for emergencies and bad driving conditions.

3 Examining HVNL fatigue management

Key points

- The HVNL is not stopping people impaired by fatigue from driving heavy vehicles.
- Fatigue management under the HVNL is based on deficient assumptions about fatigue risks and causes.
- The HVNL focuses on fatigue risk prevention controls rather than mitigation controls or outcomes.
- The HVNL does not have the flexibility to accommodate sophisticated fatigue management systems and practices.
- The 'work and rest' approach of the HVNL does not adequately recognise the varied risks and needs across operators, tasks and regions.
- The complex and highly prescriptive fatigue management requirements are hard to understand and comply with. They cause problems such as inconsistency between jurisdictions.
- The HVNL encourages an inefficient and sporadic use of enforcement resources without necessarily improving safety.

The fatigue risk the HVNL aims to manage is the hazard of driving while unacceptably fatigued. The threats relate to:

- starting the journey already prone to fatigue due to driver health issues or other factors that make them unfit to start a shift
- the effects of the shift itself in bringing on fatigue such as long hours, night or shift work, or unreasonable work demands.

Two HVNL controls currently prevent a driver getting behind the wheel while unacceptably fatigued. These are:

- general duties
- prescriptive work and rest requirements.

There are limited controls to mitigate the consequences if a driver does get behind the wheel when fatigued (see Figure 4).

3.1 Drivers are still driving while impaired by fatigue

Despite its aim, and despite recent improvements, the HVNL is not stopping drivers from getting behind the wheel when fatigued.

Heavy vehicle drivers are still dying in fatigue-related crashes. According to National Transport Insurance (NTI) data,⁶ fatigue is still the leading cause of fatal single-vehicle

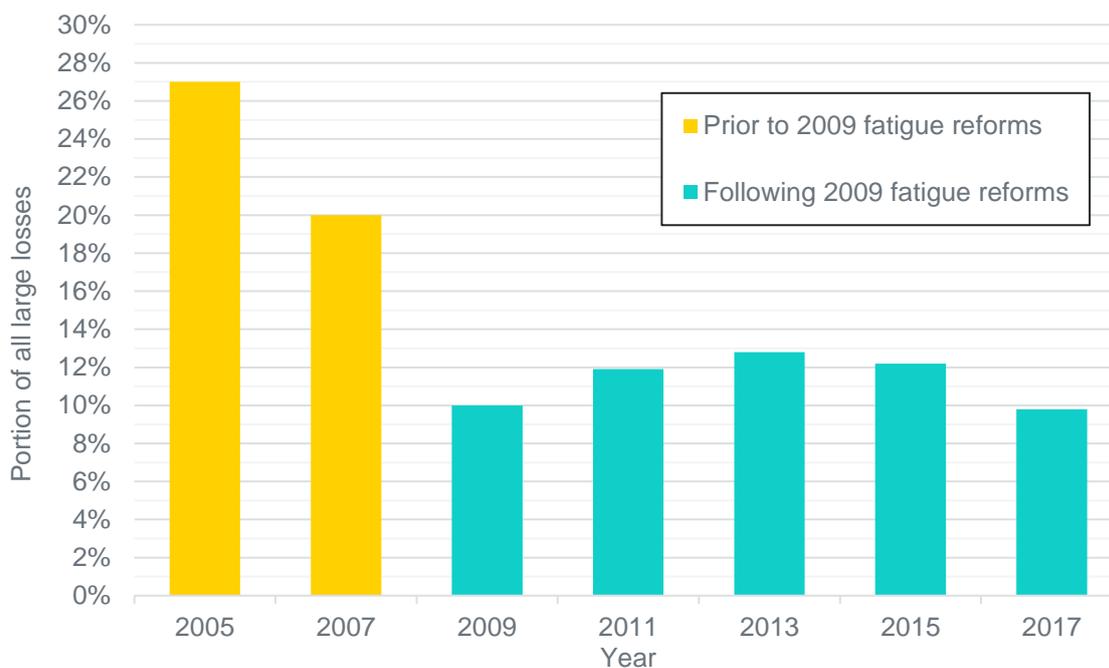
⁶ From the NTI's presentation to Trucking Australia 2019.

accidents. It is in line with earlier statistics on work-related fatalities involving trucks. In 2014 fatigue or lack of concentration was a likely contributor in half of the single-vehicle accidents that resulted in the truck driver's death (Safe Work Australia, 2014).

Fatigue remained a factor in 9.8 per cent of the NTI's major accidents⁷ in 2017 (National Transport Insurance, 2019). While fatigue incidents fell after the 2009 fatigue management reforms were introduced, incident levels have remained relatively constant over the past eight years (see Figure 6).

Figure 6. Fatigue incidents as a proportion of all large losses

Source: National Transport Insurance, 2019



A key concern is that under the current framework a driver can be compliant with the prescriptive rules and still be impaired by fatigue.

It's possible that the relatively constant level of fatigue-related incidents since 2009 indicates the fatigue reforms didn't address all risks, though we can't conclude this from the above data. If that is the case, further improvements will need new types of controls.

3.2 The HVNL does not manage fatigue risks well

3.2.1 The preventative risk controls may not be effective

Drivers are still driving while impaired by fatigue, despite the risk controls in the HVNL to prevent them. The NTC contends that the preventative controls are not as effective as they could be, in part because their application is limited.

⁷ Major accidents are defined as heavy motor vehicle claims that exceed \$50,000.

Controls primarily focus on long-haul interstate journeys

The main controls to stop a driver from driving when fatigued are the primary duties and work and rest hours (see Figure 4). But these controls only apply to fatigue-regulated heavy vehicles.

Before the primary safety duty's introduction on 1 October 2018, there was no obligation under the HVNL for drivers or others to manage fatigue for vehicles with a GVM between 4.5 tonnes and 12 tonnes.

The current fatigue management requirements do not cover drivers of heavy vehicles weighing less than 12 tonnes (except certain buses). When they were developed it was assumed drivers of lighter vehicles had a lower fatigue risk (National Transport Commission, 2006). But research comparing the fatigue experience for drivers of short-haul lighter vehicles and long-haul heavier vehicles found that the effects of fatigue while driving were very similar. This was both for reported safety incidents and their personal experiences of fatigue (Friswell & Williamson, 2013).

Limiting how the risk controls are applied can undermine their effectiveness and allow unsafe practices. For example, work or driving done in a heavy vehicle that isn't fatigue-regulated does not count towards work hours under the HVNL. A driver could do a full shift of other work, or driving, and then climb behind the wheel of a fatigue-regulated vehicle to start their shift – and still comply with the law.

The results can be devastating. This was demonstrated by the death of a two-up truck driver in a crash resulting from driver fatigue. The driver who was at the steering wheel at the time the vehicle ran off road had finished an eight-hour shift in the yard before getting behind the wheel. Because the work he did at the depot wasn't directly related to a fatigue-regulated heavy vehicle, it wasn't considered work under the HVNL. The driver could therefore legally drive for 12 hours (Safe Work Australia, 2017).

Work diary controls only apply to a minority of heavy vehicles

Work diaries are the main tool used to check drivers are meeting work and rest hours. But work diary requirements don't apply in all cases. Work diaries are not required for drivers who work under standard hours and:

- operate within 100 kilometres of their base (local work), or
- operate within 160 kilometres of their base (primary producers).

