HEAVY VEHICLE DRIVER FATIGUE
REVIEW OF REGULATORY APPROACH

Draft Regulatory Impact Statement

December 2003

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Heavy Vehicle Driver Fatigue

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ISBN: 1 877 093 238
REPORT OUTLINE

Date: December 2003
ISBN: 1 877 093 238
Title: Heavy Vehicle Driver Fatigue
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Type of report: Regulatory Impact Statement
Objectives: To provide an economic analysis of the Heavy Vehicle Driver Fatigue proposal.
NTC Programs: Road Safety; Fatigue Review
Key Milestones: Decision by ATC: late 2003
Abstract: Heavy vehicle driver fatigue is a safety issue. Current prescriptive approaches are not fully effective and may be inconsistent with requirements under occupational health and safety.
Purpose: To provide advice to ATC.
Key words: Heavy vehicles, fatigue, road transport.
FOREWORD

This Regulatory Impact Statement examines the impacts of a package of regulations and a code of practice to manage fatigue in heavy vehicle drivers. The package, set out in the regulatory proposal will apply to all heavy vehicles with gross mass (gross vehicle mass or gross combination mass) of 12 tonnes or heavier. The code of practice is considered here at an indicative level of detail to facilitate comprehensive assessment of the regulatory proposal.

Under the proposed regulations, road transport operators will have a choice to opt for a revised set of standard work and rest hours, a Basic Fatigue Management option containing elements of standard prescription and fatigue management, and an Advanced Fatigue Management option embracing standards and processes developed in the pilot Fatigue Management Program. The proposed regulations will call up a fatigue code of practice to guide operators and drivers in the management of driver fatigue. Also contained in the proposed regulations will be chain of responsibility provisions consistent with provisions in the *Road Transport (Compliance and Enforcement) Bill*. Together these measures represent a comprehensive approach to the management of fatigue.

The RIS builds on the Fatigue Review Discussion Paper distributed in September 2001, an Interim Options Paper distributed in December 2001 and the draft policy proposal distributed in September 2002. Each of these documents was preceded by the report of the Fatigue Expert Group of February 2001. Similar reviews of regulatory approaches to heavy vehicle driver fatigue have been undertaken in New Zealand, Canada and the United States. The NTC has consulted extensively on the regulatory proposal since the release of the Discussion Paper and Interim Options Paper.

The regulatory proposal seeks to control important fatigue precursors such as lack of regular restorative sleep, insufficient regular periods off duty and continuous night work without breaks. Reviews conducted internationally have also focused on these issues. The proposed code of practice will be an important guidance document that recognises that the processes needed to manage fatigue are related to the broad operation of transport business and not simply to rostering and scheduling.

The impact analysis in the RIS estimates that the regulatory proposal will have net benefits (that is benefits in excess of its costs) of approximately $54 million per year. This result and the results of sensitivity tests reported in the RIS show that the regulatory proposal is likely to be neutral to mildly positive in economic terms.

Once finalised, this Regulatory Impact Statement will be submitted with the NTC’s proposal to Australian Transport Ministers for their consideration.

**What if I want more information?**

Copies of this RIS, the proposal and the RIS for the Fatigue Management Program pilot are available from the NTC at the address below. Further information on this RIS can be obtained by contacting Robert Davenport at the NTC on (03) 9236 5003 or by email rdavenport@ntc.gov.au.
What happens next?

Once finalised, this Regulatory Impact Statement will be submitted with the NTC’s proposal to Australian Transport Ministers for their consideration. Following agreement by Ministers the NTC will prepare model legislation to enable implementation of the agreed policy. The implementation phase will take a number of months following the Ministers’ decision and will be overseen by the NTC.

Significant milestones for the project are:

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<td>December 2004</td>
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SUMMARY

Background

This RIS assesses measures to better manage heavy vehicle driver fatigue that have been developed by the NTC’s Fatigue Review. The objective of the Review is:

To achieve improvements in road safety and transport productivity through the development and implementation of policies and practices to assist in the management of fatigue in drivers of heavy vehicles.

An important underlying principle of the regulatory proposal is to achieve consistency between road transport legislation and occupational health and safety legislation in the management of heavy vehicle driver fatigue.

The fatigue problem and the need for change in the transport industry generally were reported by the House of Representatives Committee Beyond the Midnight Oil inquiry in 2000, the Quinlan report prepared for the Motor Accidents Authority of NSW in 2001 and the Fatigue Expert Group report and Fatigue Review Discussion Paper also prepared in 2001. Since 2000, the NTC has participated in wide ranging consultations on the development of improved measures for the management of fatigue, and prepared the Discussion Paper and Interim Options Paper for distribution late in 2001 and the Draft Policy Proposal in 2002. In the late-1990s and early 2000s reviews of fatigue policy were also undertaken in New Zealand, Canada and the United States. Driver working hours are now also subject to radical change in Europe as a consequence of the EU’s Working Hours Directive.

The current regulatory scheme in Australia suffers the weakness of addressing outputs of the driver management process (the hours they work) rather than the causal factors in the fatigue problem. The regulated working hours can themselves be inadequate in that:

- the required minimum continuous rest break of six hours non-working time in 24 hours may be inadequate;
- the required rest break (or day off) of one continuous period of 24 hours in seven days or two such periods in fourteen days may not provide for adequate rest between continuous periods of work;
- the current Regulations do not address time of day effects on fatigue;
- the regulated requirements for short breaks are rigid, potentially leading drivers to take rest when they are not tired or at places unsuitable for rest;
- the Regulations are inflexible – for example, drivers may run out of hours at places which are unsuitable for rest resulting in rest periods that may be less than effective in controlling fatigue;
- the Transitional Fatigue Management Scheme (TFMS) provides additional scheduling flexibility to employers but places few obligations on them in respect of effective fatigue management;
- the Regulations do not recognise the need for active management of fatigue; and
the focus of enforcement remains on drivers, notwithstanding the (somewhat limited) chain of responsibility provisions in the Regulations, rather than on those who make or influence scheduling decisions.

In addition, the system for maintenance of logbooks by drivers is treated with derision by the industry and by some in the inspectorates.

Heavy vehicle driver fatigue (all heavy vehicles 4.5 tonnes and heavier) is estimated to cause road crash costs in Australia approximately $288 million annually of which approximately $243 million would be attributable to the operation of vehicles covered by the regulatory proposal (excluding buses).\(^1\) In 1996, among vehicles other than buses that would be covered by the regulatory proposal (those with gross mass of 12 tonnes and heavier but excluding buses), there were 3,400 crashes in which the heavy vehicle driver was fatigued, including 33 fatal and 156 serious injury cases.

**The Regulatory proposal**

**Compliance options**

The regulatory proposal provides for operators to operate under:

- a set of standard work and rest hours in a Standard Hours option;
- in a Basic Fatigue Management option analogous to the current TFMS but with improved fatigue management elements; or
- an Advanced Fatigue Management option which incorporates the standards and processes developed as part of the Fatigue Management Pilot.

Basic Fatigue Management and Advanced Fatigue Management will be available to operators as options within the fatigue management module of the National Heavy Vehicle Accreditation Scheme (NHVAS), subject to operators meeting accreditation requirements. Basic Fatigue Management and Advanced Fatigue Management operators will be subject to the audit requirements of NHVAS.

In the Standard Hours and Basic Fatigue Management options, operating limits for work and rest incorporate a number of changes relative to the current provisions.

**Standard hours**

Maximum working hours remain at 72 hours per week but the permitted maximum work in a day is reduced from 14 to 12 hours and the distinction between work and driving is removed. The minimum continuous daily rest break requirement is increased from six hours to seven hours, and short rest break requirements are more flexible. The requirement for one continuous 24 hour period off work in seven days remains, but in addition drivers will be required to have a pair of two consecutive and two other nights off in fourteen days (a night being the period 22.00 to 08.00).

\(^1\) The RIS does not assess impacts of the regulatory proposal on buses because consultations with the bus industry indicate that they are likely to be minor and probably positive in the one part of the bus industry most likely to be affected (coach and tour operations). The impacts are certainly likely to be minor when compared with those estimated for the road freight sector.
**Basic fatigue management**

Similar operating limits are proposed in the Basic Fatigue Management option with the exceptions that:

- drivers will be permitted to work 14 hours in a 24 hour period;
- continuous 24 hour rest breaks can be averaged over a fourteen day period;
- maximum work hours can be averaged over a two week period (144 hours) but with no more than 84 hours work permitted in any seven day period; and
- maximum hours of “night” work permitted in 7 days is 36 hours. A night hour is calculated as any hour worked between 06.00 and any hour or part hour, in 15 minute blocks, worked in excess of 12 hours in a 24 hour period.

**Advanced fatigue management**

The Advanced Fatigue Management option will be more permissive than Basic Fatigue Management in its operating limits for rest and work. However the essential feature of the scheme is that the actual hours an accredited operator’s drivers will be permitted to work will be customised to each operator by the accrediting agency taking account of the operator’s fatigue risk and the risk controls incorporated in the operator’s proposed fatigue management system. No operator however will be permitted to exceed the Advanced Fatigue Management option’s outer limits.

