National Transport Commission

Counting Time and Residual Fatigue Risk: Final report

Report prepared by: Kylie Gauvin and Belinda Irwin

Report outline

Title: Counting Time and Residual Fatigue Risk

Type of report: Final report

Purpose: Final report approved by the Transport and Infrastructure Council

Abstract: In May 2011 the Australian Transport Council decided to amend the rule used to count driver work and rest hours in the Heavy Vehicle Driver Fatigue National Model Legislation to ensure the rule was applied consistently in the four model law states. In some states, transport departments and police expressed concern that the agreed rule could give rise to a ‘residual fatigue risk’ when a driver works extended shifts either side of a seven-hour break. The NTC commissioned a number of fatigue experts to provide advice on whether there is a residual fatigue risk associated with the rule. The NTC held a workshop with industry and governments to discuss the expert advice and next steps. This report explains the steps taken to date to assess the nature and extent of the residual risk. While stakeholders could not agree on the extent of ‘residual fatigue risk’ associated with the agreed counting time rule, the report proposes a recommendation to undertake a data collection project to further inform future fatigue policy.

Key milestones: Draft report targeted release, January 2014; Transport and Infrastructure Council, May 2014

Key words: Counting time; fatigue; residual fatigue risk; standard hours; basic fatigue management; advanced fatigue management

Contact: National Transport Commission
L 15/628 Bourke Street
Melbourne VIC 3000
Ph: (03) 9236 5000
Email: enquiries@ntc.gov.au
www.ntc.gov.au
Foreword

The National Transport Commission (NTC) is an inter-governmental agency established under an Act and inter-governmental agreement to provide independent advice to transport ministers on regulatory and operational reforms. The NTC undertakes these reforms across road, rail and intermodal transport to improve safety, productivity and environmental outcomes.

National heavy vehicle driver fatigue reforms were introduced from 2008 in the Heavy Vehicle Driver Fatigue National Model Legislation (Model Fatigue Law). The Model Fatigue Law applied to fatigue-regulated heavy vehicles. Policy reforms introduced in the Model Fatigue Law sought to address the fundamental problem of developing a universal rule set that was scientifically and legally defensible for all operators and circumstances. This resulted in three modules: standard hours, basic fatigue management and advanced fatigue management. The counting time rule in the Model Fatigue Law, which now appears in the Heavy Vehicle National Law (HVNL), requires work and rest time to be counted in a certain way.

Prior to the commencement of the Model Fatigue Law in 2008, the NTC developed amending regulations that changed the counting time rule to address the enforcement of maximum work limits. Victoria and South Australia adopted the amended rule, but Queensland and New South Wales implemented the original rule. This led to inconsistency across state borders. In May 2011 the then Australian Transport Council (ATC) agreed to revert to the original counting time rule to ensure that the rule was applied consistently in the four model states. Victoria and South Australia, while agreeing to adopt the original counting time rule, expressed concern that the original rule can give rise to a ‘residual fatigue risk’ when a driver works extended shifts either side of a seven-hour break. The ATC directed the NTC to assess the residual fatigue risk and provide advice on any consequential legislative changes required to manage the risk.

In late 2011 the NTC convened a working group to assess the potential residual fatigue risk associated with the current rule. Participants strongly disagreed on the significance of any residual risk. The NTC gathered further information including real work diary samples from police and expert advice. The experts acknowledged that schedules that are possible under the current rule can potentially present an increased fatigue risk. However, the advice suggested that the increase in fatigue risk posed by such schedules may vary from modest to significant. The other primary factors that the experts identified that may contribute to increased fatigue risk include insufficient sleep, long work shifts and circadian impacts.

There is no consensus on the degree and nature of fatigue risk associated with schedules that are possible under the current rule. One of the main challenges relating to determining the fatigue risk associated with scheduled (or unscheduled) work patterns of this nature is a lack of data, not only in relation to the prevalence of nose-to-tail schedules, but also linking crash/incident data back to these work practices. Consequently, this report recommends a data gathering project to support future fatigue reforms.

David Anderson PSM
Chair and Commissioner
National Transport Commission
Executive summary

Background to the Counting Time and Residual Fatigue Risk Project

In May 2011 the then Australian Transport Council (ATC) agreed to revert to the original counting time rule in the Heavy Vehicle Driver Fatigue National Model Legislation (Model Fatigue Law) to ensure consistency across the states that adopted the Model Fatigue Law (New South Wales, Queensland, South Australia and Victoria). A key driver of the decision to revert to the original rule was a concern that the amended rule was more difficult for industry to use. Victorian and South Australian Transport Ministers agreed to adopt the original rule subject to the NTC assessing whether a residual fatigue risk arises from certain work schedules that are possible under the original counting rule. There has been concern expressed that the original rule can give rise to a ‘residual fatigue risk’ when a driver works extended shifts either side of a seven-hour break.

Model fatigue legislation

The NTC drafted the Road Transport Reform (Driving Hours) Regulations 1998, which the Ministerial Council for Road Transport approved on 15 January 1999. These Regulations prescribed drivers’ maximum driving and work times and minimum rest times. The Regulations also set out requirements for the Transitional Fatigue Management Scheme (TFMS), which (upon registration to the scheme) enabled a driver to drive for a maximum of 14 hours in any 24-hour period.

In order to create a more flexible approach to regulating fatigue-related risks, a three-tiered approach [comprising standard hours, basic fatigue management (BFM) and advanced fatigue management (AFM)] was later developed, which recognised the need to provide a regime that catered for different operating requirements in the industry. In addition to these modules, the Model Fatigue Law made provision for obtaining work and rest hours exemptions for:

- emergency situations; and
- circumstances where it would be unreasonable to require full accreditation under AFM or BFM and the fatigue risks could be offset by other practices.

Counting time rule

The counting time rule requires work and rest time to be counted in a certain way to avoid ‘artificial counting’, such as counting from within a major rest break. Prior to the commencement of the Model Fatigue Law in 2008, the NTC developed amending regulations in conjunction with Commonwealth, state and territory road safety, traffic and road transport authorities, providing for a number of minor amendments and clarifications to the Model Fatigue Law. The amending regulations changed the counting time rule to address the enforcement of maximum work limits.

Victoria and South Australia adopted the amended counting time rule (amended rule), but Queensland and New South Wales implemented the original rule (original rule). This led to inconsistency in the laws across state borders. To address this inconsistency, in May 2011 the ATC agreed to amend the rule used to count driver work and rest hours in the Model Fatigue Law to ensure the rule was applied consistently in the four model states. The method chosen was for

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1 Section 91(1) of the Heavy Vehicle Driver Fatigue National Model Legislation provided that ‘a work/rest hours exemption is an exemption from complying with any restrictions imposed under this Act in relation to work time or rest time’.
periods of 24 hours or more to be counted forward only from after relevant major rest breaks (i.e. the original rule).

The key point of difference in the two approaches to counting time is how each approach treats the audit of a driver’s work time in ‘any’ 24 hours.

Victoria and South Australia expressed concern that the original rule can give rise to a ‘residual fatigue risk’ when a driver works extended shifts either side of a seven-hour break. For the purpose of this report, these types of shifts are known as ‘nose-to-tail’ schedules. These schedules can result in a heavy vehicle driver legally exceeding 12 hours of work in some 24-hour periods under standard hours (i.e. 24-hour periods that are not required to be counted under the original rule).

When agreeing to amend the Model Fatigue Law to ensure a uniform counting time rule would be used across state borders, the ATC directed the NTC to assess the residual fatigue risk and provide advice on any consequential legislative changes required to manage the risk.

**Expert fatigue advice**

In late 2011 the NTC convened a working group comprising government, industry and fatigue experts to assess the residual fatigue risk associated with the original counting time rule. Working group participants strongly disagreed on the significance of any residual risk. In an attempt to progress the residual fatigue risk assessment, the NTC gathered further information, including real work diary samples from Victoria Police and South Australia Police, and expert advice.

In 2013 the NTC commissioned several fatigue experts to provide advice on the potential residual fatigue risk. In particular, the experts were asked to:

- explain which factors in nose-to-tail schedules may contribute to fatigue risk;
- compare fatigue risk factors present in nose-to-tail schedules with other work schedules possible under standard hours and basic fatigue management (BFM); and
- provide advice on whether regulatory change is warranted to mitigate one or more fatigue risk factors posed by nose-to-tail type schedules.

The NTC received final advice from the experts in September 2013. *All experts acknowledged that nose-to-tail schedules can potentially present an increased fatigue risk. However, the advice suggests that the increase in fatigue risk posed by nose-to-tail schedules may vary from modest to significant depending on the details of the actual work schedule.*

One of the main challenges relating to determining the fatigue risk associated with scheduled (or unscheduled) work patterns of this nature is a lack of data, not only in relation to the prevalence of nose-to-tail schedules, but also linking crash/incident data back to these work practices. Without such data, while there may be an increased fatigue risk, it is difficult to make a definitive judgement about the nature and extent of the risk and what steps might be required to mitigate the risk.