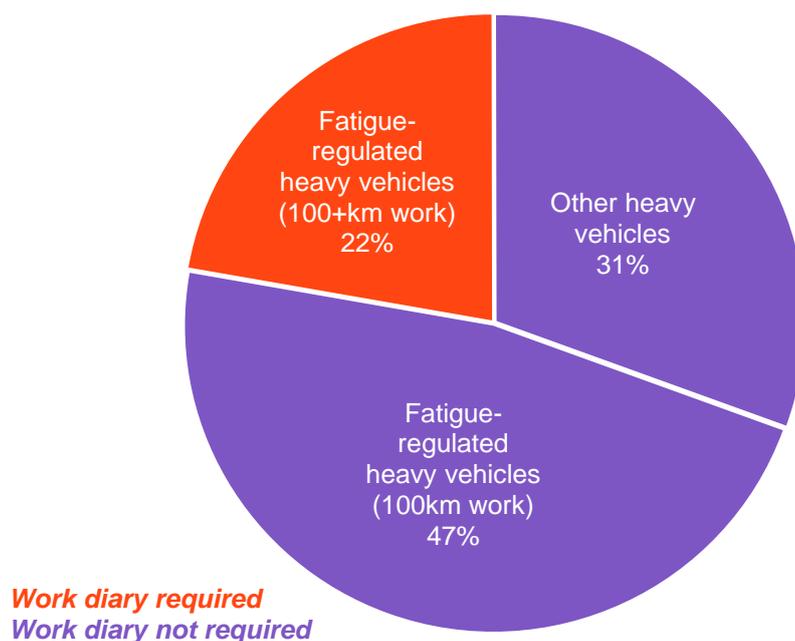
Drivers and record keepers doing local work still need to keep a record of work and rest times. Our understanding, though, is that compliance with these requirements is not well enforced. We understand it's not common for enforcement officers to check if standard hour work and rest requirements are being met for local work.

New South Wales' court offences statistics reflect this understanding. They show no recorded offences against local work record-keeping obligations under ss 319 or 319A of the HVNL (see Appendix B). NSW statistics are readily available, which is why we cite them specifically. We are not aware of any evidence to suggest that NSW is unrepresentative of participating jurisdictions.

Work diaries are the main compliance tool for work and rest requirements, but they do not apply for most local work. This means only a small portion of the heavy vehicle drivers are being assessed for compliance with work and rest hours. It may be drivers of as few as 22 per cent of all heavy vehicles are likely to be assessed for compliance with work and rest requirements (see Figure 7).

Figure 7. Portion of vehicles that require a work diary to be used

Source: Survey of Motor Vehicle Usage, Australian Bureau of Statistics



Work and rest hours do not effectively control ‘time of day’ risks

Recent findings from the Cooperative Research Centre for Alertness, Safety and Productivity (2019) confirm that the risk of impairment is much higher when driving at night. Even when driving in an alert state, drivers experience drowsiness events. Drowsiness events were double between 10pm and 5am compared with driving in an alert state, and triple from midnight to 3am. For night shifts, there was substantial drowsiness after eight or more hours of driving, with a doubling of the drowsiness event rate. The outcome of this research aligns with previous findings by fatigue experts.

The HVNL tries to control this risk by requiring drivers doing night work to take regular night rest breaks. A night rest is a break of seven continuous hours between 10pm and 8am, or a stationary break of 24 continuous hours. Under standard hours, though, there are no restrictions on when work hours occur. Drivers can work their maximum allowable hours as night work and still meet the rest requirements.

BFM has some extra controls because it restricts the number of ‘high-risk’ hours, including night hours.

As noted in the recent NTI report, a disproportionate number of fatigue incidents happen between midnight and 6am. When adjusted for traffic volume, the risk for a truck driving between midnight and 6am was triple that of the daily average (National Transport Insurance, 2019). This has been a consistent trend since 2002, despite the introduction of the 2009 fatigue management reforms. It raises the question of whether the current controls on night work are adequate.

Controls to assess fitness for work at the start of a shift are weak

Under the HVNL, a driver must be fit for work. This is based on them appearing physically and mentally fit to drive (s 5 of the HVNL). Other risk controls, mainly work and rest hours, assume that a driver starts their trip well rested.

There is some evidence, though, that this assumption is not accurate. Based on advice from the NHVR, crash data from the Department of Transport and Main Roads indicates that 85 per cent of heavy vehicle crashes involving fatigue occur within the first four hours of the journey.

The Alertness CRC research shows there are still significant risks in the early part of the journey, especially for those drivers with early starts (Cooperative Research Centre for Alertness, Safety and Productivity, 2019). They found a small increase in drowsiness events in the first three hours of early shifts starting between midnight and 6am. This may reflect the fact that drivers need to get up earlier to start these shifts, in conflict with their natural body clock.

In urban areas, early starts are used to beat the ever-growing congestion on the roads. The need to trade off increased fatigue risk associated with early starts and the efficiency of transport operations is unlikely to disappear.

There are few controls to address driver health and wellbeing

Drivers operating under standard hours are not regularly assessed to make sure they are medically fit to perform their duties.

Driver health is known to be a contributing risk factor for fatigue. In all other transport modes drivers must demonstrate their fitness for duty as part of fatigue management.

BFM and AFM accreditation schemes have other requirements to help make sure drivers are medically fit to drive. They include making sure drivers are assessed regularly against the *Assessing fitness to drive* guidelines, which include a sleep apnoea test.

The Australian Trucking Association has highlighted, however, that this test is based on subjective measures. And drivers often under-report problems (Australian Trucking Association, 2016).

Also, the *Assessing fitness to drive* guidelines are designed to assess medical fitness for driver licensing. Their focus is limited to chronic illnesses, not acute. They do not assess medical fitness for the full range of tasks performed by heavy vehicle drivers. That is, the guidelines are not designed to be used as an assessment of medical fitness for duty.

There are no fatigue management training requirements for standard hours

Drivers that operate under standard hours do not need to complete fatigue management training. This is at odds with how non-participating jurisdictions and industries regulate fatigue. For example, workers must undertake fatigue-management training in Western Australia and in the rail and aviation industries.

Some studies have linked inadequate fatigue management training with higher crash risk. A study in Western Australia found that heavy vehicle drivers without fatigue training were six times more likely to be involved in a crash (Meuleners, et al., 2015). Other research has shown that quality driver fatigue training can help control fatigue risk (Gander, et al., 2005).

3.2.2 Mitigation controls are weak

As highlighted in chapter 2, there is an imbalance between prevention and mitigation controls for fatigue risk under the HVNL. Most fatigue risk controls focus on preventing the driver from driving while fatigued. There are minimal controls to mitigate this harm when it happens. Responses depend on observation of fatigue, primarily by roadside enforcement.

Once a driver is on the road, there's no easy way recognised by law for an operator or driver to actively manage fatigue.

3.3 Better fatigue management is not recognised or encouraged

The HVNL does not let operators with sophisticated fatigue management systems operate using a performance-based or safety assurance approach. At best, it offers some flexibility through AFM accreditation. Even so, fatigue risks that come with AFM must be offset by specific requirements for sleep, rest and other practices.

In particular, the HVNL does not recognise the potential role of technology to observe fatigue. When the 2009 fatigue reforms were developed, technology could not reliably monitor a driver's fatigue levels in real time. But this technology has since rapidly developed.