**Chain of responsibility**

The proposed regulations will strengthen the chain of responsibility provisions in the current Regulations. Provisions will relate to driving hours and related requirements and fatigue management, and duties in respect of these provisions will be placed on organisations or individuals who participate in the activities of consigning, operating, driving, receiving, and loading/unloading. In addition it is proposed that employers and responsible employees be required to take reasonable steps to ensure that drivers do not breach the driving hours or related provisions. The proposed regulations will impose absolute liability obligations, with the exception of consignors and receivers who can not influence the transport task, on parties in the transport chain in respect of driving hours and related requirements and fatigue management. That obligation would be subject to specific reasonable steps defences. This change effectively shifts the burden of proof from the prosecution to the relevant parties in the transport chain. As distinct from non-driver parties in the transport chain, drivers would not have recourse to reasonable steps defences.

**Code of practice**

The proposed code of practice will provide guidance in the meeting of fatigue management duties to drivers and operators with obligations under the proposed regulations and general guidance on fatigue management to the industry and other parties. The proposed regulations will provide for a code or codes to be approved by Ministers. Compliance with the code would be evidence of reasonable steps in the absence of evidence to the contrary.
**Drivers’ work diaries**

A more effective work diary system is proposed in lieu of logbooks and is intended to provide a record, supplemented by odometer readings, of the driver’s daily activities. Employers will be required to obtain copies of the diaries from their drivers.

**Records of local work**

Employers and owner drivers will be required to keep records that include the driver’s name and estimates of the driver’s driving, work and rest times in a manner such that they may be readily understood and accessed.

**Sign off**

Relevant parties in the transport chain will be required to countersign applicable entries in the drivers’ work diaries as second party verification of diary accuracy. This proposal and the inclusion of odometer readings in work diaries by drivers is consistent with recommendations for a Safe Driving Plan made in the Quinlan report.

**Other record keeping requirements**

Operators will be required to keep documents relating to the driving task and other trip-related records (such as invoices and fuel purchase records) in a form able to be readily identified and collated by an enforcement officer. The objective of this requirement is to ensure that records are maintained in a manner such that they can be readily accessed.

**Enforcement powers, sanctions and penalties**

The provisions of the *Road Transport (Compliance and Enforcement) Bill* will be applied in the regulation of heavy vehicle driver fatigue.

**Assessment of the regulatory proposal**

Approximately 164,000 drivers in 84,300 fleets\(^2\) in Australia are expected to be affected by the regulatory proposal. These estimates exclude fleets in Western Australia and the Northern Territory. The impact analysis in the RIS assumes that WA and NT operators will remain subject to driver fatigue management provisions in occupational health and safety legislation.

The take up of options in the regulatory proposal is expected to be as follows:

- **Standard hours**: 149,400 drivers in 82,300 fleets;
- **Basic Fatigue Management**: 11,600 drivers in 1,640 fleets; and
- **Advanced Fatigue Management**: 3,000 drivers in 430 fleets.

Over a ten year period, if full compliance were achieved, the cost of the regulatory proposal is expected to be $1,998 million or $200 million per annum. On an annual basis the distribution of costs would be:

- **Operators** $179 million per year (90% of the total);
- **Other parties** $13 million per year (6% of the total); and
- **Agencies** $8 million per year (4% of the total).

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\(^2\) Based on the best available data the RIS assumes the average vehicles per fleet to be 1.8.
The total costs of the regulatory proposal would represent:

- $2,368 per fleet per year;
- $1,218 per driver per year; or
- approximately 2% of road freight industry turnover in the sectors affected by the regulatory proposal.\(^3\)

If full compliance was achieved, compared with its costs of $200 million per year, the regulatory proposal is expected to have benefits of $254 million per year. Estimated benefits comprise the following:

- Reduced fatigue-related crash costs $243 million per year; and
- Reduced OHS incident costs $11 million per year.

Annual net benefits would average $54 million, and accordingly the regulatory proposal would be an economically efficient response to the problem of heavy vehicle driver fatigue.

It is acknowledged that the achievement of full compliance is unlikely with the estimated enforcement resources. However, it is expected that levels of compliance will be considerably higher than under the current regime due to the more extensive compliance and enforcement provisions proposed. The achievement of less than full compliance will impact on both the costs and benefits of the regulatory proposal. Under some compliance outcomes, estimated quantified benefits may be less than quantified costs.

It must also be acknowledged that quantified impacts do not represent the full impact of the proposal. Factors which have not been quantified include:

- quality of life of drivers;
- productivity benefits resulting from improved vehicle control by drivers who are more alert; and
- improved community confidence in the safety of heavy vehicles.

These impacts could be significant in relation to the quantified impacts. On the cost side the impact on other parties may be understated particularly in respect of sign off costs in work diaries. On balance however the NTC is confident that, overall, the benefits of the proposal are likely to outweigh its costs.

Several sensitivity tests incorporating issues raised in industry submissions on the draft RIS were carried out on these results. The tests included adoption of a lower fatigue crash severity multiplier\(^4\), greater take up of the higher cost Basic Fatigue Management and Advanced Fatigue Management options (up to 15% of fleets including all medium and

\(^3\) The assumptions in this estimate are: from national input output data that the turnover of the road transport industry is $24 billion annually of which 80% is road freight turnover ($20 billion) and that the 12 tonne and over sector covered by the regulatory proposal generates approximately half of that turnover.

\(^4\) Accident costs are generally estimated on a per crash basis. The 1.5 times severity multiplier used in this RIS implies that each truck driver caused fatigue crash will cause 50% more injuries or fatalities than the average crash. Alternatively the cost of each truck driver caused fatigue crash will be 50% higher than the cost of the average crash.
large fleets), and adjustments to the RIS’s full compliance assumption. These latter tests allow for compliance of between 60% and 80% of fleets, and realisation of between 80% and 60% of the RIS’s estimated benefits respectively (that is, in the worst case, compliance costs are assumed to be relatively high, but the crash reduction benefits of compliance are assumed to be relatively low).

Compared with the full compliance case of net benefits of $54 million annually, the worst sensitivity test case has net benefits of $-30 million per year. This case incorporates high take up of the flexibility options (15% of fleets) and the unfavourable compliance assumptions (80% of compliance costs for Standard Hours operators compared with 60% realisation of main case benefits). Adopting a severity multiplier of one reduces net benefits from $54 million annually in the RIS’s main case to $-27 million. The available crash data does not support a fatigue crash multiplier as low as one, the severity multiplier for all heavy vehicle fatal crashes in Australia being 1.36.

These results of these sensitivity tests show that negative net benefits arise with the application of very unfavourable and possibly implausible assumptions. Taken together, the main case results and the sensitivity test results indicate that, subject to the assumptions adopted, the regulatory proposal would be neutral to mildly positive in economic terms.

None of the alternatives to the regulatory proposal examined in the RIS has the advantages of the regulatory proposal in comprehensively addressing the fatigue problem and facilitating consistency between road transport law and occupational health and safety law. The option of extending the regulatory proposal to vehicles under the 12 tonne threshold could have costs significantly in excess of benefits even with a favourable assumption that there would be no negative impact on driver utilisation. Little is known about the nature and extent of the fatigue problem in this part of the market.

**Consultations**

Submissions made on the Discussion Paper, the Interim Options paper and the Draft Proposal were agreed on the need to address the fatigue problem although they differed on preferred approaches to the problem. The issue of night driving restrictions and the reduction in daily working hours in the base option generated clear expression of opposition from the industry. The outcomes of submissions with respect to key design principle issues included the following:

- wide support for a multi-tiered regulatory approach but differences on whether there should be two levels or three;
- strong support for a code of practice but not a unanimous view as to whether a code should be called up in regulations;
- differences as to the appropriateness of, or need for, the 12 tonne breakpoint in the regulatory proposal;
- general support for chain of responsibility provisions;
- widespread agreement on the need for better training in fatigue management;
- widespread support for maintaining a set of prescribed work and rest hours;
- a general belief that it was not feasible to remove provisions relating to driver fatigue from road transport legislation; and
- widespread support for a Advanced Fatigue Management option provided a Standard Hours option remained available.

As the result of feedback and on going consultation and investigation, some changes were made to the Draft Proposal which are described in section 8.4 of the RIS. The effect of the changes is such that the costs estimated in the RIS are now likely to be somewhat overstated. Section 8.4 also details key issues raised in submissions to the draft proposal with the NTC response.

Five submissions in response to the draft Policy Proposal and draft RIS addressed the RIS directly. Submissions commented on:

- the 100% compliance assumption;
- fatigue crash incidence and characteristics;
- costs and implications of night driving restrictions;
- requirements for additional drivers as a consequence of the regulatory proposal;
- fleet size, takeup of regulatory options and compliance costs; and
- relationships between the benefits and the costs of the regulatory proposal.

After consideration of comments several changes have been incorporated in the final RIS:

- the assumed cost of driver inputs has been increased from $24/hour to $27/hour;
- benefits of reduced speed crashes and reduced fuel consumption (totalling $46 million annually) have been deleted from the cost benefit analysis although the NTC maintains that benefits in these categories will be in prospect if the regulatory proposal is adopted;
- a cost estimate has been included in respect of recruitment costs for additional drivers;
- the implications of a reduced fatigue crash severity multiplier have been re-examined in the sensitivity testing; and
- sensitivity tests have been undertaken with assumptions of high take up of the medium flexibility and full flexibility options, and of variations in the level of compliance with the regulatory proposal’s requirements.