Fatigue is an inexact science and there are various factors that impact fatigue risk and the level of fatigue a driver may experience at any given point in time. To that end, there are no regulatory limits or arrangements that can guarantee a driver is not fatigued, even where all regulatory requirements are fulfilled. A driver who complies with regulatory work and rest requirements may still be fatigued due to factors unrelated to work. Drivers have a responsibility to manage their own fatigue, and rest as often and long as necessary to ensure their own safety and that of other road users. Parties in the chain of responsibility must also take all reasonable steps to ensure they do not cause a driver to drive while impaired by fatigue.
Industry and government workshop

On 1 October 2013 the NTC held a workshop with industry and governments to discuss the issue of residual fatigue risk associated with nose-to-tail shifts. The purpose of the workshop was to:

- receive stakeholder feedback on the expert advice and whether there is a residual fatigue risk;
- begin gathering information from industry about nose-to-tail shifts (including any benefits this type of scheduling may have); and
- provide the NTC with information to collate and develop a draft report for consultation.

The workshop participants could not reach consensus on the degree and nature of fatigue risk that nose-to-tail schedules present. There was disagreement between governments and between some governments and industry. Consequently, there was no consensus on whether legislative change was warranted.

The NTC provided a draft of this report to workshop participants and other key government and industry stakeholders for comment during January and February 2014.

Next steps

Industry and most government agencies agreed the definitional question of what ‘relevant’ means in ‘relevant major rest break’ in the Heavy Vehicle National Law (HVNL) requires immediate resolution and clarification. This is answered in the work diary instructions but not the legislation itself. ‘Relevant’ should mean the longest continuous rest break required in a given period for each work and rest hours option, consistent with the New South Wales Trinci decision, where ‘relevant’ means relevant to the fatigue management module under which the driver is operating. For example, a driver using standard hours must have at least seven hours continuous rest in 24 hours, so a rest break lasting at least seven continuous hours would be the relevant major rest break in a 24-hour period under standard hours.

The NTC recommended to the Transport and Infrastructure Senior Officials’ Committee (TISOC) that the HVNL be amended to clarify that a ‘relevant major rest break’ means the longest continuous rest break required in a given period for each work and rest hours module. There was not consensus among TISOC members on this recommendation.

Industry and government agreed the NTC and the National Heavy Vehicle Regulator (NHVR) should collaborate with industry and governments to develop a national framework to collect real-life operational data to better inform broader fatigue policy directions in the future, including (but not limited to) nose-to-tail schedules. This would involve analysis of the work diaries/shifts associated with recorded incidents. Capturing data over longer timeframes would provide more informative data than that currently available.

Recommendation: that the NTC and the NHVR collaborate with industry and governments to develop a national framework to facilitate collecting real-life operational data to better inform future fatigue policy. This would involve an initial consultation phase seeking input from industry and governments to determine a results-driven co-designed project scope.

The primary factors that the experts identified that may contribute to increased fatigue risk include:

- **insufficient sleep** – taking only the minimum seven-hour ‘major rest break’ for rest between long work periods, as the driver is likely to have six hours or less of actual sleep;
- **long work shifts** – where a single ‘work opportunity’ or shift is longer than 12 hours;

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4 Roads & Traffic Authority of NSW v Frank Trinci [2011] NSWSC 211.
• **circadian impacts** – undertaking a work schedule that impinges on the natural circadian cycle, including work during the night, sleeping during the day and starting shifts in the early morning or at significantly different times on consecutive days; and

• **frequent nose-to-tail schedules** – particularly consecutive nose-to-tail schedules.

The NTC believed the above concerns regarding broader fatigue risk factors, in addition to those associated with nose-to-tail style schedules, would be best considered holistically as part of a broader review.

The NTC recommended to TISOC that the NTC lead a review of fatigue provisions in the HVNL commencing in 2014–15 (excluding the current AFM module) and that the NTC would work with industry and governments to develop terms of reference for the review. There was not consensus among TISOC members on this recommendation.

The NTC has not been able to gather sufficient evidence through the Counting Time and Residual Fatigue Risk Project to support changes to the law, despite strong concerns raised by police in particular, which are countered by equally strong views of drivers, industry associations and some governments.
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Introduction

1.1 Background

The regulation of driving hours for road transport in Australia began to be overhauled in the late 1990s when it became apparent that previous regulations were not achieving their goal of reducing fatigue-related crashes.

The National Transport Commission (NTC) drafted the proposed Road Transport Reform (Driving Hours) Regulations 1998, which the Ministerial Council for Road Transport approved on 15 January 1999. These Regulations prescribed drivers' maximum driving and work times and minimum rest times. These Regulations provided that a driver's maximum driving time was 12 hours in any 24-hour period, and a driver's maximum work time was 14 hours in any 24-hour period. A driver's required minimum rest time was 10 hours in any 24-hour period, including a single period of at least six hours not spent in or on a heavy truck, except a heavy truck with a sleeper berth complying with ADR 42. These Regulations also set out requirements for the Transitional Fatigue Management Scheme (TFMS). Employer registration under TFMS enabled the employer's driver to drive for a maximum of 14 hours in any 24-hour period. The maximum work and minimum rest times under TFMS remained the same as the regulated hours.

In 1999 and 2000 a parliamentary inquiry into fatigue in transport industries, Beyond the Midnight Oil, found there was substantial merit in moving towards a more flexible approach to regulating fatigue-related risk. By undertaking a performance-based approach to fatigue management, transport operators were permitted to propose a unique schedule of work and rest hours for drivers, on the basis of their overall safety system. While this was seen as a positive step forward for larger, well-resourced operators, there was a great deal of concern that by increasing performance-based regulation, a large portion of the industry would inadvertently become deregulated. To mitigate any safety risks to other road users, a three-tiered approach was implemented [i.e. standard hours, basic fatigue management (BFM) and advanced fatigue management (AFM)], which recognised the need to provide a regime that catered for different operating requirements in the industry while not imposing unnecessary costs on those who have basic operating requirements.\(^\text{10}\)

\(^{5}\) Section 12 (1): Driving is driving a heavy truck or commercial bus, and includes:
(a) being in the driving seat of a stationary heavy truck or commercial bus while the engine is running; and
(b) being in a heavy truck or commercial bus and instructing or supervising someone else to drive it.

\(^{6}\) Section 12(2): Driving time of a driver is time spent by the driver driving, whether or not the time is spent on a road or road-related area.

\(^{7}\) Section 14: Rest time of a driver is a continuous period of at least 15 minutes that is not work time of the driver.


\(^{9}\) Standing Committee on Communication, Transport and the Arts (2000) Beyond the Midnight Oil: managing fatigue in transport, House of Representatives, Canberra, 9 October 2000

\(^{10}\) National Transport Commission, Heavy Vehicle Driver Fatigue: Policy proposal, 2004

Counting Time and Residual Fatigue Risk: Final report October 2014
National heavy vehicle driver fatigue reforms were introduced from 2008 in the Heavy Vehicle Driver Fatigue National Model Legislation (Model Fatigue Law). The Model Fatigue Law applied to fatigue-regulated heavy vehicles. A fatigue-regulated heavy vehicle is:

- a vehicle with a gross vehicle mass (GVM) of more than 12 tonnes;
- a combination when the total of the GVM is more than 12 tonnes;
- a bus weighing more than 4.5 tonnes fitted to carry more than 12 adults (including the driver); or
- a truck, or combination including a truck, with a GVM of more than 12 tonnes with a machine or implement attached.

Policy reforms introduced in the Model Fatigue Law sought to address the fundamental problem of developing a universal rule set that was scientifically and legally defensible for all operators and circumstances. This resulted in the following three modules:

**Standard hours**
The standard hours module includes maximum work times and minimum rest times that were intended to be easy to comply with and enforce. It was anticipated that standard hours would be sufficient for most operators under most situations. As an outer limit, the standard hours module provided that solo drivers must not work for more than 12 hours in a 24-hour period with a minimum continuous break of seven hours in a 24-hour period. In the Model Fatigue Law work is defined as driving a fatigue-regulated heavy vehicle as well as related tasks including (but not restricted to):

- instructing another person to drive a heavy vehicle; and
- loading and unloading, refuelling, inspecting and servicing the vehicle.

The definition of work excludes rest breaks.

**Basic fatigue management**
The BFM module provides the opportunity for longer work hours than standard hours (i.e. up to 14 hours in a 24-hour period with other limits such as restricted night work) and specifies controls required to mitigate the risk associated with the increased likelihood of fatigue associated with the extended hours. The purpose of BFM is to allow for more flexible work and rest hours provided the operator demonstrates a range of standards have been met. To access BFM, transport operators need to be accredited in the National Heavy Vehicle Accreditation Scheme (NHVAS) and comply with six BFM standards covering:

- scheduling and rostering;
- fitness for duty;
- fatigue knowledge and awareness;
- responsibilities;
- internal review; and
- records and documentation.