Some operators already use sophisticated technology and data systems to help them manage fatigue risks. Not only does the HVNL not accommodate these operators, it constrains them.

Case studies: No regulatory recognition of AFM

Case 1: Ron Finemore Transport

Ron Finemore Transport (RFT) has made a significant investment in fatigue and distraction detection technology. The company uses the Seeing Machines system to track driver fatigue and distraction in real time. It monitors a driver's alertness through eye movements, using key facial features as reference points.

When there is a fatigue event, the system sounds an alarm and causes the driver's seat to vibrate. An independent expert in the Seeing Machines monitoring team reviews the event. They call the RFT operations area responsible for the vehicle and send them the critical information in an email.

RFT operations staff then go through a safety procedure checklist. It includes contacting the driver and assessing the driver's current state. If they determine the fatigue event is valid, they take steps to address it. This is an effective mitigation control.

Road safety outcomes have improved as a direct result of the new technology. It gives the company the opportunity to do something about driver fatigue in real time. The safety procedure checklist also provides learning and improvement opportunities. Staff analyse system data and individual drivers. This gives them a better understanding of fatigue problems for their business and how to address them. Solutions can include alternative rosters, different start times or alternative trips. With the consent of drivers, the company also uses system footage for staff induction and 'toolbox talks'.

Staff across the business have strongly supported the new safety procedure. Even long-term drivers, who were initially sceptical, have become fierce advocates over time. This support is critical because driver accountability is a key component.

Using the Seeing Machines technology together with other sets of information, such as telematics, empowers RFT to manage fatigue risk. It also gives drivers greater

flexibility to manage when they rest based on how they are feeling. This benefits drivers, other road users and the community.

RFT is using an innovative system that results in better outcomes in managing fatigue. Despite this, drivers still have to work within the prescriptive work and rest requirements and complete a work diary.

The company has highlighted the need for more flexibility for drivers under the HVNL to allow them to take full advantage of technology (NSW Parliament Joint Standing Committee on Road Safety (Staysafe) Inquiry into Heavy Vehicle Safety and Use of Technology to Improve Road Safety).⁸

Case 2: Toll

In 2011, after two heavy vehicle rollovers, Toll Resources and Government Logistics began using Seeing Machines technology. It put driver state-sensing machines in heavy vehicles at its German Creek operations. At the same time, it adopted a zero target for safety incidents, supported through toolbox talks, training and information bulletins.

The Seeing Machines technology captures eyelid and head movements through motion-sensitive cameras. The goal is to capture micro-sleeps, defined as an eye closure of 1.5 seconds or more while the vehicle is travelling over five kilometres per hour. When it captures a fatigue event, the system causes the driver's seat to vibrate and sounds an alarm.

The system also sends an alert to an off-site third party that monitors footage. They categorise genuine fatigue events according to type and severity and alert the Toll site supervisor. The supervisor responds according to the site's fatigue management plan. This includes a discussion with the driver that can result in the driver taking a break or even ending their shift. Again, this is an effective risk mitigation control that's not fully recognised in the HVNL.

As part of its procedure, the monitoring team follows up with the site supervisor after the event to discuss what happened and to make sure the right steps were taken to resolve the issue. The monitoring team also analyses the system data, using it to report on trends and problems. Toll's management uses this information to make informed decisions about fatigue management policies.

In Toll's experience, using technology on its own doesn't solve fatigue problems. Technology doesn't make sure schedulers program appropriate rest breaks or drivers sleep better. But it does play a large role in supporting successful cultural change around safety. System footage is a powerful training tool for drivers, encouraging them to change unsafe behaviours.

Toll's investment to support its 'incident and injury free' safety policy goes beyond the use of technology. They've also invested in more staff with different skills from those usually associated with the heavy vehicle freight industry – people with skills in data analysis, coaching drivers and promoting health and wellbeing.

⁸ <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2467>

The company has made significant investment and effort across its business. It has a sophisticated system in place that fuses technology with data analysis and training. Its technology helps to reduce fatigue issues and to resolve them as they happen. Despite this, Toll gets no concessions from the HVNL. Its drivers still have to maintain the same work diaries as other drivers and meet the same work and rest requirements.

3.4 Work and rest requirements are not always matched to the task

The Australian heavy vehicle industry is diverse. It's made up of different tasks, different areas of operation and different operators. This diversity makes it difficult to create one set of rules that apply in all circumstances.

The current HVNL applies a 'one size fits all' approach that does not adequately recognise:

- heavy vehicle use and freight types have different operating requirements
- the driving task differs between urban, regional and remote domains
- operators have a different compliance capacity.

The HVNL does not have the flexibility needed to regulate such diversity.

3.4.1 Different uses and freight types have different operating requirements

Road freight is one of the biggest and most diverse sectors regulated by the HVNL, as outlined in the first issues paper (National Transport Commission, 2019). Heavy vehicles are also used for passenger and specialised purposes (for example, cranes, agricultural equipment and waste services).

Different types of freight can have very different operating requirements. These differences are not accommodated well under the HVNL and can challenge an operator's capacity to comply.

Livestock transport is one example. Animal welfare considerations may conflict with HVNL requirements. Animal welfare rules when transporting livestock include prompt unloading and maximum periods that water can be withheld from animals (Department of Agriculture, Fisheries and Forestry, 2012). These rules can be at odds with the HVNL work and rest requirements. External factors, such as climatic conditions or biosecurity risks, can also affect the animals' welfare. By extension, these factors affect the operator's capacity to comply.

Dangerous goods freight is another example. Rules limiting where a dangerous goods vehicle can stop may not support compliance with the HVNL work and rest requirements.

In other instances, the practical delivery needs of the freight can undermine an operator's ability to meet fatigue management requirements. Fresh produce transport, for example, is not accommodated well by the HVNL work and rest requirements.

Case study: Restrictive night rest rules don't work for some industries (supplied by NatRoad)

A lot of fresh produce transport work involves deliveries to markets before 6am, on any day of the week. This means drivers often have to start their shift before 5am.

According to one compliance administrator, local drivers are getting more than the minimum seven hours of continuous stationary rest in a 24-hour period and feeling well rested. But they can still receive a penalty if they don't meet the HVNL requirements – four night rest breaks in a 14-day period, with two nights on consecutive days.

To meet the HVNL benchmark and get a fourth night rest break in, drivers are unable to start earlier than 5am on certain days. This means that in the following 24-hour period the driver would have to work more than the allowed 12 hours because the working day for that period starts before 5am.

Drivers are frustrated. They have to change their schedule and reduce their working opportunity to meet the night rest rule, even though they're getting more than seven hours of continuous rest.

The compliance administrator also reports that it's difficult for drivers to keep track of their night rests. To make sure they meet the rule across any 14-day period, they have to go through a large number of diary pages. The company provides drivers with a spreadsheet to help them keep track of work and rest time. But some still have difficulty keeping track.

3.4.2 Rural and remote driving is different to city and inter-city driving

Australia is a large continent with a dispersed population and is heavily dependent on road transport. The road transport industry must service customers spread across the country. As a result, the industry operates within and between major cities, in regional areas and in remote Australia.

The HVNL does not acknowledge or distinguish between the unique characteristics of these areas. It also does not adequately recognise the different risk profile and operational needs when working across these areas.

The Northern Territory and Western Australia have not adopted the HVNL in large part because they did not believe the fatigue management requirements best met their needs for remote area operations.