**Implementation/Review**

The Fatigue Review is scheduled for completion in 2003. The policy proposal is to be submitted to the Australian Transport Council (ATC) for in-principle approval in November 2003 and the draft legislation is to be circulated for comment in May 2004. The final policy package is to be presented to ATC for approval in September 2004.

The NTC proposes to evaluate the policy package once implemented. Evaluation activities are likely to include driver surveys and the examination of road safety and cost impacts. With expanding knowledge of fatigue, a medium term review of the legislation is likely to be warranted. The NTC will monitor the need for such a review through its consultation mechanisms.
National Competition Policy Assessment

None of the elements of the regulatory proposal are expected to be restrictive of competition. The assessment in the RIS finds that the regulatory proposal would not:

- limit participation in the industry;
- erect barriers to entry; or
- advantage large relative to small operators.

In the Standard Hours option, the regulatory proposal could be seen to impose methods of work on operators, but at the same time these provisions apply as a default to all operators, and operators will be free to roster and deploy drivers as they choose, subject to those provisions. The requirement for certification of operators within NHVAS (relevant to the Basic Fatigue Management and Advanced Fatigue Management options) is potentially anti-competitive but was previously agreed by Ministers as part of the NHVAS policy package.
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1. INTRODUCTION

1.1 Background to the Fatigue Review

The National Road Transport Commission (NTC) is undertaking a comprehensive review of the regulatory approach to managing fatigue in drivers of heavy vehicles. The review forms a significant component of the Third Package of Heavy Vehicle Reforms agreed by transport Ministers in April 2000. The Third Package sets the broad direction of the NTC’s current work.

A revised regulatory regime should see a reduction in heavy vehicle crashes as a result of drivers being less fatigued than at present through improved fatigue management practices on the part of drivers and operators. Reduction in fatigue could be manifest in:

- drivers reporting lower incidence of fatigue;
- fewer reports of fatigue-related dangerous incidents; and
- fewer reports of the use of stimulants, legal and illegal.

In October 2000, a major Commonwealth Parliamentary committee report on fatigue in transport was released (HRSCCTA 2000). The Committee recommended among other things that the NTC:

- prepare amendments to the Road Transport Reform (Driving Hours) Regulations incorporating time of day considerations into allowable driving and rest periods, and, given those time of day considerations, amend the Regulations with a view to increasing the minimum allowable rest periods; and,
- introduce measures to ensure that participation in the transitional fatigue management and fatigue management schemes provided for in the Regulations is not beyond the means of any operator.

The Committee also recommended that Minister for Transport and Regional Services should:

- work with the Australian Transport Council (ATC) and other stakeholders and specialists to develop workplace safety codes of conduct for each sector of the transport industry to provide guidance on how best to manage fatigue; and,
- ensure that these codes are national in application, complement existing occupational health and safety requirements and where appropriate are referenced in relevant transport or occupational health and safety legislation.

The Committee’s road transport-related recommendations also addressed the economic influences on industry safety (for example adequacy of freight rates) and considered that a national accreditation scheme for the industry might need to be considered by the ATC unless substantial improvement is achieved in the management of fatigue.

As part of the NTC Fatigue Review, an Issues Paper and Discussion Paper were released for public comment in September 20015. Together, these two documents canvassed the nature and extent of the fatigue problem and a range of options for improving the management of

5 NTC (2001b)
heavy vehicle driver fatigue. The Issues Paper and Discussion Paper were preceded by a report prepared by a group of Australian and New Zealand experts in the areas of sleep and fatigue management. Late in 2001 and subsequent to the preparation of the Issues Paper and Discussion Paper, the New South Wales Government released the Report of Inquiry into Safety in the Long Haul Trucking Industry prepared for the Motor Accidents Authority of NSW by Professor Michael Quinlan. The Quinlan report considered fatigue to be one of the industry’s major safety problems.

This Regulatory Impact Statement (RIS) draws on each of these sources. In addition, reviews or expert group reports on fatigue in heavy vehicle road transport have been prepared recently in New Zealand, Canada and the United States.

The NTC Fatigue Review, like those in other countries has been stimulated by concerns about the fatigue risk in heavy vehicle road transport, the lack of scientific basis in current working hours regulations and poor levels of compliance with regulatory requirements for hours of driving and rest. A possible regulatory option was canvassed in the NTC’s interim policy proposal issued in December 2001 and subsequently in the Draft Policy Proposal.

1.2 Composition of the Fatigue Review

This RIS draws on various elements of the Review, and provides a broad overview of issues in the management of fatigue. Relevant conclusions of the RIS on the Fatigue Management Program Pilot and the evaluation of TFMS are taken up in this RIS.

The Fatigue Review is a key component of the 3rd Heavy Vehicle Reform Package and contains a number of elements. Key elements of the Fatigue Review are shown in Table 1.

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1.3 Fatigue Reviews Elsewhere

Other regulatory and policy reviews have been conducted in recent years in New South Wales, New Zealand, Canada and the United States. The European Union is in the process of applying its working hours directive (average maximum of 48 hours work permitted) to the transport industry. Appendix C summarises the findings of those reviews.

The New South Wales review, conducted by Prof Michael Quinlan on behalf of the Motor Accidents Authority of NSW identified a range of institutional and market factors contributing to fatigue among long distance heavy vehicle drivers. The reviews in New Zealand, Canada and the US concentrated on the structure of regulated work and rest hours. They identified desirable improvements to address the need for adequate and effective rest taking account of circadian (time of day) influences on fatigue.
2. CURR ENT REGULATORY ENVIRONMENT

2.1 Overview

New South Wales, Victoria, Queensland, South Australia and Tasmania regulate driving and rest hours for heavy commercial vehicles through a package of measures approved by the Australian Transport Council (ATC) in 1999. These measures, incorporated in the Road Transport Reform (Driving Hours) Regulations, include:

- prescriptive requirements for driving and rest hours;
- a transitional fatigue management scheme (not available to bus drivers and operators) which provides more flexibility in driving and rest hours and imposes some fatigue management requirements on operators; and,
- a fatigue management scheme (currently in pilot operation).

In Western Australia and the Northern Territory, driving hours and rest times are regulated via Codes of Practice made under occupational health and safety legislation. The Australian Capital Territory does not regulate driving hours under road transport law.

2.2 Measures in the Road Transport Reform (Driving Hours) Regulations

2.2.1 Application

The Regulations apply to drivers of vehicles, or combinations, having a gross vehicle mass in excess of 12 tonnes or in the case of buses having a seating capacity of at least 12.

2.2.2 Prescribed driving and rest hours

In those jurisdictions which have adopted the national Regulations, the prescribed hours in the Regulations must be observed unless an operator is a member of TFMS or FMP. Table 2 describes the prescribed hours. In any 24 hour period, drivers may drive for up to 12 hours and work for up to 14 hours (the difference being to allow for tasks such as loading and unloading, checking of the vehicle, paperwork and the like). A driver must take breaks totalling 30 minutes in each period of 5 hours and 30 minutes, and each break must be of at least 15 minutes duration. In a 14 hour day, a driver would be required to take up to four rest breaks, each a minimum of 15 minutes, totalling one hour.

Table 2. Current prescribed driving and rest hours

<table>
<thead>
<tr>
<th>Feature</th>
<th>Standard</th>
<th>TFMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum period of work allowed in 24 hour period</td>
<td>14 hrs</td>
<td>14 hrs (work or driving)</td>
</tr>
<tr>
<td>Maximum period of driving allowed in 24 hour period</td>
<td>12 hrs</td>
<td>14 hrs</td>
</tr>
<tr>
<td>Weekly driving limit</td>
<td>72 hrs</td>
<td>-</td>
</tr>
<tr>
<td>Weekly work limit</td>
<td>72 hrs</td>
<td>-</td>
</tr>
<tr>
<td>Fortnightly driving limit</td>
<td>-</td>
<td>144 hrs</td>
</tr>
<tr>
<td>Maximum period of continuous driving</td>
<td>5 hrs</td>
<td>5 hrs</td>
</tr>
<tr>
<td>Minimum short rest breaks</td>
<td>30 min (30 min in 5.5 hrs may be taken as 2x15 min breaks)</td>
<td>30 min (30 min in 5.5 hrs may be taken as 2x15 min breaks)</td>
</tr>
</tbody>
</table>
2.2.3 **Transitional Fatigue Management Scheme**

The Transitional Fatigue Management Scheme (TFMS) was implemented as an interim measure pending the development of an Advanced Fatigue Management Program (FMP) framework. TFMS relaxes some of the limits in the standard prescribed hours regime. Drivers are required to undergo health checks, and drivers and relevant operational staff are required to be trained in fatigue management. TFMS operators are subject to a general obligation under the Regulations to manage driver work and rest times so as to comply with the limits on driving and rest hours, to ensure that drivers undergo medical examinations and fatigue management training and to keep the appropriate records.

The major flexibility provisions offered under TFMS (shown in Table 2 above) are:

- 14 hours of driving or work per day; and,
- a roster cycle can be operated over a 14 day period (that is, in any 14 day period: 144 hours maximum driving or work and 2 x 24 hour periods of continuous rest).

The 14 hours work or driving in a 24 hour period allows the Brisbane-Sydney trip to be completed legally by a single driver, this not being possible under the standard prescribed driving and rest hours regime.

TFMS contains elements of both prescribed driving and rest hours and the Fatigue Management Program.