**Advanced fatigue management**
AFM enables an NHVAS-accredited operator to propose a trip plan for which they believe the risk associated with longer working times will be adequately offset or mitigated by additional risk controls. Operators are required to develop a specific organisational safety case for approval by the NHVR. The system was designed to allow for flexibility in work schedules while still imposing prescriptive outer limits.\(^{11}\) At the time of the policy reforms it was expected that a significant number of operators would take advantage of this option. This

\(^{11}\) Note state-based variations in outer work limits, that is, 15 hours of work in 24 hours in New South Wales and Victoria; 16 hours of work in 24 hours in Queensland and South Australia.
provided an avenue for operators whose existing schedules would not be permitted under the standard hours module to apply for permission to continue working these schedules. Like BFM, AFM adopted a ‘standards’ approach with 10 AFM standards that must be met for accreditation:

- scheduling and rostering;
- readiness for duty;
- fatigue knowledge and awareness;
- responsibilities;
- internal review;
- records and documentation;
- health;
- workplace conditions;
- management practices; and
- operating limits.

In addition to the above modules, the Model Fatigue Law makes provision for obtaining work and rest hours exemptions for:

- emergency situations; and
- circumstances where it would be unreasonable to require full accreditation under AFM or BFM and the fatigue risks can be offset by other practices.

The states that adopted the Model Fatigue Law – New South Wales, Victoria, Queensland and South Australia – did so with some local variations. New South Wales and Victoria adopted the standard hours and BFM modules as they appeared in the Model Fatigue Law; however, in adopting the AFM module, these states capped the maximum hours of work in any 24-hour period (the outer limit) at 15 hours. Queensland and South Australia adopted the standard hours and BFM modules as they appeared in the Model Fatigue Law but also adopted the AFM module as it appeared in the Model Fatigue Law, that is, with a 16-hour outer limit.

1.2 Standard hours and BFM work and rest hours

Under standard hours a solo driver must:

- comply with minimum rest requirements for 5½, 8 and 11-hour periods;
- have at least seven hours of continuous stationary rest every 24 hours;
- have at least 24 hours of continuous stationary rest every seven days; and
- have at least four night rest breaks in every 14 days, two of which must be consecutive.

The driver may count a 24-hour continuous stationary rest break as a night rest break. However, they cannot take two night rest breaks at the same time as two night rest breaks taken on consecutive days, as the driver must have a total of four night rests in a 14-day period.

Tables 1, 2 and 3 (below) set out work and rest requirements for solo heavy vehicle drivers, fatigue-regulated bus and coach drivers and two-up drivers under standard hours.

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12 Section 91(1) of the Heavy Vehicle Driver Fatigue National Model Legislation provides that ‘a work/rest hours exemption is an exemption from complying with any restrictions imposed under this Act in relation to work time or rest time’.


14 The work and rest requirements appear in Schedule 1 to the Heavy Vehicle (Fatigue Management) National Regulation.
### Table 1: Solo drivers (standard hours)

<table>
<thead>
<tr>
<th>Time</th>
<th>Work</th>
<th>Rest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In any period of...</strong></td>
<td><strong>A driver must not work for more than a maximum of...</strong></td>
<td><strong>And must have the rest of that period off work with at least a minimum rest break of...</strong></td>
</tr>
<tr>
<td>5½ hours</td>
<td>5¼ hours’ work time</td>
<td>15 continuous minutes’ rest time</td>
</tr>
<tr>
<td>8 hours</td>
<td>7½ hours’ work time</td>
<td>30 minutes’ rest time in blocks of 15 continuous minutes</td>
</tr>
<tr>
<td>11 hours</td>
<td>10 hours’ work time</td>
<td>60 minutes’ rest time in blocks of 15 continuous minutes</td>
</tr>
<tr>
<td>24 hours</td>
<td>12 hours’ work time</td>
<td>7 hours’ continuous hours stationary rest time*</td>
</tr>
<tr>
<td>7 days (168 hours)</td>
<td>72 hours’ work time</td>
<td>24 continuous hours’ stationary rest time</td>
</tr>
<tr>
<td>14 days (336 hours)</td>
<td>144 hours’ work time</td>
<td>2 x night rest breaks** and 2 x night rest breaks taken on consecutive days</td>
</tr>
</tbody>
</table>

* Stationary rest time is rest time a driver spends out of the fatigue-related heavy vehicle or in an approved sleeper berth of a stationary vehicle.

** A night rest break is seven continuous hours of stationary rest time between 10pm and 8am the next day (using the time zone of the driver’s base) or 24 continuous hours’ stationary rest time. The hours between 10pm and 8am on the daily sheets are shaded to show you which hours are night rest hours.

### Table 2: Fatigue-regulated bus and coach drivers (standard hours)

<table>
<thead>
<tr>
<th>Time</th>
<th>Work</th>
<th>Rest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In any period of...</strong></td>
<td><strong>A driver must not work for more than a maximum of...</strong></td>
<td><strong>And must have the rest of that period off work with at least a minimum rest break of...</strong></td>
</tr>
<tr>
<td>5½ hours</td>
<td>5¼ hours’ work time</td>
<td>15 continuous minutes’ rest time</td>
</tr>
<tr>
<td>8 hours</td>
<td>7½ hours’ work time</td>
<td>30 minutes’ rest time in blocks of 15 continuous minutes</td>
</tr>
<tr>
<td>11 hours</td>
<td>10 hours’ work time</td>
<td>60 minutes’ rest time in blocks of 15 continuous minutes</td>
</tr>
<tr>
<td>24 hours</td>
<td>12 hours’ work time</td>
<td>7 hours’ continuous hours stationary rest time</td>
</tr>
<tr>
<td>7 days (168 hours)</td>
<td>72 hours’ work time</td>
<td>2 x night rest breaks ** and 2 x night rest breaks ** taken on consecutive days</td>
</tr>
<tr>
<td>28 days (672 hours)</td>
<td>288 hours’ work time</td>
<td>4 x 24 continuous hours’ stationary rest time</td>
</tr>
</tbody>
</table>

* Stationary rest time is rest time a driver spends out of the fatigue-related heavy vehicle or in an approved sleeper berth of a stationary vehicle.
Table 3: Two-up drivers (standard hours)

<table>
<thead>
<tr>
<th>Time</th>
<th>Work</th>
<th>Rest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In any period of...</strong></td>
<td>A driver must not work for more than a maximum of...</td>
<td>And must have the rest of that period off work with at least a minimum rest break of...</td>
</tr>
<tr>
<td>5½ hours</td>
<td>5½ hours’ work time</td>
<td>15 continuous minutes’ rest time</td>
</tr>
<tr>
<td>8 hours</td>
<td>7½ hours’ work time</td>
<td>30 minutes’ rest time in blocks of 15 continuous minutes</td>
</tr>
<tr>
<td>11 hours</td>
<td>10 hours’ work time</td>
<td>60 minutes’ rest time in blocks of 15 continuous minutes</td>
</tr>
<tr>
<td>24 hours</td>
<td>12 hours’ work time</td>
<td>5 continuous hours’ stationary rest time or 5 continuous hours’ rest time in an approved sleeper berth while the vehicle is moving</td>
</tr>
<tr>
<td>52 hours</td>
<td></td>
<td>10 continuous hours’ stationary rest time</td>
</tr>
<tr>
<td>7 days (168 hours)</td>
<td>60 hours’ work time</td>
<td>24 continuous hours’ stationary rest time and 14 hours’ stationary rest time in blocks of at least 7 continuous hours of stationary rest time</td>
</tr>
<tr>
<td>14 days (336 hours)</td>
<td>120 hours’ work time</td>
<td>2 x night rest breaks and 2 x night rest breaks taken on consecutive days</td>
</tr>
</tbody>
</table>

Tables 4 and 5 (below) set out work and rest requirements for solo heavy vehicle drivers and two-up drivers under BFM.

Table 4: Solo drivers (basic fatigue management)

<table>
<thead>
<tr>
<th>Time</th>
<th>Work</th>
<th>Rest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In any period of...</strong></td>
<td>A driver must not work for more than a maximum of...</td>
<td>And must have the rest of that period off work with at least a minimum rest break of...</td>
</tr>
<tr>
<td>6½ hours</td>
<td>6 hours’ work time</td>
<td>15 continuous minutes’ rest time</td>
</tr>
<tr>
<td>9 hours</td>
<td>8½ hours’ work time</td>
<td>30 minutes’ rest time in blocks of 15 continuous minutes</td>
</tr>
<tr>
<td>12 hours</td>
<td>11 hours’ work time</td>
<td>60 minutes’ rest time in blocks of 15 continuous minutes</td>
</tr>
<tr>
<td>24 hours</td>
<td>14 hours’ work time</td>
<td>7 hours continuous hours’ stationary rest time*</td>
</tr>
<tr>
<td>7 days (168 hours)</td>
<td>36 hours’ long/night work time**</td>
<td></td>
</tr>
<tr>
<td>14 days (336 hours)</td>
<td>144 hours’ work time</td>
<td>24 continuous hours’ stationary rest time taken after no more than 84 hours work time and 24 hours continuous stationary rest time. 2 x night rest breaks and 2 x night rest breaks taken on consecutive days</td>
</tr>
</tbody>
</table>

* Stationary rest time is rest time a driver spends out of the fatigue-related heavy vehicle or in an approved sleeper berth of a stationary vehicle.