Drivers travelling in remote areas face a different set of risks and challenges from those traveling on the east coast. Remote driving risks and challenges include:

- travelling at slow speeds for long periods on roads that are in poor condition
- no or limited rest stops and facilities
- high outside temperatures
- isolation with limited access to help.

By way of contrast, heavy vehicles operating in urban areas face:

- frequent interactions with other road users, including vulnerable road users such as cyclists and pedestrians
- highly varied work times due to traffic congestion, or loading and unloading queues
- operation restrictions due to noise or other ordinances.

3.4.3 Operators have a different compliance capacity

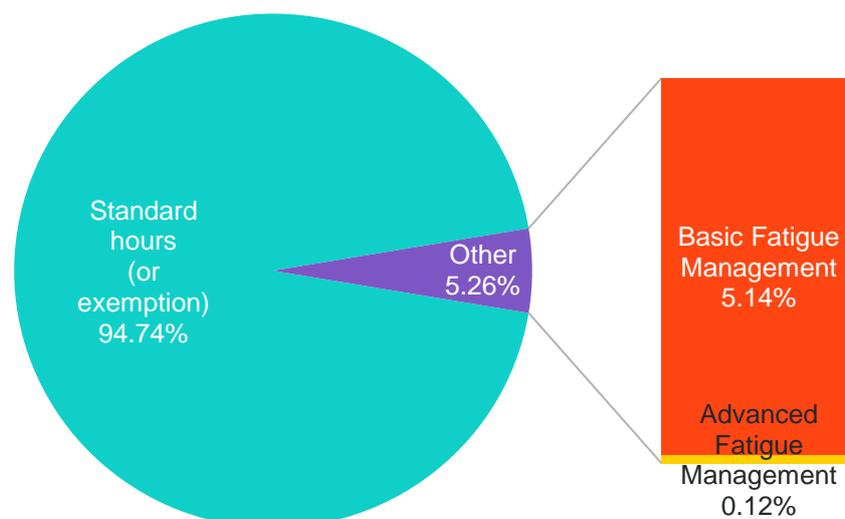
The HVNL does not adequately accommodate difference in size of operations and how it affects an operation's capacity to comply. Many international logistics chains can easily meet the fatigue management requirements and, in some cases, exceed them. Many have designed their own state-of-the-art safety management systems. They use extra controls not required by the HVNL such as driver fatigue monitoring technology.

In contrast, sophisticated fatigue management systems may not be practicable for many operators. Work and rest requirements may suit their needs well.

The HVNL, through exemptions and fatigue management accreditation, does provide some compliance options. But they are all still defined in terms of schedules and hours. For the most part, operators have not embraced alternatives to standard hours (see Figure 8).

Figure 8. Operators using NHVAS-accredited fatigue management options

Source: Fellows Medlock and Associates, 2018



3.5 Fatigue requirements are complex and prescriptive

3.5.1 Complexity makes requirements difficult to understand

Most drivers and operators want to comply with their legal obligations. This can be a challenge, however, because it's difficult to understand what's actually required to comply. Many breaches of work and rest requirements or record-keeping requirements are based on misunderstanding rather than intent to break the law.

Counting time requirements are hard to follow

To fill in a diary correctly, drivers need to understand how to count time as prescribed in the HVNL. The method for counting time can be confusing. As a result, drivers can receive large fines for making simple mistakes, even if they're making sure they're rested.

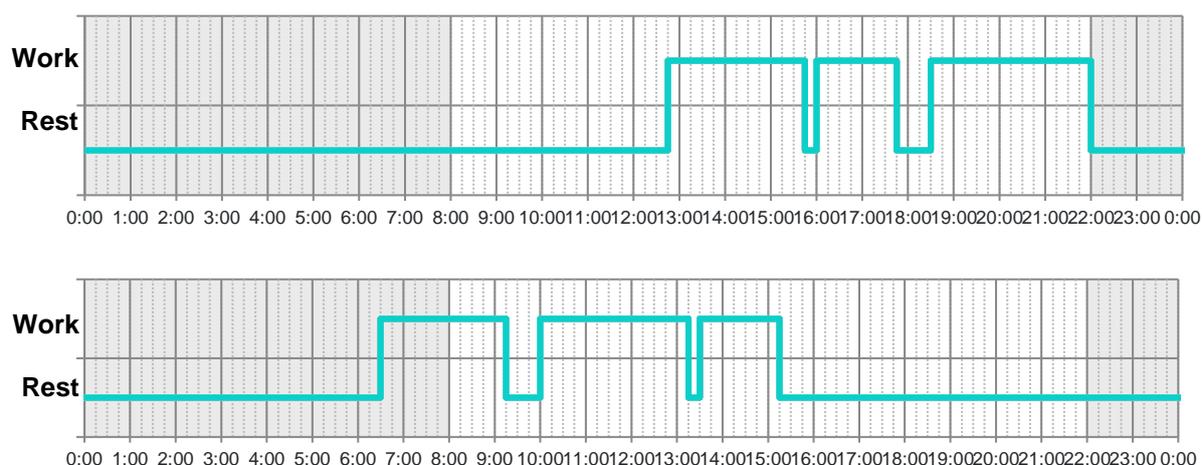
Case study: Counting time is misunderstood (supplied by NatRoad)

In 2018 a driver was charged with breaching s 250(1) of the HVNL. The driver was driving under standard hours and was found to be in breach by driving more than 12 hours in a 24-hour period. As a critical breach, the maximum penalty is \$16,510 and four demerit points.

The driver's work diary showed the following (see also Figure 9):

- On 19 January, the driver started work after a rest of 21 hours and 15 minutes.
- He worked for a total of eight hours and 15 minutes and took two rest breaks of one hour in total.
- The driver then had another rest break of eight-and-a-half hours.
- On 20 January, the driver worked for a total of seven hours and 45 minutes and took two rest breaks of one hour in total.
- He then started a major rest break and did not start work again until 22 January.

Figure 9. Indicative work and rest over the consecutive shifts



The driver believed he was meeting the standard work hours requirements in the HVNL. He thought the eight-and-a-half-hour rest he started at 10pm on 19 January was a major rest break and that a new 24-hour period would start when the break finished.

In fact, according to the HVNL counting time rules, he had significantly exceeded work hour limits over the 24-hour period from midday one day to midday the next.

This was most likely a genuine misunderstanding of the HVNL rules for counting time, which are complex and difficult to understand.

It does not appear that the driver was excessively fatigued while working. He'd had long rest breaks between shifts and had also broken up long driving periods with rest breaks. Yet under the HVNL he had committed a critical breach.

Participating and non-participating jurisdictions have different requirements

The HVNL fatigue management requirements do not apply in Western Australia, the Northern Territory or the Australian Capital Territory (ACT).

In 2006, when the requirements were being proposed, relevant authorities in Western Australian and the Northern Territory indicated they would not take them up. They believed the requirements were more complex and onerous than their existing work health and safety approach to fatigue management. They also believed the requirements did not allow for the uniqueness of the remote driving task.

Insufficient resources caused the ACT to derogate on the HVNL fatigue chapter. At the time the HVNL was introduced, the ACT did not specifically regulate fatigue under its heavy vehicle laws. The resources needed to administer, monitor and enforce the new requirements were not available. The ACT decided not to apply the fatigue management requirements until the NHVR could undertake these tasks. This is expected on or after 1 July 2019.