2.2.4 **Fatigue Management Program (FMP)**

Queensland Transport (QT) implemented the FMP pilot in 1994 in conjunction with the Australian Trucking Association (ATA). The aim of FMP is to better manage fatigue under accreditation arrangements instead of the prescriptive driving hours regime that applies in most States and Territories. FMP has been evaluated by QT and has been the subject of a separate RIS.

The FMP pilot project is being overseen by the NTC, and includes participation by New South Wales, Victoria, South Australia, Western Australia, the Australian Transport Safety Bureau (ATSB), the National Occupational Health and Safety Commission (NOHSC), transport industry representatives and fatigue experts.

Under FMP, operators who receive accreditation for their fatigue management systems are not required to comply with the current prescriptive hours and logbook regulatory regime which applies (with some exceptions as already noted) to all other professional heavy vehicle drivers in those jurisdictions that directly regulate driving hours. FMP comprises documented assurance schemes, policies, procedures and records that demonstrate management and

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**Table 2**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Standard</th>
<th>TFMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum daily rest break (continuous)</td>
<td>6 hrs</td>
<td>6 hrs</td>
</tr>
<tr>
<td>Minimum daily rest</td>
<td>10 hrs</td>
<td>10 hrs</td>
</tr>
<tr>
<td>Minimum continuous rest break</td>
<td>24 hrs in 7 days</td>
<td>2 x 24 hrs in 14 days</td>
</tr>
</tbody>
</table>

Source: NTC (2001b), Table 3

11 See Economic Associates (2001)
evaluation systems are in place to ensure compliance with agreed fatigue management standards

2.2.5 Record keeping

Drivers operating 100 km or more from base are required to maintain logbook records (except in Queensland where a 200 km threshold applies, and in Tasmania where logbooks are not required). Driving records for drivers engaged in local area work are required to be kept by the employer.

The Regulations contain provisions for electronic recording or auditable management records as alternatives to logbooks.\(^{12}\)

2.2.6 Chain of responsibility

The Road Transport Reform (Driving Hours) Regulations provided new offences for persons whose directions or requirements result in the heavy vehicle driver breaching driving hours, recording or speed regulations.\(^{13}\) It is now recognised that breaches of road transport law are not always the sole responsibility of drivers and that other parties may have measures of responsibility. In broad terms the relevant provisions in Part 5 of the current Regulations prohibit consignors, employers, responsible employees and persons generally from setting rosters or schedules that would require a driver to commit a core driving hours offence, a driving record offence or a speeding offence. These breaches carry penalties of $1,500.

Regulation 75 is a general provision which states:

‘A person must not ask, direct or require, directly or indirectly, a driver to do something if the person knows, or reasonably ought to know, that by complying the driver would, or would be likely to, commit:

(a) a core driving hours offence;
(b) a driving record offence; or
(c) a speeding offence.’

Regulations 76 to 78 impose equivalent responsibilities on consignors engaging someone to transport goods by road, employers allowing employed drivers to drive heavy trucks or buses, and employers or responsible employees rostering drivers or scheduling the transport of people or goods by road.\(^{14}\)

2.2.7 Implementation of the Regulations

The implementation of the Regulations is summarised by jurisdiction in Table 3.

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Implementation status</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>Regulations implemented. Cutoff limit for buses by driving hours 9 seats rather than 12; longer continuous breaks for bus drivers</td>
</tr>
</tbody>
</table>

\(^{12}\) NTC (2001b) p 43

\(^{13}\) See Appendix C in NTC (2001b)

\(^{14}\) See NTC (2002a) p6
Jurisdiction | Implementation status
--- | ---
Victoria | Regulations implemented. Regulations implementing the chain of responsibility provisions added in early-2001
Queensland | Regulations implemented. Log book exemption radius set at 200kms.
South Australia | Regulations implemented
Tasmania | Regulations implemented. Logbook provisions not required.
Australian Capital Territory | Not implemented
Western Australia | Fatigue code of practice based on occupational health and safety legislation
Northern Territory | Fatigue code of practice based on occupational health and safety legislation

Source: NTC (2001b)

2.3 Codes of practice

Both Western Australia and the Northern Territory elected not to take up the Road Transport Reform (Driving Hours) Regulations, believing that their long distances, low traffic volumes and their fatigue-related safety records did not warrant a prescribed driving hours model. Instead, they have each endorsed codes of practice under their OHS legislation.

The fatigue management codes of practice that these jurisdictions separately developed in lieu of a prescribed hours model share the following features which typically characterise OHS hazard-based codes:

- legislation requiring employers to provide a safe workplace;
- hazards are removed where possible;
- employers are to provide the necessary information, training and means to protect against hazards;
- duty of care responsibilities of employers and employees;
- explanation of fatigue and its implications;
- a set of operating standards for work and rest;
- principles for developing fatigue management schemes;
- operators are required to demonstrate that they have systems to comply with the code of practice; and,
- compliance is achieved through audits conducted by OHS inspectors.

Western Australia has reviewed its approach and included some key parameters in regulations, such as maximum hours of work and minimum hours of rest to facilitate enforcement.

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15 See NTC (2001b)
3. THE REGULATORY PROBLEM

3.1 Introduction

The fatigue problem in heavy vehicle road transport is characterised by three inter-related factors:

accidents in which the heavy vehicle driver is fatigued are reasonably prevalent and costly;

the level of compliance with the driving hours Regulations is generally acknowledged by the industry and regulators to be low. This is confirmed in driver surveys; and\(^\text{16}\)

the provisions in the driving hours Regulations have little basis in the scientific understanding of fatigue.

This section describes the extent and characteristics of the fatigue problem. Subsequent sections consider whether regulation is the most appropriate response to the problem, and if so whether the costs of regulations, for governments, the industry and the community are justified by the benefits.

3.2 Characteristics of fatigue\(^\text{17}\)

The Neville Committee in its *Beyond the Midnight Oil* report concluded that ‘fatigue is the result of inadequate rest over a period of time...and leads to physical and mental and fatigue.’\(^\text{18}\)

The Fatigue Expert Group identified contributory factors as including:

‘...long periods awake, inadequate amount or quality of sleep over an extended period, sustained mental or physical effort, disruption of circadian rhythms, inadequate rest breaks and environmental stresses (heat, noise, vibration).’\(^\text{19}\).

The outcome of the research on fatigue can be distilled to a set of basic propositions. There are different views at the margin but general agreement about the core elements:

- fatigue is psychophysiological: it affects the physical capacity to perform work and the cognitive and other mental processes in performing work;
- work produces fatigue, but the amount or duration of that work is less important than the time of day in which it takes place;
- fatigue is influenced by the length of time awake as well as the length of time at work;
- the body is governed by inbuilt biological rhythms attuned closely if not precisely to the cycles of day and night. Work is best performed during the day when the bodily system is (other things being equal) awake and alert; the best sleep is obtained at night when there is a strong propensity to sleep;

\(^{16}\) For example, see Williamson and Feyer et al (2000) reported in section 3 of this RIS.

\(^{17}\) Appendix A of this RIS contains a more detailed description of the characteristics of fatigue.

\(^{18}\) HRSCCTA (2000) p 2

\(^{19}\) Fatigue Expert Group (2001) p 21
there are two ‘low’ points in circadian rhythms: from about midnight to 6am and a lesser one in the early to mid afternoon around 1400-1600 (different beginning and end points are put on these periods but there is unanimity about the general proposition);

sleep at times of the day other than when there is greatest propensity to sleep is less ‘efficient’: it is often shorter because of disturbances and interruptions and is less restorative;

sleep ‘debt’ arising from loss of effective night sleep accumulates and must eventually be ‘repaid’. It may be repaid involuntarily if the person does not stop to rest;

work performed during circadian rhythm low points may be more prone to error;

fatigue must be relieved by sleep. The effects of fatigue may be mitigated temporarily by stimulants such as caffeine;

when the need for sleep becomes acute a person may fall asleep with little warning. This can take the form of ‘microsleeps’ of a few seconds duration, or for longer periods of time. It is also possible to drive in an ‘unaroused’ state during which actions are performed automatically with little awareness of surroundings; and

fatigue induced impairment can be measured and in two Australian studies\textsuperscript{20} has been benchmarked against impairment arising from alcohol use. Levels of impairment equivalent to the Australian legal blood alcohol limit (0.05g/100ml of blood) were found after 17-19 hours without sleep, and equivalent to the impairment from a blood alcohol limit of 0.1% after 24-27 hours\textsuperscript{21}.

From these propositions, certain elements follow if fatigue in road transport is to be managed effectively. These also are based on research in Australia and overseas and have broad general support among researchers and experts in the field:

fatigue needs to be relieved by adequate restorative rest;

the time allowed for rest (i.e., the time between periods of work) needs to be longer than the amount required for sleep, to allow for personal and social needs. Rest time may need to be longer at home for domestic needs than if the driver is not at home;

work during circadian low points is more fatiguing, and the time allowed for rest afterwards may need to be longer than after work during daylight hours;

the length of time working is less important than time of day and cumulative fatigue, though they are interrelated. Therefore, longer working time may be tolerated if a driver is adequately rested at shift commencement and there is opportunity for restorative rest afterward; and

fatigue can be managed better if there is some flexibility in the way work and rest is managed.