** Long/night work time is:
- any work time between midnight and 6am (according to the time zone of the driver’s base), or
- any work time greater than 12 hours in a 24-hour period

A night rest break is seven continuous hours of stationary rest time between 10pm and 8am the next day (using the time zone of the driver’s base) or 24 continuous hours’ stationary rest time. The hours between 10pm and 8am on the daily sheets are shaded to show you which hours are night rest hours.
Table 5: Two-up drivers (basic fatigue management)

<table>
<thead>
<tr>
<th>Time</th>
<th>Work</th>
<th>Rest</th>
</tr>
</thead>
<tbody>
<tr>
<td>In any period of…</td>
<td>A driver must not work for</td>
<td>And must have the rest of that period off work with at least a</td>
</tr>
<tr>
<td>24 hours</td>
<td>more than a maximum of…</td>
<td>minimum rest break of…</td>
</tr>
<tr>
<td>82 hours</td>
<td>14 hours’ work time</td>
<td></td>
</tr>
<tr>
<td>7 days (168 hours)</td>
<td>70 hours’ work time</td>
<td>10 continuous hours’ stationary rest time</td>
</tr>
<tr>
<td>14 days (336 hours)</td>
<td>140 hours’ work time</td>
<td>24 continuous hours’ stationary rest time and 24 hours’ stationary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>rest time in blocks of at least 7 continuous hours of stationary rest time</td>
</tr>
</tbody>
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1.3 Counting time rule

The counting time rule requires work and rest time to be counted in a certain way to avoid ‘artificial counting’,\(^{15}\) such as counting from within a major rest break.

Prior to the commencement of the Model Fatigue Law in 2008, the NTC developed amending regulations in conjunction with officers from Commonwealth, state and territory road safety, traffic and road transport authorities providing for a number of minor amendments and clarifications to the Model Fatigue Law.\(^{16}\) The amending regulations changed the counting time rule to address the enforcement of maximum work limits.

The amending regulations did not require a supporting regulatory impact statement (RIS) as they ‘did not provide for any changes to the regulatory environment’.\(^{17}\) The Heavy Vehicle Driver Fatigue maintenance process commenced in 2007 with consultation being limited to key stakeholders and the Transport Agency Chief Executives (TACE) group.\(^{18}\) The reason for the limited consultation was the nature of the amending regulations, which did not vary the duties or responsibilities of affected parties or the policy fundamentals and intent underpinning the Road Transport (Heavy Vehicle Driver Fatigue) Act 2007.\(^{19}\) The NTC submitted the draft Model Amendments Act 2007 (Heavy Vehicle Driver Fatigue) Regulations to the TACE group on 16 July 2007 for comment.\(^{20}\) The Regulations were then submitted to the then Australian Transport Council (ATC) for voting and were approved unanimously on 16 November 2007.\(^{21}\)

Victoria and South Australia adopted the amended counting time rule (amended rule), but Queensland and New South Wales implemented the original rule (original rule). This led to inconsistency in the laws across state borders. The original rule and the amended rule are explained below.


\(^{17}\) ibid.

\(^{18}\) ibid.

\(^{19}\) ibid.

\(^{20}\) ibid.

\(^{21}\) ibid.
The key point of difference in the two approaches to counting time is how each approach treats the audit of a driver’s work time in ‘any’ 24 hours.

1.3.1 Original rule

The original rule, implemented in New South Wales and Queensland, requires 24-hour periods to be counted from the end of a relevant major rest break:

40 Counting time, including work and rest time

(3) When counting time in a period, the time must not be counted from within rest time, but instead must be counted forward:

(a) if one or more major rest breaks are relevant to the period, from the end of a relevant major rest break; or
(b) in any other case, from the end of a relevant period of rest time.

1.3.2 Amended rule

The amended rule, implemented in Victoria and South Australia, required 24-hour periods to be counted from the end of any rest break, which often resulted in several overlapping 24-hour periods being counted:

40 Counting time, including work and rest time

(3) When counting time in a period, the time must not be counted from within rest time, but instead be counted forward:

(a) if counting rest time and one or more major rest breaks are relevant to the period, from the end of a relevant major rest break; or
(b) in any other case, from the end of a relevant period of rest time.

1.4 Issues with the counting time rule amendment

In May 2011 the then ATC agreed to revert to the original rule in the Model Fatigue Law to ensure consistency across the four model states. A key driver of the decision to revert to the original rule was a concern that the amended rule was more difficult for industry to use. Victorian and South Australian Transport Ministers agreed to adopt the original rule subject to the NTC assessing whether a residual fatigue risk arises from certain work schedules that are possible under the original counting rule but that would not be allowed under the amended rule.

There has been concern expressed that the original rule can give rise to a ‘residual fatigue risk’ when a driver works extended shifts either side of a seven-hour break. For the purpose of this project, these types of work patterns are described as ‘nose-to-tail’ schedules.

Using nose-to-tail schedules, it is possible for a solo standard hours or BFM driver to work up to 16¼ hours when counting a 24-hour period from the end of a short rest within the driver’s first work opportunity (i.e. counting according to the amended counting rule that was previously in place in South Australia and Victoria). However, the driver will still be legally working only up to 12 hours (standard hours) or 14 hours (BFM) in the 24-hour periods that must be counted (i.e. from the end of relevant major rest breaks) under the original rule.

Typical features of ‘nose-to-tail’ schedules that possibly give rise to a residual risk are:

- extra periods of rest are taken towards the beginning of the first work opportunity (which often results in the first work opportunity in the nose-to-tail schedule being long);

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The original counting rule currently appears in section 247 of the HVNL.
the majority of work time in the first work opportunity is taken towards the end of the work opportunity; and
the shorter the sleep opportunity within the nose-to-tail schedule (e.g. only seven hours), the more the driver’s 24-hour work and sleep cycle is shifted earlier with each successive pair of shifts.

The NTC notes that there are possible work patterns that do not have one or more of the above features but do result in a driver working for more than 12 standard hours or 14 BFM hours in ‘any’ 24-hour period.

The NTC also notes that the following overarching duties may provide an avenue under the Heavy Vehicle National Law (HVNL) for addressing schedules that pose an unacceptable risk:

- the duty for a driver to avoid driving while fatigued; and
- duties for parties in the chain of responsibility – including schedulers – to take all reasonable steps to ensure they do not cause a driver to drive while impaired by fatigued.23

There are also outstanding issues with the interpretation of the agreed counting time rule in the HVNL in that some states are interpreting and enforcing the counting rule slightly differently. The difference arises because ‘relevant major rest break’ is not defined in the HVNL, and states have adopted different interpretations of ‘relevant’. Major rest break is defined as a rest break of at least five continuous hours,24 so at issue is what ‘relevant’ means.

In Roads & Traffic Authority of NSW v Frank Trinci [2011]25 a New South Wales Supreme Court decision relating to an alleged offence of failing to take a prescribed period of continuous rest from driving during a 24-hour period,26 the Honourable Justice Hidden held that the definition of ‘relevant’ major rest break meant ‘relevant’ to the driver’s hours option.27 Justice Hidden also remarked that:

[(This aspect of the Regulation could have been more clearly expressed, but its meaning emerges clearly enough).28

New South Wales is bound by the Trinci decision and South Australia has also chosen to follow the decision. Victoria does not agree with the decision, while feedback from Queensland suggests there is no settled approach and enforcement may vary from officer to officer.

In February 2012 the National Heavy Vehicle Regulator (NHVR) Project Implementation Board decided to retain the existing wording of the counting rule; however, the NTC has continued to receive feedback that there is still a level of confusion among industry and enforcement agencies about the interpretation of the current counting rule.

1.5 Advanced Fatigue Management Risk Classification System

The AFM Risk Classification System (RCS), which is in its infancy, provides important context for considering any future changes to the fatigue provisions in the HVNL, including the counting rule.

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23 See HVNL section 229(1).
24 See the dictionary at the end of the Model Fatigue Law and section 221 of the HVNL.
25 NSWSC 211.
26 An offence under clause 68 of the Road Transport (General) Regulation 2005 (NSW).
27 Justice Hidden held (at 23) that:
- Mr Trinci’s position was governed by clause 68 because he was a solo driver under the BFM regime;
- the table to that clause prescribes short minimum rest breaks for work periods of six hours, nine hours and 12 hours; and
- it is the 24-hour period that is the first to require a major rest break, in this case a break of seven continuous hours. For Mr Trinci, that was the relevant major rest break, within the meaning of clause 60(3)(a).
28 At 24.
Proposed schedules will be given a risk ‘score’ under the AFM RCS via a risk-trading approach that will consider potential fatigue risks and countermeasures.\textsuperscript{29}

Nose-to-tail schedules can see a driver work for up to 16.25 hours in a 24-hour period, that is, two long work opportunities separated with a seven-hour sleep opportunity. The AFM RCS indicates that some schedules currently possible under standard hours and BFM, including nose-to-tail schedules, are ‘high risk’. 