These inconsistencies create a complex compliance and enforcement environment for interstate operations. For example, for journeys between jurisdictions that do and don't participate, operators must comply with both jurisdictions' requirements. They also must maintain records under the HVNL, even when they aren't in participating jurisdictions (National Transport Commission, 2018).

3.5.2 Prescription can make compliance difficult

Prescriptive work and rest requirements are inflexible

The HVNL uses work and rest requirements as the primary risk control for fatigue management. These requirements are highly prescriptive, and operators have been critical of their incompatibility with the realities of conducting business.

A recent report evaluated regulatory approaches in the Australian road transport industry. It was based on perceptions and experiences of truck drivers (Thornthwaite & O'Neill, 2016).

Drivers were critical of the inflexible nature of the requirements. The work and rest hours do not support the variety of transport tasks and the range of individual and day-to-day variability in susceptibility to fatigue.

Work schedules are constructed around the prescribed hours. As a result, drivers say they feel forced to try to sleep at particular times and to drive when tired to meet the schedule. The following is typical of drivers' comments about work and rest hour requirements:

The Work Diary and rules that apply create more dangerous situations than it saves. How can a book tell when I am tired and need a rest? Need greater flexibility to manage our own fatigue levels. Currently you have to rest when you're not tired and then drive when you are feeling doughie because the book says it's ok and you have k's to make up because of being parked on the side of the road trying to sleep (Thornthwaite & O'Neill, 2016, p. 99).

Drivers also commented on being forced into impractical, perverse situations such as running out of daily driving hours just short of their destination. They could be forced to stop and rest in the cab for seven hours, rather than travelling an extra few minutes and sleeping at home. In many cases, getting a proper rest at home is likely to be a better fatigue management option on balance.

Inadequate rest areas make it hard to meet rest requirements

Another common criticism is that there are inadequate rest areas across Australia. An audit of rest areas against national guidelines found there are insufficient rest areas on all AusLink freight routes. None of the audited routes met the spacing recommendations in the guidelines (Austroads, 2008).

The Austroads finding matches drivers' own experiences. They expressed concerns about being required to stop and rest when there are not enough rest areas, or demand exceeds supply, or the quality of facilities is poor (Thorntwaite & O'Neill, 2016).

The NTC suggests it isn't reasonable to demand compliance with strict work and rest requirements if it is not possible, or not safe, to comply.

Impractical definitions of work and rest make broader compliance difficult

The HVNL definitions of work and rest restrict what a driver can do in a short rest break. This includes inspecting the vehicle or load, refuelling or filling out a work diary.

The main reason for a short rest break is to break the boredom and monotony of driving (Fatigue Expert Group, 2001). There is little evidence about the ideal length of time for a short break or what should and shouldn't be done during a break.

Drivers have legal obligations, such as checking the vehicle and load are safe and filling in a work diary, which take them off the driving task. There is also no way for enforcement officers to determine what drivers are doing in their rest break unless they're watching them.

Rest definitions cannot be easily enforced and are not clearly linked to better safety outcomes. It's therefore questionable as to whether they should be in the law.

The impractical work and rest definitions also create other problems. This includes inconsistency with other safety requirements, such as those applying to drivers of vehicles with concrete agitators. These drivers must stay in the driver's seat with the engine running for workplace health and safety reasons.

Requirements for transitioning from two-up and solo driver operations are unclear

The purpose of two-up driving is to let two drivers safely cover longer distances in less time. This can have both a productivity and safety benefit. To transition from two-up to solo driving arrangements, however, drivers must do one of the following:

- comply fully with the solo work and rest hours, even while operating under two-up arrangements
- complete a reset rest break of 48 hours plus two consecutive night breaks.

Operators argue that the transition between solo and two-up arrangements is so onerous that they'd prefer to stick with longer term two-up or solo arrangements for a given driver, rather than having the flexibility to move between the two options. To some extent they are giving up on opportunities to improve productivity through two-up arrangements.

3.5.3 Prescriptive requirements create an administrative burden for the NHVR

There are multiple provisions in the HVNL that also prescribe what the NHVR must do in relation to fatigue management. Some of these are inefficient. One example raised by the NHVR is the HVNL requirement for the NHVR to manually 'cancel' the unused daily sheets of an inactive work diary before returning them to the driver.

3.6 Enforcement options are limited, and sanctions can be punitive

3.6.1 Enforcement focuses on prescriptive rules rather than outcomes

The HVNL has both general duties and prescriptive rules as preventative risk controls. In general, it's easier to assess compliance with the prescriptive rules. This has led to operators and enforcement focusing on the rules, almost to the exclusion of the duty on drivers and chain of responsibility parties.

The focus on prescriptive rules is evident in the NSW court statistics. We have focused on NSW statistics specifically because of the excellent data that is available through the NSW Bureau of Crime Statistics and Research. This data is not as readily available in other jurisdictions; however, we suspect the patterns are similar.

Between 2014 and 2018 there was only one offence for driving while impaired by fatigue under s 228(1) of the HVNL. There were also three offences for a responsible party failing to ensure a driver was not fatigued under s 229(1) of the HVNL (see Appendix B). In comparison, for the same period there were more than 6,000 offences for breaches of work and rest hours and more than 3,000 offences relating to work diary requirements.

This is not to say that offences relating to work and rest hours and work diaries don't contain cases of serious fatigue risk. They cover a range of breaches, from minor through to critical. It does show, however, the emphasis on compliance with prescriptive rules rather than whether a driver is fatigued.

The enforcement focus on prescriptive rules is a key reason operators and drivers have resisted taking EWDs. The purpose of EWDs is to record work and rest hours in a way that helps overcome some of the problems with written work diaries (see 3.6.2). The operators' concern is that EWDs, along with inflexible work and rest requirements and strict penalties for minor breaches, leave drivers exposed to trivial technical breaches that do not affect safety.

3.6.2 Written work diaries are a poor way to check compliance

Work diaries are the main tool to check compliance with work and rest hours. There is therefore an incentive for drivers to fill diaries in to be compliant rather than to represent actual work and rest hours. Sometimes a compliant diary just demonstrates that a driver knows how to record the requirements well.

This driver's perspective on log book (diary) management captures the issue:

What is in the log book is recorded with due care and particular attention to being compliant with rules and regulations. The times do not reflect in any way what the driver has done for the day apart from specific geographic locations and times at those points. For example, if I arrive in [DC] at 0900. That is recorded. I then unload and depart for my loading destination. The unloading time is recorded as rest time in the log book. I am saying that the store men

unloaded the truck. I then drive to pick up my load. If it is in the same or nearby suburb and I do not have to go through toll recorders or on main roads, the time is not recorded in the log book. I then load and depart for my home base. My departure time is recorded and then the remainder of my trip back to Brisbane is shown as per what really takes place. I stop and have my required rest breaks and I do not exceed my driving time. That way my log book looks perfect. All the rest breaks are entered, I do not exceed 14 hours' driving time and I am at all the Safe-T-Cam sites as per the camera times and my log book times match perfectly. All of the work I do running around Sydney, Brisbane, Melbourne and where ever else is rarely recorded, that way I have the maximum amount of driving time left in my log book each and every day. That is how we complete the impossible tasks given to us. It means many drivers are not getting much sleep, but in the log book it looks like they are getting at least ten hours' rest per day. It is a miracle there are not more fatalities on the highways. Possibly only due to the high standard of driving competency among many of the long-distance drivers. Certainly not because they are well rested and fit for the tasks at hand (Thornthwaite & O'Neill, 2016, p. 100).