At the most basic level, fatigue can only be managed effectively if the focus is turned away from considering the time working towards managing fatigue inducing factors. This was the


\textsuperscript{21} Dawson & Reid, (1997).
orientation adopted by the Fatigue Expert Group, which formulated a set of ‘design principles’ for guiding the assessment of regulatory options. The crucial point for development of a regulatory regime to manage fatigue that flows from these basic propositions is that it is not one precursor that causes fatigue but rather it is a combination of precursors and the cumulative effect of that interaction. There is for example no one optimum number of hours on task that will lead to an optimum level of fatigue risk as fatigue is not the result of time on task only but would include other factors such as

- how long has the driver been awake;
- how much sleep did the driver have had their last sleep opportunity
- what time of day does the shift cover;
- what is the accumulated sleep deficit;
- job monotony; and
- different tasks may cause more fatigue than others.

3.3 Prevalence and cost of fatigue

The primary data sources in respect of vehicle crashes used for the RIS were the Australian Transport Safety Bureau (ATSB) “fatalities” data base, Australian Bureau of Statistics and NTI statistics. NTI is a leading heavy vehicle insurer that covers some 30% of the market and has provide its database to ATSB for analysis. Caution needs to be exercised in this data in that the data was initially collected for insurance purposes and claimants may have an incentive not to be forthcoming. In addition NTI covers only 30% of the market and it is not known whether this population is representative of the population as a whole.

From fatal crash and other crash data, Appendix D of this RIS estimates (for 1996) that heavy vehicle driver fatigue could have been the cause of 33 fatal crashes, 156 serious crashes and 3,214 minor and property damage only crashes. These estimates apply to vehicles covered by the regulatory proposal (that is vehicles having gross vehicle mass or gross combination mass of more than 12 tonnes, but excluding buses).

The costs of those types of crashes in 2000 are estimated to have been $256 million. Allowing for say 5% of those costs to be attributable to crashes in WA and NT, (which the impact analysis in Section 6 assumes will not adopt the regulatory proposal), the total costs in 2000 would have been $243 million. Again excluding WA and NT, a further $31 million in crash costs would be attributable to vehicles below the 12 tonne threshold in the regulatory proposal.

Overall, the available data points to or is suggestive of a proposition that heavy vehicle fatigue crash risk is higher at night (particularly in the early morning hours) but it does not necessarily prove the proposition. This over-representation may be a function of high volumes of overnight heavy vehicle traffic on some major road corridors in Australia. Two recent studies, one in the US and the other in Australia are inconclusive about the safety

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23 Additional detail is provided in Appendix D of this RIS.
24 In DOTARS (1999) and BTE (2000)
26 Mabbott and Newman (2001)
impacts of shifting night time traffic to the daytime, but the latter study suggests that the overall impact might be only marginally positive when the influence of higher daytime traffic flows is allowed for.

3.4 Compliance

In commenting on the effectiveness of the current driving hours regulations, one senior enforcement policy officer noted that ‘In fact, it could be said that any similarity between the hours that are recorded in a driver’s logbook and that driver’s actual activities is purely coincidental’. In the Canadian context where the driving hours regulatory model is broadly similar to Australia’s, Gough and Gray (1992) commented that ‘Probably no other legislation applicable to motor carriers has a lower compliance rate than hours of work.’

In various Australian surveys, operators and drivers have reported high levels of non-compliance with driving hours regulations. In the most recent survey, 25.7% of drivers surveyed reported breaking the regulations on every trip, 21.5% on most trips and 9.7% on half their trips. Of drivers who said they infringed the driving hours regulations, 36.5% said they did so in order to ‘do enough trips to earn a living’. Other economic reasons cited were tight schedules (31.4% of drivers), to get in early to get the next load (26.3%); to keep their job (23.7%), and rewards or penalties for being late (7.6%). Returning home was given as a reason by 46.8% of drivers, and 26.2% said they broke the regulations in order to get to adequate rest facilities.

An employer’s survey reveals both non-compliance on the part of employers as well as attitudes of ignorance about or indifference to driver fatigue. The survey found that:

- 70% of employers surveyed did not have a formal fatigue management policy or plan;
- 50% said they relied on drivers to regulate their own driving hours;
- of companies that restricted their drivers’ maximum daily working hours, 45% said the maximum was over 14 hours per day;
- of companies that restricted maximum weekly driving hours, 19% said the maximum was over 70 hours per week;
- 59% used customer feedback and 54% used reports from other drivers to monitor driver fatigue;
- 61% relied on visual assessment of fitness to drive; and
- approximately 50% said that in order to maintain driver fitness they either withdrew unfit drivers, limited driving hours, rostered drivers to trucks or regularly assessed their drivers.

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27 Mahon (1998)
28 Williamson and Feyer et al (2000). Relevant results are summarised in NTC (2001b). The survey focussed on the behaviour of long distance truck drivers and the sample size was 1,007 drivers. 37% of drivers surveyed worked for operators with 10 or fewer trucks.
29 Results are also summarised in NTC (2001b)
30 Hartley et al (undated). 84 operators participated in the survey.
31 The Regulations limit working hours to 14 hours daily and 72 hours weekly.
Interestingly, the survey also found that whereas 88% of the companies surveyed said that fatigue was never or rarely a problem for their own drivers, 42% saw fatigue as a problem for the industry in general.

### 3.5 Design of the Regulations

Heavy vehicle driving and rest hours regulations in Australia and overseas have been criticised for their lack of scientific basis and for provisions that if fully complied with could exacerbate rather than mitigate the fatigue problem. In Australia, the NTC’s Fatigue Review Discussion Paper located the origin of the regulations in the desire of the States to protect their rail systems from road competition rather than in any informed concern for or understanding of heavy vehicle driver fatigue. Commentators have variously described the current prescriptive regulations as being in all probability ineffective, insensitive to the individual needs of and differences between drivers, and possibly counterproductive.

According to Moore and Moore for example, ‘Consideration of the evidence available suggests that, if prescriptive driving hours had been introduced on an experimental basis, with the success of the experiment being the demonstration of its cost effectiveness in reducing road crashes, the experiment would probably have been judged to have failed’. Mahon argues that the setting of maxima for driving hours and working hours in the regulations encourages operators to believe that drivers are capable of driving 12 hours a day for 6 days a week, that drivers can be expected to do so irrespective of their fitness and state of health and that ultimately for operators ‘Meeting the regulatory requirements rather than managing fatigue was seen as the appropriate outcome’. Moore and Moore in the paper just cited expressed a similar concern that ‘It is possible that [prescribed hours as a form of regulation] could divert attention from the real causative factors and divert the resources from their best use in managing fatigue by controlling those real causes.’

The NTC Fatigue Review discussion paper identified specific weaknesses in the current regulations drawing on the report of the Fatigue Expert Group and other evidence:

- the required continuous daily rest is inadequate. The Regulations require a minimum of six hours of continuous non-working time in each 24 hours, compared with the Fatigue Expert Group’s recommendation for a minimum continuous six hours of sleep in each 24 hours, plus time for daily living activities and preparation for return to work;

- the required rest break (or day off) is inadequate. The regulations require that each week there be one continuous 24 hour rest period (or two twenty four rest periods in each 14 days for TFMS drivers) whereas the Fatigue Expert Group recommended that schedules should permit two nights of unrestricted sleep, preferably weekly, to recover from accumulated sleep debt;

- the Regulations make no distinction between day work and night work. The Fatigue Expert Group recommended that no more than 18 hours of night work should be permitted until the driver has had two nights of unrestricted sleep;

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32 See NTC (2001) p 38
33 Moore and Moore (1996) p 11
34 Mahon (undated) p 3
35 Moore and Moore (1996) p14
the Regulations allow continual long trips without regard to time of day effects. The Fatigue Expert Group recommended that trips over 12 hours should not extend into the period midnight to 6 am and should be limited to 70 hours in a week;

the regulated requirements for short breaks within shifts are rigid (not less than 30 minutes in each 5½ hour period, and breaks to be no shorter than 15 minutes). The Fatigue Expert Group recommended short breaks to equal about 10% of total work time, taken at the drivers’ discretion but with a maximum of five hours between short breaks (and short breaks not to be accumulated);

drivers may run out of hours before reaching a suitable place for rest (with survey evidence reported earlier in this RIS indicating that large proportions of drivers break the regulations in order to get home);

TFMS provides additional scheduling flexibility to employers but places no obligation on them to actively manage fatigue;

the Regulations with their focus on driving hours ignore driver health and welfare issues, and permit unfit drivers to drive without steps being taken to manage their condition; and

notwithstanding the (somewhat limited) chain of responsibility provisions in the current Regulations, the initial enforcement focus is on the driver rather than on others who make or influence scheduling decisions.
4. OBJECTIVES OF THE REGULATORY PROPOSAL

The objectives of the regulatory proposal are to:

- achieve improvements in road safety;
- achieve improvements in transport productivity;
- facilitate the implementation of policies and practices that will assist in the management of fatigue in drivers of heavy vehicles;
- to achieve the desired outcome of improving safety while enabling maximum productivity, the NTC has formulated the regulatory proposal according to the following key principles: Encourage effective management of the key determinants of fatigue;
- ensure accountability of all those with responsibility for or control over practices which result in unsafe outcomes;
- provide confidence to operators that they are complying. This is of greatest importance for smaller operators who are less likely to have the resources to develop complex compliance systems;
- be flexible and applicable in the full range of circumstances in which road transport operations are undertaken and within the diverse structure of the industry;
- not impose excessive compliance costs on transport operators; and
- enable cost effective enforcement.
5. THE REGULATORY PROPOSAL

5.1 Introduction

The regulatory proposal is an integrated package of measures which seeks to remove anomalies in the current prescription of work and rest requirements, strengthen the obligations of parties in the transport chain whose decisions may influence fatigue outcomes, provide guidance about fatigue management to parties in the transport chain and increase compliance through more effective enforcement, offences, sanctions and record keeping requirements. The regulatory proposal will apply in respect of the operation of vehicles having a gross vehicle mass (GVM) or gross combination mass (GCM) of over 12 tonnes. The regulatory proposal will be available for adoption by all jurisdictions. For the purposes of this RIS it is assumed that WA and NT will continue to address fatigue under their OHS legislation and that the ACT, given its geographical size, will not adopt the proposal.