\textsuperscript{29} The National Heavy Vehicle Regulator Independent Expert Panel framed the proposed AFM RCS in these terms.
2. Expert fatigue advice

In late 2011 the NTC convened a working group comprising government, industry and fatigue experts to assess the potential residual fatigue risk associated with the current counting time rule. Participants in workshops strongly disagreed on the significance of any residual risk. Discussions were further hindered by a lack of:

- data on the extent of drivers undertaking potentially risky work schedules; and
- evidence to link particular work schedules to fatigue-related crashes.

In February 2012 the working group reported to the NHVR Project Implementation Board and recommended, among other things, that urgent legislative change to address any residual risk was not warranted. As a result of these recommendations the NHVR Project Implementation Board decided to retain the current counting rule. In an attempt to progress the residual fatigue risk assessment, the NTC gathered further information including real work diary samples from Victoria Police and South Australia Police and expert advice.

2.1 Request for expert advice

The NTC commissioned several fatigue experts to provide advice on the potential residual fatigue risk. The request for advice sought the following:

- to seek independent advice from a number of fatigue experts on the assessment of the residual risk; and
- to quantify the residual risk by drawing comparisons with other fatigue risks (by using, for example, the AFM RCS as a framework).

In particular, the experts were asked to:

- explain which factors in nose-to-tail schedules may contribute to fatigue risk;
- compare fatigue risk factors present in nose-to-tail schedules with other work schedules possible under standard hours and BFM; and
- provide advice on whether regulatory change is warranted to mitigate one or more fatigue risk factors posed by nose-to-tail type schedules.

2.2 Overview of expert fatigue advice

All experts acknowledged that nose-to-tail schedules can potentially present an increased fatigue risk. However, the advice suggested that the increase in fatigue risk posed by nose-to-tail schedules may vary from modest to significant depending on the details of the actual work schedule.

The primary factors that the experts identified that may contribute to increased fatigue risk include:

- **insufficient sleep** – taking only the minimum seven-hour ‘major rest break’ for rest between long work periods, as the driver is likely to have six hours or less of actual sleep;
- **long work shifts** – where a single ‘work opportunity’ or shift is longer than 12 hours;
- **circadian impacts** – undertaking a work schedule that impinges on the natural circadian cycle, including work during the night, sleeping during the day and starting shifts in the early morning or at significantly different times on consecutive days; and
- **frequent nose-to-tail schedules** – particularly consecutive nose-to-tail schedules.

Dr Howard and colleagues from the Institute for Breathing and Sleep noted that nose-to-tail shifts ‘can result in a combination of several high risk factors’; however, other standard hours and BFM work schedules that are not nose-to-tail shifts can also give rise to these same risk factors.
Most experts were of the view that more extreme examples of nose-to-tail scheduling warrant considering regulatory change to mitigate the risks, even in the absence of evidence about the actual prevalence of these types of schedules. Some experts believed that regulatory change was not warranted.

The experts agreed that frequent or repeated scheduling of nose-to-tail schedules are of greater concern. All experts noted areas in which there is insufficient research and evidence to provide a confident risk assessment, particularly when attempting to compare the fatigue risk that arises from different work scenarios (such as comparing the fatigue risk from nose-to-tail schedules with other ‘high risk’ work schedules possible under standard hours or BFM).

One of the key components involved in assessing risk associated with nose-to-tail schedules is the amount of sleep a driver has between the shifts comprising the ‘nose’ and the ‘tail’. This is also a consideration when assessing fatigue risk associated with any type of schedule (not just nose-to-tail schedules). Dr Howard and colleagues, and Dr Anderson and Professor Rajaratnam from Monash University, suggested that protecting or increasing the length of the sleep opportunity between shifts should be the primary risk mitigation approach for managing the risk associated with nose-to-tail schedules. Professor Dawson, Director of the Appleton Institute, Central Queensland University and Professor Williamson, Director Transport and Road Safety, University of New South Wales, took the view that nose-to-tail schedules should not be permissible under standard hours or BFM but should be assessed under AFM using the RCS.

It was clear from the expert advice provided that there is a fatigue risk associated with nose-to-tail schedules. However, the level or significance of that risk is unclear, especially in light of other work schedules currently possible under the standard hours and BFM regimes.

All experts noted that the amount of sleep a driver has between nose-to-tail schedules will affect the likelihood and extent of fatigue risk associated with this type of work pattern.

One of the main issues associated with determining the fatigue risk associated with scheduled (or unscheduled) work patterns of this nature is a lack of data, not only determining the prevalence of nose-to-tail schedules, but also linking crash/incident data back to these work practices. Without such data, while it is noted that there is an enhanced fatigue risk, it is difficult to make a definitive judgement about the risk and what steps might be required to mitigate that risk.

Fatigue is an inexact science and there are various factors that impact on fatigue risk and the level of fatigue a driver may experience at any given point in time. To that end, there are no regulatory limits or arrangements that can guarantee a driver is not fatigued, even where all regulatory requirements are fulfilled. Drivers have a responsibility to manage their own fatigue, and rest as often and long as necessary to ensure their own safety and that of other road users. Parties in the chain of responsibility must also take all reasonable steps to ensure they do not cause a driver to drive while impaired by fatigue.
3. Counting time and residual fatigue risk workshop

On 1 October 2013 the NTC held a workshop with industry and governments to discuss the residual fatigue risk associated with certain work patterns possible under the current counting rule (nose-to-tail schedules).

3.1 Workshop purpose

The purpose of the workshop was to:

- receive stakeholder feedback on the expert advice and whether there is a residual fatigue risk;
- begin gathering information from industry about nose-to-tail shifts (including any benefits this type of scheduling may have); and
- provide the NTC with information to collate and develop a draft report.

Workshop invitees also had the opportunity to suggest additional research, information gathering and/or further workshops to augment the report.

3.2 General outcomes of workshop

There was no consensus on the degree and nature of fatigue risk that nose-to-tail schedules present. Consequently, there was no consensus on whether change was warranted.

Those participants who agreed a risk exists did not agree on the nature and extent of the risk. There was a strong view among some enforcement bodies that the risk is self-evident in that it contravenes accepted fatigue science that work opportunities should not exceed 12 hours in a 24-hour period under standard hours.

Participants who did not agree on the risk’s existence or significance were not convinced that there is a clear, identifiable problem based on an unacceptable increase in fatigue risk arising out of nose-to-tail schedules that can and should be addressed. They argued that robust evidence demonstrating a safety risk needs to be made available before any further regulatory action occurs in relation to nose-to-tail schedules.

Police participants noted that, anecdotally, they are seeing an increase in nose-to-tail schedules. Industry participants suggested that nose-to-tail schedules do not appear to provide a great economic or productivity benefit to drivers or operators.

Participants agreed:

- the duty to manage fatigue to ensure a driver does not drive while impaired by fatigue is paramount and requires more than compliance with work and rest provisions;
- the regulatory framework needs to be as simple as possible and needs to provide certainty to industry and enforcement agencies; and
- the evidence enforcement agencies have provided to date suffers from its isolation from the full 28-day analysis period.  

Safe-T-Cam data management limitations in South Australia are such that there is no practical way around this at the present time (South Australia is legislatively unable to require operators to provide drivers’ work diary pages on each side of events so the available evidence is unable to identify the frequency involved).
The limited available evidence reviewed to date did not convince most workshop participants that nose-to-tail shifts represent a greater fatigue risk than other existing practices.
4. Government and industry views

4.1 Draft report

The NTC provided a draft of this report to workshop participants and other key government and industry stakeholders for comment during January and February 2014. The draft report included the following recommendations:

1) that the Heavy Vehicle National Law be amended to clarify that a ‘relevant major rest break’ means the longest continuous rest break required in a given period for each work and rest hours module;
2) that the NTC and NHVR collaborate with industry and governments to develop a national framework to collect real-life operational data to better inform future fatigue policy; and
3) that the NTC lead a review of the standard hours module commencing in 2014–15, instead of a review of the BFM module, which is currently scheduled to commence in 2014–15.

Industry and most government agencies supported recommendation 1. Some government agencies did not support recommendation 1 because the counting rule, if amended as recommended, would still allow for nose-to-tail schedules. Industry and some government agencies remain unconvinced that legislative intervention to curtail nose-to-tail shifts is warranted in light of the evidence and advice considered to date.

Industry and government agencies supported recommendation 2 and raised issues relating to scope.

Industry did not support recommendation 3. Government agencies supported recommendation 3 either entirely or subject to conditions. Some government agencies indicated a preference for a standard hours review to be undertaken in conjunction with the planned BFM review (rather than instead of the BFM review).

4.2 Industry feedback

Feedback from governments and industry received between late 2013 and early 2014 is summarised below.