There is no easy way to check the accuracy of a written work diary. Enforcement officers have to compare and cross-check with other records such as fuel receipts and unloading dockets. Vehicle monitoring technology such as Safe-T-Cam has made it this easier, but the coverage of these cameras is limited. And, as stated above, they can be avoided.

3.6.3 Prescriptive work diary requirements allow for punitive infringements

A whole division of the HVNL is dedicated to work diary requirements. It outlines detailed requirements for obtaining, filling in and carrying a work diary. There are even more work diary requirements in the regulations. And drivers also have to follow the very specific instructions for filling in the diary that are in the diary itself (s 301 of the HVNL).

The law provides for sanctions for administrative errors that have no inherent link to safety. These can include poor writing, crossing the page in a different direction or not connecting lines as prescribed. In other contexts, administrative matters like these are treated using correction and education, not penalties that could equal a week's wages in fines.

Case studies: Drivers face fines for administrative errors in work diaries (supplied by NatRoad)

Case 1

In 2019 a driver was subject to a roadside inspection where his work diary was examined. The driver received three penalty notices for administrative work diary breaches:

- \$165 for not recording some information in the work diary, most likely failing to sign and date a diary page
- \$330 for not removing a yellow copy page
- \$661 for not recording his base location in the front of the work diary.

The driver complied with the work and rest time requirements, managed his fatigue and did not pose a safety risk to himself or other road users. Despite this, he was penalised \$1,156.

Case 2

In 2017 a driver was subject to a roadside inspection where his work diary was examined. The driver received a penalty notice for not recording information as prescribed by the HVNL because he failed to correctly connect two vertical lines with a horizontal line to show rest time. There were no other issues with any other pages in the diary and there were no fatigue breaches. The totals for work and rest were correctly recorded. But the driver still received a \$162 fine that was upheld on review.

3.6.4 It is not easy to detect or target dangerous behaviour

For fatigue, the HVNL relies on roadside enforcement to detect dangerous behaviour. On average, though, heavy vehicles are not pulled over that often (Jones, 2013). This is evident when the number of vehicle-tonne-kilometres heavy vehicles travel is compared with the number of on-road intercepts. Checks are sporadic. This leaves most journeys with limited mitigation controls for fatigued driving. Most fatigued driving goes unchecked.

Where a breach is discovered, it may have occurred days or weeks before the intercept. Sanctions for older breaches do serve an important deterrence purpose. But they have no effect on imminent safety. That opportunity only exists when breaches are detected as they are happening.

Even when drivers are caught breaching work and rest hours, it is difficult to determine if it's a one-off mistake or a pattern of noncompliance. Drivers and operators that systematically breach fatigue management requirements cannot be easily identified. Police and transport inspectors rely on their own knowledge and experience to try to identify systemic breaches. Even so, they are often only found after a crash has happened.

Case study: Redstar – systemic fatigue breaches found following fatality (ABC News, 2017)

A Redstar Transport B-double vehicle was involved in a fatal crash near Dubbo in May 2017. Driver fatigue was thought to be a significant contributing factor to the crash. Following the crash, Redstar was audited. NSW Police led the audit, with participation from the Queensland and Victoria police forces.

The audit showed there were signs of systemic breaches of fatigue laws at the Dubbo and Yennora depots. There was a high incidence of inconsistent work diary management. Drivers admitted to multiple breaches of the HVNL. This included driving excessive hours, falsifying work diaries and driving while fatigued.

The NHVR has introduced the Heavy Vehicle Confidential Reporting Line to provide an opportunity to report operational safety issues for heavy vehicle transport activities. One-third of the reports received relate to fatigue management concerns (National Heavy Vehicle Regulator, 2019). This is a proactive approach that helps the NHVR to target its enforcement efforts. But it relies on participants' willingness to report bad behaviour.

4 Aspirations for a new law

Key points

This section sets a high-level vision for effective fatigue management in a future HVNL. It outlines six draft regulatory principles to guide development of the new law:

- safer outcomes
- effective fatigue risk management
- continuous improvement in risk controls
- a harmonised approach, not a uniform one
- simple and flexible compliance options
- efficient enforcement and proportional sanctions.

4.1 Safer outcomes

Draft principle 1: The new HVNL should reduce fatigue-related incidents for drivers and other road users. At the same time it should effectively support Australia's transport task.

The new HVNL should target fatigue risks. It should provide options for risk treatments to deliver better safety outcomes. In particular, it should strive to reduce the fatigue-related fatalities associated with single heavy vehicle crashes.

Safety outcomes should drive the new HVNL, but we also need to acknowledge the realities of Australia's transport task. Some risk factors, such as night work, need to be effectively managed but cannot be eliminated.

Question 1: How can we change our approach to fatigue management so we reduce fatigue-related incidents and deliver Australia's road transport task efficiently and safely?

4.2 Effective fatigue risk management

Draft principle 2: The new HVNL should clearly link the legal requirements for managing fatigue to the known risks. Coverage and controls should prevent and mitigate harm. The new HVNL should encourage safe practices and not limit them. It should prohibit unsafe practices.

Controls should aim to prevent the causes of fatigue or mitigate the results of driving while fatigued. The causes of fatigue are varied, complicated and interrelated.

Expanding the scope and coverage

The new HVNL should have a broader scope to manage fatigue and look beyond current limitations. It should identify and consider all threats and consequences, not just those

associated with long-haul operations. The new HVNL should apply to all types of operations where unacceptable fatigue risk exists.

Compliance provisions in the new HVNL should complement work health and safety laws and chain of responsibility provisions. These require all parties to safely manage the fatigue risk to driver and public safety. Drivers should not be the sole focus of compliance and enforcement under the new HVNL.

Question 2: What fatigue risks that are currently out of scope for the HVNL should be brought into scope? What is in scope that shouldn't be?

Addressing specific risks of the shift

The new HVNL should acknowledge and address the different factors that influence fatigue risk, beyond simple hours, including:

- Fatigue risk is higher when driving at night compared with driving during the day.
- Early starts result in higher levels of drowsiness at the beginning of the shift.
- Frequent breaks from driving result in better alertness and performance.
- Shift work that changes a driver's routine, such as backward shift rotations, result in higher drowsiness levels.

Question 3: What are the key risk factors associated with long hours, night shifts and other work schedule factors? How do we account for the fact that not all work hours have the same risk without introducing excessive complexity?

Addressing the fitness and readiness of the driver

Driver health is an important factor in a driver's fatigue risk. Additionally, many other lifestyle and biological factors contribute to driver fatigue. The new HVNL should not assume a driver is 100 per cent ready to drive from the beginning of the shift. There may be other safety activities that should be included in the new HVNL such as education, training and regular health assessments.

Question 4: How should a new HVNL address driver health and lifestyle factors? What kinds of controls could be effective?

4.3 Continuous improvement in risk controls

Draft principle 3: The new HVNL should nurture a safety culture among heavy vehicle operators, with a view to continuous improvement. It should encourage operators to develop and apply their technology, practices and systems, and to share what they learn. It should support the use of fatigue management systems with fatigue monitoring technology, especially if they are more effective than prescriptive hours.