The three-tiered regulatory approach outlined in the NTC’s Policy Proposal comprises:

- standard hours – a default option prescribing maximum working and minimum rest hours;

- basic fatigue management – an optional set of more permissive maximum working and minimum rest hours but with some mandatory fatigue management and compliance-assurance responsibilities imposed on operators; and

- advanced fatigue management – an optional systems-based approach to fatigue management in which operators adhere to agreed standards, processes and compliance-assurance requirements in return for work and rest limits more flexible than allowed under either of the other two options. Operators will be allowed to exceed their assigned ‘normal’ work and rest limits subject to pre-agreed conditions but no operator will be permitted to exceed a set of outer limits which will apply to the scheme as a whole. The accrediting agency will assign normal limits to each operator individually after consideration of their fatigue risk and proposed fatigue management system.

The rest and working hours in each option have been formulated based on principles identified by the Fatigue Expert Group.36

<table>
<thead>
<tr>
<th>Design principle/element</th>
<th>Provisions in the regulatory proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum sleep periods, opportunity for sleep and time of day influence</td>
<td>Opportunity for a minimum six hours sleep in 24 hours, plus time for daily living activities and preparation for return to work.</td>
</tr>
<tr>
<td>Cumulative nature of fatigue and sleep loss</td>
<td>Schedules should permit two nights of unrestricted sleep regularly, preferably weekly, to recover from accumulated sleep debt.</td>
</tr>
<tr>
<td>Night work</td>
<td>A limit of 18 hours night work (in the period midnight to 6 am) after which two nights of unrestricted sleep should be available</td>
</tr>
<tr>
<td>Short breaks</td>
<td>Equal to about 10% of total work time at the driver’s discretion, but with a maximum of five hours between short breaks (of not less than 15 minutes duration), and short breaks not to be accumulated</td>
</tr>
</tbody>
</table>

The core operating options in the regulatory proposal will be supported by:

- a general duty to manage fatigue to be inserted in principal legislation or regulations which will bear on all parties in the transport chain including operators (employers); drivers, consignors, consignees, loaders and unloaders;

36 See NTC (2002)
• the application of strengthened chain of responsibility provisions consistent with those in the NTC’s compliance and enforcement proposal for mass, dimensions and load restraint;
• a code or codes of practice, able to be approved by Ministers, to assist operators and drivers in managing their duties under the proposed regulations;
• replacement of drivers’ logbooks with a work diary providing trip details and provision for signing the work diary by consignees, consignors, loaders and unloaders;
• strengthened record keeping provisions to supplement chain of responsibility and work diary provisions;
• risk based categorisation of offences; and
• enhanced enforcement powers, sanctions and penalties.

Irrespective of the core operating options that operators adopt, they and other parties in the transport chain who are employed by them or who deal with them will be bound by the fatigue management duty, chain of responsibility and record keeping provisions.

5.2 Core operating elements

5.2.1 Standard Hours option

It is proposed that a system of prescribed driving hours be retained as a default regulatory option. Currently prescribed hours focus on the maximum hours of work permitted, but the proposed option focuses on minimum rest opportunities.

The proposed Standard Hours option is made up of six parameters and operating limits, which are set out in the Table below.

Table 4. Proposed operating limits – Standard Hours option

<table>
<thead>
<tr>
<th>Operating limit parameter</th>
<th>Operating limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum continuous break in a 24 hour period</td>
<td>7 hours</td>
</tr>
<tr>
<td>Minimum opportunity for nights sleep (22.00 – 08.00)</td>
<td>1 pair of consecutive nights and two other nights off in 14 days.</td>
</tr>
<tr>
<td>Continuous 24 hour period free of work</td>
<td>1 period of 24 hours in 7 days.</td>
</tr>
<tr>
<td>Maximum hours work in 7 days</td>
<td>72</td>
</tr>
<tr>
<td>Maximum hours work in a 24 hour period</td>
<td>12</td>
</tr>
</tbody>
</table>
| Minimum short rest breaks during the day                      | 30 minutes for a trip over 5 and up to 10 hours
                                                           | 60 minutes for a trip over 10 hours.
                                                           | Minimum length of break 15 minutes.
                                                           | The short rest breaks must be taken throughout the shift and cannot be used to shorten a trip.
                                                           | Provided the above requirements are met the maximum continuous period of driving 6 hours. |

*Note that a ‘day’ is defined as a 24 hour period not a calendar day. A driver for example could commence at 6pm on Sunday and have six 12 hour shifts finishing at 6am and the 24 hour break all in seven ‘days’.

The key differences between the proposed Standard Hours option and the existing provisions are the removal of the distinction between ‘work’ and ‘driving’; the decrease in the hours of work possible in a day from 14 to 12; a requirement for one pair of consecutive nights and two other nights off in 14 days; an increase of one hour in the length of the continuous break and increased flexibility in the short rest break requirements.
Drivers will be required to maintain work diaries in lieu of logbooks presently required, and employers will be obliged to ensure drivers provide them copies of their daily work diaries (at present, drivers are required to provide copies of logbook sheets to their employer but employers are not obliged to seek production of the sheets from drivers). Employers (operators) will be required to more actively manage their drivers’ work patterns than has been the case until now.

### 5.2.2 Basic Fatigue Management and Advanced Fatigue Management options

Basic Fatigue Management and Advanced Fatigue Management will operate as options within the fatigue management module of the National Heavy Vehicle Accreditation Scheme (NHVAS). NHVAS is already being operated by the jurisdictions with two modules, maintenance management and mass management. Basic Fatigue Management and Advanced Fatigue Management will be subject to the accreditation and audit requirements of NHVAS.

#### Basic Fatigue Management

The regulatory proposal retains the concepts of daily and fortnightly driving limits from the current Transitional Fatigue Management Scheme, but imposes a minimum daily sleep opportunity of seven hours (compared with minimum daily rest of six hours in current regulations). It also imposes restrictions on night driving not in current regulations, on long night driving shifts, and in the requirement for one pair of consecutive nights and two other nights off in 14 days. Finally it imposes a weekly work restriction of 84 hours that is not in the current regulation.

As in the Standard Hours option, short rest break requirements are more flexible than under current regulations. Employers will be required also to more actively manage their drivers’ work patterns.

#### Table 5. Proposed operating limits - Basic Fatigue Management option

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Operating Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum continuous break in a 24 hour period</td>
<td>7 hours.</td>
</tr>
<tr>
<td>Minimum opportunity for nights sleep (22.00 and 08.00 hours)</td>
<td>1 pair of consecutive nights and two other nights off in 14 days. The night rest to be taken after no more than six days of work.</td>
</tr>
<tr>
<td>Minimum continuous 24 hour periods free of work</td>
<td>Two in 14 days.</td>
</tr>
<tr>
<td>Maximum hours work in a 24 hour period</td>
<td>14 hours.</td>
</tr>
<tr>
<td>Maximum hours work in 14 days</td>
<td>144 hours with no more than 84 hours before a continuous period of 24 hours free of work.</td>
</tr>
<tr>
<td>Maximum hours ‘night’ work before the opportunity for 2 consecutive nights sleep</td>
<td>36 hours (6 nights). A night hour is calculated as any hour worked between 00.00 and 06.00 and any hour or part hour, in 15 minute blocks, worked in excess of 12 hours in a 24 hour period.</td>
</tr>
<tr>
<td>Minimum short rest breaks during shift</td>
<td>30 minutes for a trip over 5 and up to 10 hours 60 minutes for a trip over 10 hours.</td>
</tr>
<tr>
<td></td>
<td>Minimum length of break 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>The short rest breaks must be taken throughout the shift and cannot be used to shorten a trip.</td>
</tr>
<tr>
<td></td>
<td>Provided the above requirements are met maximum continuous period of driving 6 hours.</td>
</tr>
</tbody>
</table>
In return for the regulatory concession in the Basic Fatigue Management option (longer permitted work day, fortnightly averaging of maximum work hours) operators and drivers will be required to adhere to a set of standards summarised in the following Table.