4.2.1 Australian Logistics Council

The Australian Logistics Council (ALC) noted that when a driver obtains a heavy vehicle licence nothing in the competency assessment deals with fatigue, but perhaps it should. Currently a driver must receive formal fatigue training and must be assessed as competent before operating under BFM or AFM. If a driver wants to operate under standard hours, the driver does not need any fatigue training or assessment. The ALC suggested that a heavy vehicle driver should receive fatigue training regardless of the module the driver chooses to use. It should be the case that an employer has an implied duty to ensure their employee is adequately trained, but there is nothing in writing, and there may need to be.

4.2.2 Australian Trucking Association

The Australian Trucking Association (ATA) stressed it was not provided with the opportunity to comment on the request for expert advice before it was issued. If the opportunity had been provided, the ATA would have made suggestions to improve the questions, and therefore be more likely to value the advice. As such, the ATA disagreed with many aspects of the request for advice and does not believe that the resulting advice adequately reflects the full impact of the fatigue management controls currently in place. At the workshop some industry representatives suggested drivers need a detailed fatigue training package, delivered over several months, where drivers receive frequent feedback on their work diary entries. The ATA noted that it was not clear that
industry participants agreed on this at the workshop and expressed uncertainty about how such a fatigue training package might work in small firms.

The ATA agreed in-principle with the suggestion to produce enforcement guidelines (see under 5.2 below) but disagreed with the example provided, that is, that the guidelines could provide for discretionary action where a standard hours driver works for more than 12 hours in a 24-hour period.

The ATA supported the view that any further changes to fatigue rules need to be evidence-based and believe the NTC and the NHVR should collaborate with industry, insurance providers and governments to develop a national framework to collect real-life operational data. The ATA submitted that such analysis should include seeking data from existing AFM operators and pilot AFM operators, both of whom have strong safety records.

The ATA disagreed that nose-to-tail schedules can be seen as manipulating the counting rule resulting in much longer working hours than the legislation intends, particularly under standard hours. The ATA noted nose-to-tail schedules can occur where a driver simply records their hours and follows the rules (especially drivers who rarely work a full 28-day cycle).

A nose-to-tail schedule allows one driver using standard hours to drive from Adelaide to Sydney (14–15 hours) in one nose shift and one tail shift, that is, with a major rest break lasting at least seven hours in between shifts. The ATA cautioned that whether or not this undermines the purpose and intent of AFM and BFM depends upon the driver’s activities in the rest of the 28-day cycle. The ATA noted that given that the total 28-day cycle manages risk well, the ATA was not sure what the problem is.

The ATA believed that the current rules have adequate controls and offsets to ensure drivers who do use the so called ‘nose-to-tail’ work patterns do so safely. The ATA added that fatigue crash data is showing a reduction in incidents, as readily determined from the National Truck Insurance (NTI) continuing series of Major Accident Investigation Records or the Bureau of Infrastructure, Transport and Regional Economics’ data.

The ATA indicated it did not have an appetite to revisit standard hours or BFM. Time benefits associated with better highways are lost as urban congestion increases. The 12-hour work timeframe is linked with geography, as is the 14-hour timeframe. NTI data suggests that fitness for a first shift after taking time off duty is a bigger issue than regulated work and rest hours.

NatRoad indicated support for the ATA’s position.

4.2.3 National Road Freighters Association

The National Road Freighters Association (NRFA) noted that until a study to determine the validity of counting hours as an ‘accurate and responsible response to perceived fatigue related safety outcomes’ is undertaken, the NRFA ‘rejects totally the suggestion that drivers should be restricted to an absolute time allocation’. The NRFA cautioned that legislation must only ever be used to underpin known outcomes ‘not the presumptions of the ignorant’.

4.2.4 Australian Livestock and Rural Transporters Association

The Australian Livestock and Rural Transporters Association (ALRTA) supported recommendations 1 and 2 in the draft report, and believe these recommendations accurately reflect the view of workshop participants that greater clarity around the interpretation of the term ‘relevant major rest break’ is required and that more information is required to assess the validity of legislative change.

The ALRTA did not believe that enough sufficient evidence has been produced to support a substantive change to the law and therefore does not believe that a review of standard hours is warranted.
4.2.5 Bus Industry Confederation

The BIC supported the three recommendations in the draft report. The BIC agreed that driving hours should be counted from a major rest break and that recommendation 1 will define this more clearly. While the BIC did not see evidence of residual risk, or the need for legislative change, recommendations 2 and 3 will seek to identify if a risk exists, therefore the BIC supported these recommendations.

4.3 Enforcement feedback

4.3.1 South Australia Police

SA Police believed that at the 1 October 2013 workshop, participants agreed that a residual fatigue risk exists but that there was no agreement on the extent of the risk. SA Police saw the real and apparent problem as manipulation of the counting rule to allow in excess of 12 hours work in a 24-hour period under standard hours.

SA Police noted that although workshop participants agreed the evidence enforcement agencies have provided to date suffers from its isolation from the full 28-day analysis period, police provided the NTC with examples of where the counting rule has been manipulated to allow excessive hours. Twenty-eight-day periods were not requested for analysis prior to the workshop.

SA Police noted that total work time over other counting periods (e.g. 168 hours) is not always affected by counting practices for 24-hour periods. Industry claims it does not make sense to use nose-to-tail schedules because drivers would “burn” their hours more quickly over longer counting periods. While available work hours over longer counting periods would be used over a shorter timeframe through nose-to-tail schedules, these schedules still allow drivers to undertake journeys that would otherwise have required BFM or AFM without requiring any fatigue offsets.

SA Police acknowledged that while there is some merit in the suggestion that drivers need a detailed fatigue training package (in that it may stop the scheduling of nose-to-tail shifts) it would not affect those who deliberately set out to take advantage of the loophole in the counting rule. It would only serve to increase the potential commercial advantage for those who are prepared to employ the practice while others operate within the intent of the law.

SA Police noted the suggestion to develop enforcement guidelines (see 5.2 below) but cautioned that the counting rule still requires legislative amendment to remove the ability to manipulate a counting point. Guidelines can require that an assessment is made of the driver’s level of fatigue but this will not properly address the problem of excessive hours, except where there is evident faculty impairment at the time of the assessment.

SA Police did not agree that nose-to-tail schedules occurring when a driver is sleeping in their truck are potentially of less concern than those that occur when a driver returns home between the nose and tail (due to the increased sleep opportunity in the vehicle compared with the time required to travel to accommodation). There may be a greater sleep opportunity for a person sleeping in the truck rather than travelling to and from home, but the other argument could also be that a person at home would have a better quality sleep. SA Police asserted that whether a person takes the long rest break in the vehicle or elsewhere should not be a consideration for the purpose of this project.

In relation to the high-level option to require 12 hours’ rest in 24 hours under standard hours (see 5.2 below), SA Police noted that if any non-working time is counted as rest, then it follows that if the maximum work time is 12 hours, the remaining 12 hours must be rest. If it is generally not supported that there must be 12 hours’ rest in 24 hours, then the message being pushed is an increase in work hours, which is a fatigue risk and point of contention. SA Police supported shifting the focus to rest, which should address the excess work time.

At the workshop SA Police suggested the high-level option to require counting from the end of a major rest break and within each work diary page (see 5.2 below). While this option has not been modelled, SA Police believed it requires further examination as it may
strike a balance between the previous (South Australia and Victorian) counting rule and the current counting rule.

4.3.2 Victoria Police

Victoria Police noted that the AFM RCS will provide tight controls on access to even occasional or intermittent use of long hours of work, which are deemed as 14 hours or more. While workshop participants did not agree on whether a residual fatigue risk exists, Victoria Police stressed that the AFM RCS defines a work opportunity of more than 14 hours as high risk and work opportunities of 13–14 hours as medium risk.

Victoria Police noted that the AFM RCS Evidence Statement states that:

\[\text{Evidence suggests strongly that setting limits on Standard Hours at a maximum of 12 hours of work/driving in 24 hours already involves an elevated risk of crashing. Adding further hours of work/driving therefore could not be judged as safe without also offsetting the elevated crash risk with some strong alternative fatigue risk management strategies...}\]

\[\text{In view of this evidence, specifying outer limits of 15 or 16 hours work is clearly allowing a very high accident risk if not balanced by significantly higher rest periods, frequent rest breaks within work and careful scheduling to avoid completing the work period during the circadian low.}\]

Victoria Police emphasised that standard hours drivers have no requirement to offset fatigue risk as an AFM-accredited operator must, and under standard hours drivers can complete nose-to-tail schedules involving up to 16¼ hours’ driving in a 24-hour period. According to the AFM RCS, these types of schedules that are possible under the current counting time rule present a very high accident risk.

Victoria Police submitted that the research, findings and premise of the AFM RCS could not be more pertinent to the Counting Time and Residual Fatigue Risk Project. Further, Victoria Police asserted that the AFM RCS provided strong evidence that the counting rule presents a high risk, and the project should be proceeding on that basis.

4.3.3 Australia New Zealand Policing Advisory Agency

ANZPAA has continued to express concerns regarding the rise in ‘residual fatigue risks’ when a driver works extended shifts on either side of a seven-hour break. ANZPAA also expressed its concerns that the advice provided by fatigue experts has not been sufficiently taken into account, particularly in association with the rule used to count driver work and rest hours in the model heavy vehicle driver fatigue law.