A safety culture for fatigue

The new HVNL should encourage all operators to develop a safety culture. This is an organisational culture that places a high level of importance on safety beliefs, values and attitudes. These values and attitudes are shared by all people within the company.

Work health and safety research across different sectors shows that developing a safety culture has the greatest impact on reducing injury, illness and death in a workplace.

Enforcement of prescriptive rules does not build a safety culture. Instead, a safety culture is achieved by developing collaborative safety management systems and risk management approaches. These allow drivers and operators to monitor risk controls. They learn from 'drowsiness' incidents and noncompliance issues before a crash happens, rather than after the fact. And incidents don't necessarily lead to a disciplinary response.

Building skills

The causes of fatigue are varied, complex and interdependent. They cannot all be addressed directly by regulation. Education, information and training are other ways that can improve how we manage driver fatigue. These form an essential part of how fatigue is managed under work health and safety and in other transport modes such as rail and aviation.

Question 5: How do we ensure the HVNL is agile enough to adopt best practice fatigue management as it emerges? How do we encourage continuous improvement? Can training help?

Technology is a game-changer

Fatigue monitoring and detection technology was in its infancy when the current HVNL was written. That is no longer the case. As a result, we need to rethink fatigue management.

The new HVNL should acknowledge the significant role technology can play in effective fatigue management. Fatigue management technology is constantly evolving. As it becomes more accurate in identifying a driver's fatigue level, controls such as work and rest hours could become inferior or obsolete. An hours-based approach to fatigue management may even become negligent.

We must also consider the potential of automated vehicles when drafting the new HVNL. For example, a driver may one day operate under a type of two-up arrangement with the vehicle, rather than with another person. The law cannot even assume a human driver anymore.

Technology will also play a central role in safety assurance and performance-based regulation approaches that are data-driven.

The new HVNL should also not limit the format compliance and enforcement take. It should allow operators to use technology-based risk management systems that support their compliance.

Question 6: How can we better accommodate emerging technologies? How can the new HVNL get the best value from technology and data? Do you think fatigue monitoring technology can supersede work and rest hour requirements?

4.4 A harmonised approach, not a uniform one

Draft principle 4: The new HVNL should accommodate the range of risk profiles and operating needs associated with different transport and freight tasks. Fatigue management requirements should be able to be applied in a way that matches the transport task.

The new HVNL should recognise that the Australian heavy vehicle industry is diverse. It's an industry that includes a variety of transport and freight tasks. The new HVNL should acknowledge that heavy vehicles operate in vastly different environments and face diverse risk profiles.

In this context the new HVNL should include the best aspects of current fatigue regimes in all jurisdictions as well as other modes.

Operators are in the best position to identify and manage the specific risks they face. They are also best placed to recognise and manage the broader risk profile of their operations.

Question 7: How can the new HVNL meet the needs of all Australian states and territories? What should the new HVNL adopt from Western Australia and the Northern Territory, other transport modes and other industries' fatigue management approaches?

4.5 Simple and flexible compliance options

Draft principle 5: Fatigue management requirements in the new HVNL should be easy for operators to understand and meet. There should be flexible compliance options that let operators comply in a way that best meets their needs.

The new HVNL should accommodate the diverse range of operators in the transport industry – from owner-drivers to large logistic companies to ancillary operators. It should respond to their differing operational requirements and compliance capacity and resources.

When designing the new HVNL, we should consider which legal instrument to use to target risks. Some risks should be targeted through primary legislation, others may be better targeted through HVNL supporting regulations. For some, it may be better to use work health and safety laws. Other risks may be better targeted within the HVNL hierarchy but moved down into guidelines and codes of practice.

A need to retain certainty for some operators

The new HVNL should include simple, clear rules for operators that do not have the resources to develop bespoke fatigue management systems. Some operators just want to know what they have to do to comply, and prescriptive rules can provide certainty.

Prescriptive rules in the new HVNL should be easy to understand and follow, otherwise their value will remain compromised.

Question 8: Are prescriptive rules desirable in a new HVNL? If so, how can we simplify rules in the HVNL to make them easier to understand so that they're easier to comply with?

Performance-based regulation

For some operators, prescriptive rules are not flexible enough and do not align to their operational needs. The new HVNL should accommodate those operators and offer them an alternative way of demonstrating they are managing fatigue risk.

The alternatives should go beyond what AFM allows, though core principles may be comparable to AFM. Operators would:

- be accredited
- be able to set their own work and rest hours as long as they can show their approach meets key principles
- have to demonstrate good safety practices to achieve more responsibility and flexibility.

Safety assurance

The new HVNL could provide for a compliance level that is more in line with a safety assurance approach. It would describe the high-level outcomes that government wants, such as not letting a driver drive while impaired by fatigue, and let the operator take full responsibility for achieving those outcomes. This is similar to the way the Australian aviation and rail industries treat fatigue risk management.

Operators with the capacity and resources to work in this way would have to put in place a systematic process to actively manage fatigue risk. They would identify the risks as they apply to their operations and the appropriate risk treatments. They would be responsible for implementing those risk treatments and proving that they work. Assurance activities are at the core of this approach, which is data-driven. Also central are technology, reporting and continuous improvement of fatigue management practices.

Question 9: Would the compliance options described in section 4.5 be a more effective approach to regulating fatigue management? If so, what should be included in the new HVNL, its subordinate documents, or elsewhere, such as in work health and safety laws? How would the appropriate fatigue management option be allocated to an operator – by self-selection or other means?

Question 10: Should the new HVNL give operators the option of taking full responsibility for risk management? What would be the roles of the regulator and roadside enforcement in such a system?

4.6 Efficient enforcement and proportional sanctions

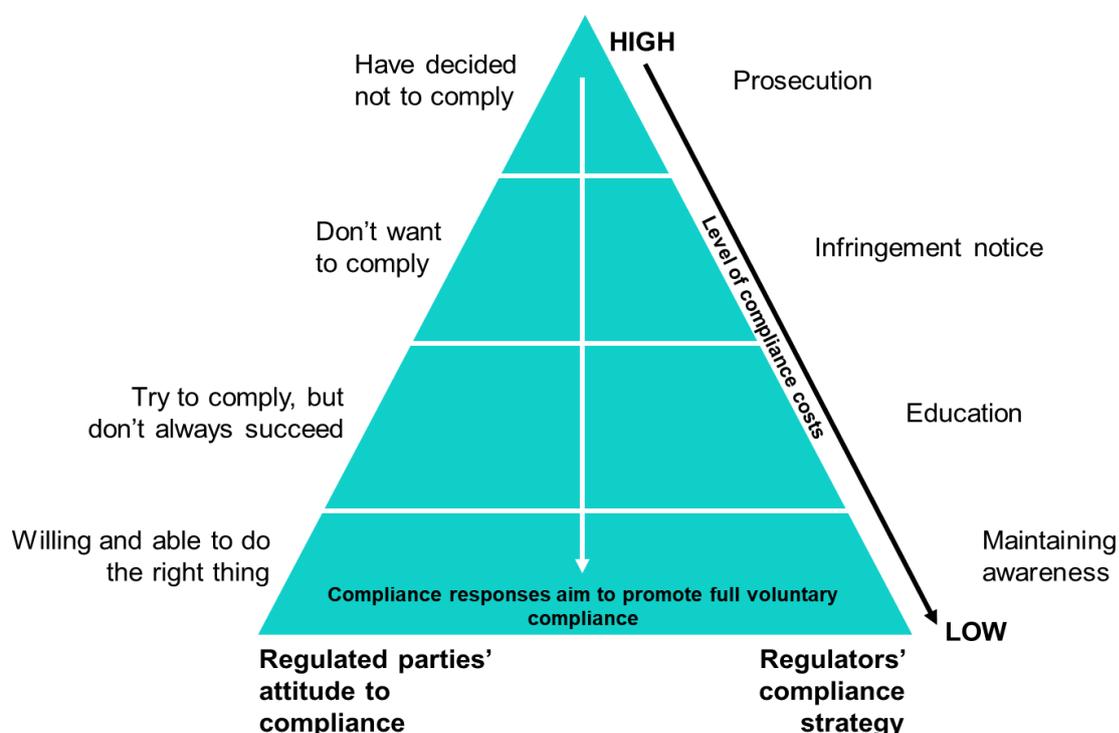
Draft principle 6: Enforcement under the new HVNL should target the most significant threats and consequences associated with driving fatigued. Enforcement efforts and sanctions should align with these threats and consequences. They should also be proportional to the severity of the risk.