**Table 6. Proposed management standards for Basic Fatigue Management option**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description of standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduling of individual trips and rostering of drivers must be in accordance with the Basic Fatigue Management limits</td>
<td>Scheduling and rostering must ensure all trip schedules and driver rosters are planned and assigned in accordance with the prescribed limits. Time must be allowed for the transport task to be completed safely.</td>
</tr>
<tr>
<td>Health</td>
<td>Drivers will be required to be certified as being fit to drive a heavy vehicle by a medical practitioner according to the FORS/NTC guideline ‘Medical Examinations of Commercial Vehicle Drivers’ (or equivalent document approved by the Australian Transport Council).</td>
</tr>
<tr>
<td>Management practices must control the risks relating to driver fatigue</td>
<td>Management practices should ensure all drivers are suited to the task and support effective communication between management on matters relating to driver fatigue issues.</td>
</tr>
<tr>
<td>Documented evidence must be maintained to demonstrate compliance with the Basic Fatigue Management limits</td>
<td>Essential to the Fatigue Management module is the keeping and preservation of pertinent records.</td>
</tr>
<tr>
<td>The Basic Fatigue Management system must be subject to annual internal review to verify that all activities comply with the legislative requirements</td>
<td>The internal audit process is an essential management tool that checks that the requirements are being met. Fundamental to the effective management of the fatigue risk is the capacity to identify incidents of non-compliance with the requirements and take necessary corrective action.</td>
</tr>
<tr>
<td>Training and education</td>
<td>Training and education are essential to ensure personnel involved in the management of fatigue issues are trained in managing driver fatigue, including the causes and effects of fatigue, recognising the symptoms of fatigue, and strategies to better manage fatigue. While the exact content of the training course is yet to be developed, as with TFMS accredited trainers will provide the training. The training will be consistent with that to be required under the Advanced Fatigue Management option and be subject to the external audit.</td>
</tr>
</tbody>
</table>

Source: NTC

Approval to operate under the Basic Fatigue Management option will be conditional on operators attaining accreditation to the fatigue management module of the National Heavy Vehicle Accreditation Scheme (NHVAS). Once accredited, operators will be subject to external audit requirements, maintenance of necessary management systems and training for drivers and operators. Drivers will need to be certified to be able to operate under the option and to undergo a health check. Operators will be subject to the audit requirements of NHVAS which are:

- on-entry system accreditation audit;
- compliance audit within six months of accreditation;
- compliance audit within twelve months of accreditation; and
- compliance audit within twelve months prior to the end of the accreditation period.
5.2.3 Advanced Fatigue Management

Operators who attain accreditation to the Advanced Fatigue Management option within the fatigue management module of NHVAS will not be required to comply with prescribed hours and work diary requirements that apply in the Standard Hours and Basic Fatigue Management options. In order to gain accreditation, operators will be required to have in place documented assurance systems, policies, procedures and records that demonstrate that management and evaluation systems are in place to ensure compliance with agreed fatigue management standards. Accredited Advanced Fatigue Management operators will be subject to the audit requirements of NHVAS. Advanced Fatigue Management is currently being piloted by Queensland Transport (QT). Standards proposed for full national operation of Advanced Fatigue Management are shown in Table 7. The scheme has been the subject of a separate RIS prepared for Queensland Transport37.

Table 7. Proposed management standards for Advanced Fatigue Management option

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description of standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scheduling and rostering</strong></td>
<td>Scheduling and rostering practices must ensure all trip schedules and driver rosters are planned and assigned in accordance with the operator's approved operating limits. Scheduling and rostering practices must include an assessment of the driver's recent work history, ability, welfare and preference (where appropriate). Time must be allowed for the transport task to be completed safely.</td>
</tr>
<tr>
<td>Operating limits</td>
<td>Operating limits are tools that allow operators and drivers to plan, monitor and manage work and rest times to minimise the impact of fatigue. Work and rest times are planned around normal limits. Drivers are empowered with the flexibility to work within the range between normal limits and flag points to best manage their own fatigue. Flag points may be exceeded up to the outer limits after a risk assessment is undertaken and countermeasures are implemented.</td>
</tr>
<tr>
<td>Readiness for duty</td>
<td>Operators must ensure that time off is provided for drivers to recover from or to prepare for the fatigue effects of work. Drivers must ensure that they consider the impact of activities such as recreational activities and personal life on their well-being and capacity to work safely, and use time off responsibly to prepare for or to recover from the fatigue effects of work.</td>
</tr>
<tr>
<td>Health</td>
<td>Operators must implement a health management system that addresses, as a minimum, sleep disorders, medical history, substance abuse and diet, and provides preventative and remedial measures to assist drivers in the management of their health.</td>
</tr>
</tbody>
</table>
### Standard

**Management Practices**
Management practices must control the risks relating to driver fatigue.

**Workplace conditions**
Workplace environments and conditions must assist in the prevention of fatigue.

**Training and education**
All personnel involved in the management, operation, administration, participation and verification of the NHVAS-FM are provided with relevant training on the causes, effects and management of fatigue; and the operator’s fatigue management program.

**Responsibilities**
All personnel involved in the management, operation, administration, participation and verification of the NHVAS-FM are aware of their authorities, responsibilities and duties and carry these out accordingly.

**Records and documentation**
The operator must implement, authorise, maintain and review documented policies and procedures that ensure the effective management, performance and verification of the NHVAS-FM in accordance with the standards.

Records that demonstrate the effective operation of the NHVAS-FM and compliance with each standard must be identified, collected, stored and maintained.

**Internal review**
An internal review system is implemented to identify all non-compliances and verify that all activities comply with the NHVAS-FM standards, policies, procedures and instructions.

### Description of standard

Management practices must ensure all drivers are suited to the freight task and support effective communication between management and drivers on matters that affect the safe operation of the business.

Operators must ensure that depot facilities, vehicles and sleep accommodation are suitable for the management and prevention of fatigue.

Training and education is essential to ensure all employees, including managers, understand fatigue management issues and have the knowledge and skills to practice effective fatigue management and comply with the NHVAS-FM requirements. Training must include an assessment process to ensure learning objectives are met. Customer understanding and support for NHVAS-FM is also important for successful fatigue management.

The successful operation of the NHVAS-FM is dependent on all personnel knowing and fulfilling their responsibilities to ensure that the NHVAS-FM standards are met.

Policies, procedures and instructions must be authorised, current and clearly identify and describe all NHVAS-FM management, operation, administration, participation and verification activities.

The internal audit process is an essential management tool that checks that procedures are being followed and indicates how the NHVAS-FM is working. Fundamental to the effective management of the fatigue risk is the capacity of the NHVAS-FM system to identify, report and investigate incidents of non-compliance with the standards and take the necessary corrective action.

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**NHVAS-FM**: Proposed Advanced Fatigue Management option within the fatigue management module of NHVAS

**Source**: Queensland Transport, internal unpublished documents

Advanced Fatigue Management operators will be permitted to operate within a series of outer limit working hours more generous than those in the Standard Hours and Basic Fatigue Management options, but within those outer limits each operator’s permitted driving hours will be determined by the accrediting agency taking account of the operator’s risk profile and fatigue management system. Work diary requirements will be specified in the business rules of the Advanced Fatigue Management option within NHVAS. Proposed outer operating limits under the Advanced Fatigue Management option are presented in Table 8.
Table 8. Proposed outer operating limits-Advanced Fatigue Management

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Outer Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum sleep opportunity in a 24 hour period</td>
<td>6 hours or 8 hours in two parts. Broken rest can only be used on two consecutive 24 hour periods.</td>
</tr>
<tr>
<td>Minimum opportunity for night sleep in 7 days (22.00 and 08.00)</td>
<td>1 night sleep in 7 days.</td>
</tr>
<tr>
<td>Minimum 24 hour periods off in 28 days</td>
<td>4 x 24 hour periods off in 28 days.</td>
</tr>
<tr>
<td>Maximum hours “night work” in 7 days</td>
<td>36 hours (6 nights). A night hour is calculated as any hour worked between 00.00 and 06.00 and any hour or part hour, in 15 minute blocks, worked in excess of 14 hours in a 24 hour period.</td>
</tr>
<tr>
<td>Maximum hours work in 7 days</td>
<td>84 hours</td>
</tr>
<tr>
<td>Maximum hours work in 14 days</td>
<td>154 hours</td>
</tr>
<tr>
<td>Maximum hours work in 28 days</td>
<td>288 hours</td>
</tr>
<tr>
<td>Maximum hours work in 24 hour period</td>
<td>16.5 hours</td>
</tr>
<tr>
<td>Maximum hours work in 48 hour period</td>
<td>30 hours</td>
</tr>
<tr>
<td>Minimum short rest during the day</td>
<td>30 minutes total for a shift over 5 and up to 10 hours</td>
</tr>
<tr>
<td></td>
<td>60 minutes total for a shift over 10 and up to 15 hours</td>
</tr>
<tr>
<td></td>
<td>90 minutes total for a shift of more than 15 hours (if permitted).</td>
</tr>
<tr>
<td></td>
<td>The short rest breaks must be taken throughout the shift and cannot be used to shorten a trip.</td>
</tr>
</tbody>
</table>

**Two Up Driving Requirements**

Drivers sharing the driving in a two up arrangement must meet the requirements below.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Outer Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum non-work time in a 24 hour period</td>
<td>8 hours.</td>
</tr>
<tr>
<td>Minimum continuous non-work time in a stationary vehicle or away from the vehicle in 72 hours</td>
<td>12 hours</td>
</tr>
<tr>
<td>Minimum non-work time away from the vehicle in 7 days</td>
<td>48 hours of which 36 hours must be continuous.</td>
</tr>
</tbody>
</table>