In addition to providing comments on the recommendations in the draft report, ANZPAA also provided the NTC with its Residual Fatigue Risk Assessment – Counting Time Research Paper, which was prepared by the ANZPAA Road Policing Forum (ARPF). This paper supports ANZPAA’s position and asserts that the current counting time rule, in the view of the ARPF, is very likely to contribute to ongoing road trauma.

In relation to recommendation 1, ANZPAA noted that the suggested amendment to the HVNL does not remove a driver’s ability to exploit the legal driving limits, and therefore does not support the recommendation. ANZPAA supported an amendment to the counting time rule that would result in the removal of any ability for this rule to be manipulated (i.e. reverting to the amended counting time rule).

ANZPAA indicated conditional support for recommendation 2 (collecting real-life operational data to better inform future fatigue policy). ANZPAA suggested this should be undertaken as a stand-alone project and that more work needs to be done to determine the level of fatigue risks associated with nose-to-tail shifts possible under the current counting rule.
ANZPAA strongly supported recommendation 3. ANZPAA suggested that the scope of such a review should also include addressing issues in the legislation previously raised by police, in particular, the current provisions that allow drivers working under BFM two-up regulations not to take short rest breaks.

4.4 Government feedback

4.4.1 South Australia

Workshop attendees from the South Australian Department of Planning, Transport and Infrastructure (SA DPTI) were of the view that the majority of workshop participants agreed a residual fatigue risk exists, but the extent of the risk could not be quantified, including in terms of whether it was a larger risk than other schedules possible under Standard Hours (such as repeated night work).

SA DPTI recalled supporting the proposed data project as a wider information capture tool at the workshop. SA DPTI also noted that data capture for such events should be timely and be conducted over longer periods, which would provide more informative data than the current residual risk assessment process.

SA DPTI expressed concern that suggesting enforcement guidelines specifically implies roadside compliance action. SA DPTI believed this suggestion should be reframed to specify that instances where a standard hours driver works for more than 12 hours in a 24-hour period could trigger the company’s scheduling to be inspected/audited.

SA DPTI noted that while some industry participants reported that there do not seem to be strong commercial incentives for using nose-to-tail schedules, it is not appropriate to imply that all workshop participants were of the same opinion, especially transport departments and police.

4.4.2 New South Wales Roads and Maritime Services

NSW Roads and Maritime Services (NSW RMS) noted it was clear at the workshop that there was a strong desire among some participants to have the issue defined and the problem clearly set out. NSW RMS noted that those contending there was a problem that justified action seemed unwilling to do this. NSW RMS stressed that before anything more is done, it needs to be shown that there is a clear, identifiable problem based on an unacceptable increase in fatigue risk arising out of ‘nose-to-tail’ schedules that can and should be addressed.

NSW RMS added that the issue of counting time is resolved in New South Wales because of the Trinci decision.

4.4.3 VicRoads

VicRoads did not support recommendation 1 as a stand-alone recommendation, as they submitted it legalises a driver’s ability to exploit the safety limits set in the standard hours and BFM modules. VicRoads felt that this recommendation did not take into account the opinion provided in the expert advice. In conjunction with this recommendation, VicRoads suggested that the continuous rest break periods should also be increased to prevent nose-to-tail schedules from occurring.

VicRoads supported recommendation 2 subject to terms of reference, resourcing requirements and timelines for delivering such a project. VicRoads noted that there is currently fatality data available both nationally and in each state and believed that this should be examined within a national framework as a priority.

In relation to recommendation 3, VicRoads considered that the standard hours and BFM modules should not be viewed in isolation and recommended that the suggested review of standard hours be expanded to concurrently include the BFM review.
4.4.4 Transport for New South Wales

Transport for NSW (TfNSW) stressed there was no agreement at the workshop that any change was necessary. TfNSW noted that agencies that were opposed to the current counting rule were unable to provide a clear reason, or evidence as to their issues. TfNSW submitted that the workshop did not establish a sound evidence base for support for or against any change, and instead focused on what amendments could be made without the group coming to a conclusion that a change was in fact necessary. TfNSW noted a decision about the extent of the safety risk needs to be made before any further action is taken.

TfNSW supported recommendations 1 and 2. TfNSW supported recommendation 3 in-principle only, subject to the terms of reference for such a review. TfNSW expressed interest in providing input to the terms of reference. TfNSW has also stated that if a standard hours review occurs prior to a BFM review, the BFM review should closely follow (and not be ‘dropped’ completely).

4.4.5 Queensland Department of Transport and Main Roads

The Queensland Department of Transport and Main Roads (QLD TMR) supported recommendation 1. QLD TMR suggested that the definition should clearly articulate that the ‘relevant’ period may be different for different hours options and that it is applicable for periods of greater than 24 hours. QLD TMR also supported recommendations 2 and 3.

QLD TMR acknowledged that there is risk associated with any shift pattern that reduces a driver’s opportunity for sleep; however, QLD TMR did not believe that a scheduled nose-to-tail shift necessarily increases driver fatigue risk to an unacceptable level. QLD TMR offered a number of options as methods for addressing the issue of nose-to-tail shift scheduling, including:

...amending the counting time rule to note that if a period of work of less than one hour is undertaken immediately after a relevant major rest break then a new relevant counting period could commence at the end of the rest break immediately following the period of work less than one hour.

QLD TMR suggested an alternative option would be to increase the major rest break in any 24-hour period to eight or nine continuous hours, thereby effectively reducing the work opportunity hours in any 24-hour period.

4.4.6 Northern Territory

The Northern Territory Department of Transport (NT DoT) did not attend the workshop but provided written feedback on the workshop discussion questions in the workshop context paper.

NT DoT there are too many variables beyond control for the NT DoT, as a regulating authority, to accurately assess whether there is an increased level of risk associated with a certain working schedule such as nose-to-tail schedules. The level of increased risk depends on the frequency and timing of this type of scheduling, and should take into account a number of external elements such as the events during the day, the type of environment and the quality of rest and sleep of a driver. It is not known if a nose-to-tail schedule used by one driver (who has had a trouble-free run, good weather, a comfortable seven hours sleep, etc.) is of any greater risk than someone who is strictly adhering to the 12 hours’ work / 12 hours rest schedule (but may have had no or bad sleep, unfavourable roads, bad weather, heavy traffic, etc.). As the fatigue experts’ reports discuss, there may be an increased risk, but it’s very difficult to measure the extent of that risk, and whether change is warranted.

The NT DoT assumed although there was no supporting data; nose-to-tail schedules are probably widespread and occur quite often in the NT. In an ideal situation a driver in the NT would drive to the conditions and most importantly their own body, which could and probably does result in drivers exceeding maximum hours within some periods. In these circumstances a driver can maintain an acceptable level of fatigue risk and manage their own fatigue by resting when necessary, at
appropriate locations, and for periods of time suitable for their own personal recovery. While a driver may obtain adequate quality sleep during these periods, the information in a work diary may reveal a nose-to-tail style shift, which could be viewed as an increased fatigue risk, even if this is not physically the case.

The NT DoT suggested that if it can be established that there is a definite heightened fatigue risk associated with the practice of nose-to-tail schedules then a revision of the law should be considered. However, if an increased fatigue risk cannot confidently be established then the NT DoT did not believe there are any grounds to attempt to deter the practice. Government should be careful to avoid sending mixed messages about fatigue laws and dangerous driving practices. Prescribed hours should not include practices that are not safe, nor should the government allow unsafe practices to continue while awaiting further evidence.

The NT DoT noted that real-world trials including scientific studies on the effects of nose-to-tail schedules on a driver’s body and alertness levels would assist in reaching uniform agreement on the risk associated with these driving patterns. The current differing views of experts and lack of real evidence makes an informed and logical assessment difficult.
5. Next steps

5.1 Proposed clarification amendment to the counting rule

Most government and industry stakeholders agreed the definitional question of what 'relevant' means in 'relevant major rest break' requires immediate resolution and clarification. This is answered in the work diary instructions but not the legislation itself. 'Relevant' should mean the longest continuous rest break required in a given period for each work and rest hours option, consistent with the New South Wales Trinci decision, where 'relevant' means relevant to the fatigue management module under which the driver is operating. For example, a driver using standard hours must have at least seven hours’ continuous rest in 24 hours.

The NTC recommended to TISOC that the HVNL be amended to clarify that a ‘relevant major rest break’ means the longest continuous rest break required in a given period for each work and rest hours module. There was not consensus among TISOC members on this recommendation.

5.2 Other matters for consideration

Stakeholders put forward the following suggestions for immediate consideration at the workshop in October 2013. Not all stakeholders agreed to all suggestions. Stakeholders suggested:

- there may be value in further evaluating the restorative value of sleep obtained in a seven-hour rest opportunity;
- drivers need a detailed fatigue training package, delivered over several months, where drivers receive frequent feedback on their work diary entries; and
- enforcement guidelines providing an overlay on the general duty to avoid driving while fatigued might be helpful; for example, the guidelines could provide for discretionary action where a standard hours driver works for more than 12 hours in a 24-hour period.