The new HVNL should enable roadside enforcement officers to intervene immediately if there are compliance breaches where there is an imminent harm – for example, when it's obvious a driver is impaired by fatigue or has significantly breached maximum work hours. But the new HVNL should also give the regulator other options such as using 'back of house' data to identify and target systemic risky behaviours.

Sanctions and enforcement responses should correspond to the level of risk posed by the breach, in line with the enforcement pyramid (see Figure 10). Trivial administrative errors should not result in infringement notices or other penalties. Rather, an educative approach should be used.

Figure 10. Enforcement pyramid

Source: Adapted from Braithwaite (2018)



Question 11: How can we get the best overall value from a compliance and enforcement strategy for fatigue management? How are scarce resources best allocated, and what tools do regulators need? What provisions in the law do operators need?

Question 12: What else would you like to tell us about effective fatigue management?

5 Next steps

Key points

- We want to hear from you. Consultation is open until **Friday 16 August**.
- There will be future opportunities to tell us about the specifics of access, safe people and practices, safe vehicles, accreditation, compliance and technology and other matters.

5.1 Have your say

The NTC wants to give everyone affected by the HVNL an opportunity to have a say.

We are seeking your advice on the problems we have identified and whether we have suitably outlined them.

We will consult on the questions asked in this paper until **Friday 16 August**.

To stay updated on the project, visit the [HVNL review website](#)⁹ and register to receive newsletters and consultation alerts.

5.2 Future publications

This is one of eight issues papers seeking your feedback on the HVNL.

The next issues papers will cover easier access to suitable routes, safer people and practices, and safer vehicles.

Other issues papers will cover more specific 'how to regulate' matters such as accrediting operators to deliver best practice and managing compliance, including the regulatory role that could be played by technology and data.

The last issues paper will cover other policy matters not covered in other issues papers.

We will produce a summary of outcomes from the issues papers to bring together all your feedback and advice, and to serve as a basis to conduct a regulatory impact assessment.

⁹ www.hvnlreview.ntc.gov.au

Appendix A

Work and rest requirements

Required work and rest time in	HVNL	HVNL	HVNL	Non-HVNL	Non-HVNL	International	International
	Standard	BFM	AFM	WA	NT	USA	Canada
6-hour period	After 5.25 hours 15 mins rest	After 6 hours 15 mins rest	Outer limit: after 6 hours 15 mins rest	After 5 hours 20-min break from driving (can be split in 2 x 10 min blocks)	N/A	After 8 hours 30-min break	N/A
12-hour period	10 hours 1 hour rest in 15-min blocks	11 hours 1 hour rest in 15-min blocks	N/A	N/A	N/A	N/A	N/A
24-hour period	12 hours 7 hours' continuous rest	14 hours 7 hours' continuous rest	15.5 hours 7 hours' continuous rest	17 hours 7 hours' continuous rest	6 hours' rest	14 hours (max of 11 hours' driving) 10 consecutive hours off-duty	14 hours (max 13 hours' driving) 10 hours off-duty (8 hours consecutive and 2 hours in 30-min blocks)

Required work and rest time in	HVNL	HVNL	HVNL	Non-HVNL	Non-HVNL	International	International
	Standard	BFM	AFM	WA	NT	USA	Canada
3-day period	N/A	N/A	N/A	45 hours Minimum non-work time of 27 hours	N/A	N/A	N/A
7-day period	72 hours 1 x 24-hour rest period	N/A Not to exceed 36 hours of night/long hours	N/A	N/A	N/A	60 hours Reset after 34 consecutive hours off duty	Cycle 1 option: 70 hours
14-day period	144 hours 4 x night rest breaks (2 consecutive)	144 hours 24 hours' rest after 84 hours' work 4 x night rest breaks (2 consecutive)	154 hours 30 continuous hours' rest (including 2 night periods)	168 hours 2 x 24-hour continuous rests	2 x 24-hour continuous rests	N/A	Cycle 2 option: 120 hours 24 consecutive hours off-duty (after 70 hours' work)

Appendix B

NSW Criminal Court statistics, Feb 2014 to Dec 2018

Number of finalised charges under the Heavy Vehicle National Law (NSW) under Chapter 6 by section

Description	HVNL section	2014 [^]	2015	2016	2017	2018	Total
Duty to avoid fatigue – driver	s 228	0	0	0	1	0	1
Duty to avoid fatigue – responsible party	ss 229–233	0	0	3	7	0	10
Standard hours – solo drivers	s 250	781	1,287	1,146	1431	187	4,832
Standard hours – two-up drivers	s 251	13	11	30	69	18	141
BFM hours – solo drivers	s 254	148	248	239	325	42	1,002
BFM hours – two-up drivers	s 256	0	3	3	9	0	15
AFM hours	s 258	1	4	0	7	0	12
Driver contravening hours – responsible party	s 261	0	0	0	58	1	59
Work diary requirements – driver	ss 293–308	75	164	241	245	82	807
Records relating to drivers	ss 321–326	260	499	776	904	105	2,544
Interfering with work records	ss 329–332	10	14	22	34	7	87

Source: NSW Bureau of Crime Statistics and Research

Note: These figures represent the number of charges brought, rather than the number of people charged. A charge refers to an instance of a particular type of offence being charged against a person.

[^] The Heavy Vehicle National Law commenced 10/02/2014

AFM = Advanced Fatigue Management; BFM = Basic Fatigue Management

Common terms and abbreviations

Term	Definition
AFM	Advanced Fatigue Management
BFM	Basic Fatigue Management
EWD	electronic work diary
fatigue-related heavy vehicle	As defined in s 7 of the HVNL. See 2.2.2
GVM	gross vehicle mass
HVNL	<i>Heavy Vehicle National Law 2012 (Qld)</i>
NatRoad	National Road Transport Association
NHVAS	National Heavy Vehicle Accreditation Scheme
NHVR	National Heavy Vehicle Regulator
NTC	National Transport Commission
NTI	National Transport Insurance
OSH Act	<i>Occupational Safety and Health Act 1984 (WA)</i>
OSH Regulations	Occupation Safety and Health Regulations
WHS Act	<i>Work Health and Safety (National Uniform Legislation) Act 2011 (NT)</i>
WHS Regulations	Work Health and Safety (National Uniform Legislation) Regulations 2011 (NT)

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