Stakeholders also identified, but did not agree on, the following high-level options for limiting nose-to-tail schedules at the workshop (note that many participants did not agree on the nature and extent of the potential residual risk):

- retaining the status quo;
- shifting the focus from work to rest in the legislation (and in its supporting materials) to protect additional rest time;
- averaging hours over two days;
- limiting the number of nose-to-tail shifts in a given period (e.g. seven, 14 or 28 days);
- lengthening the minimum continuous major rest period (generally not supported);
- requiring 12 hours’ rest in 24 hours (standard hours) (generally not supported); and
- counting time from the end of a major rest break and within each work diary page (generally not supported).

5.3 Proposed data project to inform future fatigue policy

Governments and industry agreed the NTC and the NHVR should collaborate with industry and governments to develop a national framework to collect real-life operational data to better inform broader fatigue policy directions in the future, including (but not limited to) nose-to-tail schedules. This would involve analysis of the work diaries/shifts associated with recorded incidents. Capturing data over longer timeframes would provide more informative data than current processes.

**Recommendation:** that the NTC and the NHVR collaborate with industry and governments to develop a national framework to facilitate collecting real-life operational data to better inform future fatigue policy. This would involve an initial consultation phase seeking input from industry and governments to determine a results-driven co-designed project scope.
5.4 Proposed fatigue provisions review

The fatigue experts who provided advice to the NTC in 2013 identified some of the primary factors that may contribute to increased fatigue risk generally, including:

- **insufficient sleep** – taking only the minimum seven-hour ‘major rest break’ for rest between long work periods, as the driver is likely to have six hours or less of actual sleep;
- **long work shifts** – where a single ‘work opportunity’ or shift is longer than 12 hours;
- **circadian impacts** – undertaking a work schedule that impinges on the natural circadian cycle, including work during the night, sleeping during the day and starting shifts in the early morning or at significantly different times on consecutive days; and
- **frequent nose-to-tail style schedules** – particularly consecutive nose-to-tail style schedules.

The NTC believed the above concerns regarding broader fatigue risk factors, in addition to those associated with nose-to-tail style schedules, would be best considered holistically as part of a broader fatigue provisions review.

Industry and governments raised a range of fatigue issues that would help inform the scope of a broader fatigue provisions review. While not intended as a definitive list, the following issues should be considered when confirming the scope of a future review:

- reviewing standard hours under fatigue management legislation – including bus and freight vehicles, effectiveness of the regime, compliance approaches and incentives resulting from the regime;
- assessing the adequacy of the current rest break provisions;
- commonly issued exemptions (e.g. livestock operations);
- clarifying key definitions in legislation;
- bus/coach sector impacts (e.g. in relation to timetabled passenger services, bus driver shifts, cost and efficiency);
- rest requirements for BFM two-up drivers;
- providing greater flexibility for drivers using electronic work diaries (EWDs), given the greater accuracy (e.g. providing different ways to divide up rest breaks);
- the role of technology to improve fatigue management – EWDs, fatigue detection, telematics;
- competency-based fatigue training (for standard hours drivers);
- developing a standard for heavy vehicle drivers covering drug and alcohol testing, fatigue-related issues and health screening for drivers, that is, a fitness for duty standard that seeks to ensure consistent treatment for heavy vehicle drivers, similar to that which already exists for rail safety workers;
- developing a project examining industry compliance across multiple areas, including dangerous goods, food handling, fatigue and animal welfare;
- analysing impacts associated with long work shifts;
- reviewing provisions for clarity and simplicity to aid understanding and minimise confusion; and
- assessing provisions relating to night work and its impact on circadian rhythms.

The NTC believed the review should consider existing fatigue provisions in the HVNL, excluding the current AFM module, given the new AFM RCS is in its infancy. Industry and government should be closely involved in project design, scoping and identifying priority issues and terms of reference for the review.

The NTC recommended to TISOC that the NTC lead a review of fatigue provisions in the HVNL commencing in 2014–15 (excluding the current AFM module) and that the NTC would work with industry and governments to develop terms of reference for the review. There was not consensus among TISOC members on this recommendation.
6. Glossary

**Advanced fatigue management (AFM):** An option introduced in the 2008 Model Fatigue Law that enables a NHVAS accredited operator to propose a trip plan for which they believe the risk associated with increased likelihood of fatigue due to longer working times has been adequately offset or mitigated by additional risk controls. The original AFM, which was introduced as part of the Model Fatigue Law, did not have any guidelines over what fatigue risks would be associated with particular schedules. The new AFM module in the HVNL provides some guide to fatigue risk by including a risk classification system.

**Advanced Fatigue Management Risk Classification System (AFM RCS):** The AFM RCS is based on fatigue science and research and enables operators to submit work schedules with higher risk potential elements (such as longer or more frequent shifts) that are mitigated by offsetting potential elements and countermeasures (e.g. increased work-related breaks).

**Australia New Zealand Policing Advisory Agency (ANZPAA):** ANZPAA is a joint initiative of the Australian and New Zealand Police Ministers and Commissioners. ANZPAA provides strategic policy advice to the ANZPAA Board on cross-jurisdictional policing initiatives that help enhance community safety and security.

**Australian Livestock and Rural Transporters Association (ALRTA):** The ALRTA represents road transport companies based in the small communities of regional and rural Australia that provide the 'first and last' link of the supply chain for Australia’s agricultural industries.

**Australian Transport Council:** Predecessor to the Standing Council on Transport and Infrastructure (SCOTI), now known as the Transport and Infrastructure Council.

**Australian Trucking Association (ATA):** The ATA is the peak body that represents trucking operators. The ATA’s members include major logistics companies, transport industry associations and businesses with leading expertise in truck technology.

**Basic fatigue management (BFM):** An option introduced in the 2008 Model Fatigue Law that specifies a discrete set of exceptions (e.g. up to a 14-hour shift) and details the specific controls required to mitigate the risk associated with the increased likelihood of fatigue associated with the extended hours.

**Gross vehicle mass (GVM):** The GVM of a vehicle is the maximum loaded mass of the vehicle specified by the NHVR under section 57 of the HVNL or the GVM stated by the vehicle’s manufacturer.

**Heavy Vehicle National Law (HVNL):** The *Heavy Vehicle National Law Act 2012* and amendments proclaimed by the Queensland Government and used as a template to implement similar legislation across Australia.

**Major rest break:** A major rest break is generally considered a rest break of at least seven continuous hours (note that the HVNL currently provides that a major rest break means rest time of at least five continuous hours).

**National Heavy Vehicle Regulator (NHVR):** A national body that governs and administers national heavy vehicle regulation, driver compliance and enforcement services.

**National Road Freighters Association (NRFA):** NRFA is a road transport association representing drivers, owner-drivers and small fleet operators.
**National Transport Commission**: An independent body established to develop national regulatory and operational reforms and implementation strategies for safer, more efficient and sustainable road, rail and intermodal transport across Australia.

**New South Wales Roads and Maritime Services (NSW RMS)**: NSW RMS is a New South Wales Government agency delivering safe and efficient journeys throughout New South Wales, managing the operations and programs of roads and waterways.

**Queensland Department of Transport and Main Roads (QLD TMR)**: QLD TMR plans, manages and delivers Queensland's integrated transport environment to achieve sustainable transport solutions for road, rail, air and sea.

**Recovery break**: A recovery break is a rest between work opportunities that allows the driver to sleep (i.e. they are sleep opportunities). These are breaks that are longer than seven hours but less than 30 hours.

**Rest**: Rest, in relation to a fatigue-regulated heavy vehicle, means not work in relation to that vehicle.

**Reset break**: A reset break is any break longer than 30 hours that contains two night rests (rest between the hours of midnight and 6am).

**Shift**: A period of work between major rest opportunities.

**Sleep opportunity (SO)**: A sleep opportunity is an opportunity for a driver to sleep; it may cover either a recovery or reset break.

**South Australian Department of Planning, Transport and Infrastructure (SA DPTI)**: SA DPTI works to deliver effective planning policy, efficient transport and social and economic infrastructure.

**Standard hours**: Work and rest limits set out in the 2008 Model Fatigue Law and HVNL that are available to all heavy vehicle operators.

**Transport for New South Wales (TfNSW)**: TfNSW is responsible for improving the customer experience, planning, program administration, policy, regulation, procuring transport services, infrastructure and freight.

**VicRoads**: VicRoads' purpose is to deliver social, economic and environmental benefits to communities throughout Victoria by managing the Victorian arterial road network and its use as an integral part of the overall transport system.

**Work**: Work means driving a fatigue-regulated heavy vehicle as well as related tasks including (but not restricted to) instructing another person to drive a heavy vehicle, loading and unloading, refuelling, inspecting and servicing the vehicle.

**Work opportunity (WO)**: Work time plus work-related rest or breaks between commencing and finishing work. At a minimum, a seven-hour break is generally necessary to signify the end of a work opportunity.