The three-tiered structure of compliance options is designed to allow choice for operators, recognising their individual circumstances including their fatigue risk profiles, encourage operators to adopt structured fatigue management practices, and provide a simple prescriptive option for operators who do not need or prefer not to adopt either of the more intensive Basic Fatigue Management or Advanced Fatigue Management options. Those operators for example whose work is predominantly urban, based on regular day time shifts would be likely to adopt the Standard Hours option. The Advanced Fatigue Management option is more likely to be adopted by operators with a higher fatigue risk profile; for example long shifts away from home entailing extended periods of night work and uncertain trip duration. The Basic Fatigue Management option might be more relevant to operators who fit neither of these polar situations; for example long but regular shifts or occasional long shifts in part of their operation. Risk might not be the only factor (other than cost) that motivates operator choice. For example, operators seeking a structure to help them in managing their fatigue general duty might choose the Advanced Fatigue Management option when otherwise the Basic Fatigue Management option might have been appropriate.
5.2.4 Two-up driving

The current Regulations provide for two-up driving. The issue of two-up driving was examined by the Fatigue Expert Group which concluded that a number of key principles needed to be adhered to including:

- ‘limit[ing] the period for which continuous two-up driving is permitted, before both drivers are required to take a long stationary sleep break (preferably overnight);
- ‘ensur[ing] that both night sleep opportunities and night work are shared roughly equally between the two drivers; and
- provid[ing] adequate opportunities for full recuperation: at least two consecutive stationary night sleep opportunities per week’.38

The Fatigue Expert Group went on to note that:

‘Providing these basics are addressed, prescription of minimum continuous rest breaks (or maximum continuous driving shifts) during the on-road part of a two up operation is probably undesirable: limiting flexibility in this area could produce the undesirable result of forcing the less fatigued driver to rest while the more fatigued driver takes the wheel’.39

There is little in the way of research on the fatigue effects of two-up driving. Anecdotal evidence suggests that drivers either love it or hate it and have equally strong views on the fatigue risk in such situations. It requires confidence in the driving partner and the ability to sleep in a moving vehicle. Anecdotal evidence further suggests that the incidence of two-up driving is increasing.

Based on the Fatigue Expert Group's recommendations the following parameters are proposed:

- each driver to do no more than 12 hours each in a 24 hour period in the Standard Hours option and 14 hours in the Basic Fatigue Management option;
- in Standard Hours and Basic Fatigue Management maximum total hours work for both drivers of 42 hours before a stationary rest period of 12 hours;
- in Advanced Fatigue Management a minimum non-work time in a 24 hour period of 8 hours with a minimum stationary break of 12 hours in 72 hours; and
- in Advanced Fatigue Management a minimum non-work time away from the vehicle of 48 hours (of which 36 hours must be continuous) in 7 days.

5.3 Supporting elements in the regulatory proposal

The supporting elements in the regulatory proposal recognise the range of influences on driver fatigue. These influences extend beyond the work and rest patterns of individual drivers and the prescribed work and rest requirements outlined above. The prescriptive limits in current and proposed regulations merely define outer limits of acceptable work and rest inputs on the part of drivers, and their ultimate purpose is to protect drivers and other road users from the on-road consequences of heavy vehicle driver fatigue.

38 Fatigue Expert Group (2001), pp 44-45
39 Fatigue Expert Group (2001), p 45
In recognition of the broader set of fatigue influences and precursors, the regulatory proposal imposes duties on all parties in the transport chain in respect of driver work and rest hours and fatigue management. Irrespective of which of the three core operating options an operator adopts, all parties in the transport chain will be required to refrain from taking decisions that could influence a driver to infringe the regulations or to drive when his or her fatigue level would render driving unsafe. Some parties in the chain such as those responsible for driver scheduling must take active steps to ensure that drivers do not drive when their level of fatigue is such that driving would be unsafe.

Obligations to be placed on parties in the transport chain will increase the effectiveness of enforcement as will more stringent record keeping requirements. At the same time the regulatory proposal provides for a code of practice to be developed to guide parties in the transport chain in the conduct of their driver fatigue-related duties. In addition, and other than for drivers, the proposal will provide a basis for reasonable steps defences to prosecution for parties in the transport chain (provided they had no knowledge of the conduct of the offence being prosecuted).

The NTC believes that the regulatory proposal should be consistent with the general duty of care contained in occupational health and safety legislation in each jurisdiction. The proposed code of practice and the duty to manage fatigue recognise the desirability of legislative consistency. The code will apply only to operators and drivers but this would not prevent say a consignor from using the code as a reference, and if appropriate, as a defence.

5.3.1 Chain of responsibility

The NTC proposes to strengthen the chain of responsibility provisions that are currently contained in the Road Transport Reform (Driving Hours) Regulations in respect of:

- driving hours (and related requirements); and
- fatigue management.

These duties will apply in respect of a wide range of activities in the road transport chain:

- consigning (commissioning the transport of goods by road);
- operating (controlling the use of a heavy vehicle for the transport of goods by road or controlling the use of a bus for carrying passengers);
- driving (driving the heavy vehicle carrying the goods or the bus carrying the passengers);
- receiving (taking possession of or paying for goods transported by road); and
- loading/unloading (placing or restraining the load on the vehicle, or removing the load from the vehicle).

In addition, it is proposed that employers and responsible employees will be required to take reasonable steps to ensure that drivers do not breach the driving hours or related provisions. A director, secretary or senior manager of a body corporate that has committed a driving hours or related offence will be personally liable for the breach except to the extent that they were not in a position to control the conduct of the body corporate in relation to the offence, or that being in a responsible position they took every reasonable step to prevent the occurrence of the offence.

Chain of responsibility duties are contained in Regulations 75 to 78 of the current regulations. The first of these, Regulation 75, is a general provision which states:
“A person must not ask, direct or require, directly or indirectly, a driver to do something if the person knows, or reasonably ought to know, that by complying the driver would, or would be likely to, commit:

(a) a core driving hours offence;
(b) a driving record offence; or
(c) a speeding offence.”

Regulations 76 to 78 impose equivalent responsibilities on consignors engaging someone to transport goods by road, employers allowing employed drivers to drive heavy trucks or buses, and employers or responsible employees rostering drivers or scheduling the transport of people or goods by road.

The main factors limiting the effectiveness of the current chain of responsibility provisions appear to be that:

- the extended duties only apply to a relatively limited set of circumstances (that is, where the relevant party knows, or reasonably ought to know, that his/her request or actions would or would be likely to lead to a driving hours or related offence);
- the prosecution bears the burden of proving the ‘knowledge’ element of the extended provisions; and
- the limited powers of investigation make it difficult for enforcement officers to gather the evidence necessary to prosecute non-driver parties for their involvement in breaches of driving hours.

The proposed regulations will impose absolute liability obligations on parties in the transport chain in respect of driving hours and related requirements and fatigue management. That obligation would be subject to specific reasonable steps defences. This change effectively shifts the burden of proof from the prosecution to the relevant parties in the transport chain. Its effect is that non-driver parties would have to actively consider the effect their requests, directions and requirements would have on a driver’s ability to perform a task without breaching driving hours or fatigue management requirements in order to be in a position to demonstrate that they had taken reasonable steps to prevent these breaches occurring.

As distinct from non-driver parties in the transport chain, drivers would not have recourse to reasonable steps defences. While the activities of drivers can be influenced by others, a driver retains the ultimate responsibility to make the decision to commence or continue the driving task, or to stop and rest until he or she is able to resume in accordance with the requirements of the regulations.

The effects of the proposed chain of responsibility provisions are summarised in Appendix E.

### 5.3.2 Fatigue code of practice

A fatigue code of practice will be developed in conjunction with the proposed regulations to:

- provide guidance to relevant parties with respect to meeting their fatigue management obligations; and
- provide general guidance to the road transport industry and other parties about the management of fatigue.
The use of industry codes of practice to provide guidance on matters covered by general duties in legislation is common in occupational health and safety, building and environmental legislation. Codes provide flexibility and have the advantage of being industry specific. To the extent that industry is involved in their developments, codes are more likely to be accepted and observed. Codes of practice usually set out one means of complying with the legislation but duty holders can still achieve the regulatory objectives by using means equivalent to, or better than, the recommended method. A person who is complying with a relevant and approved industry code would be able to establish the proposed reasonable steps defence (provided he or she had no knowledge of the breach).

5.3.3 **Drivers’ work diaries**

**Non-local area work**

The current logbook system has been the subject of much criticism and compliance levels are low. The scope of the required logbook is narrow with its sole purpose being to act as a regulatory device in respect of prescribed driving hours.

Currently, drivers are required to record the following details:

- day and date, name and licence, state of issue, vehicle registration (before commencing non-local work);
- the time of each change of activity;
- driving time, other work time, or rest time since the last change of activity; and
- time and place of the last change of activity.

There would appear to be significant benefits in moving towards a universal work diary that went beyond the limited role of the current logbook. A work diary would provide a record of the driver’s activities but would also provide a significant record for chain of responsibility purposes. It is expected that drivers would perceive advantages in using the work diary to demonstrate compliance with their obligations under road transport and occupational health and safety law.

It is also proposed that drivers add odometer readings to the details required to be recorded in the work diary at each change of activity. This additional detail would assist enforcement officers to assess the accuracy of other work diary details and enable comparisons to be made with odometer readings in other records such as fuel purchase receipts.

Employers will be obliged to request and actively pursue the provision of copies of drivers’ work diaries. This requirement will apply to self-employed drivers and sub-contractors also. At present, drivers are required to provide their employer with a copy of their logbook record for each day of non-local area work, but their employer is not under an obligation to pursue that record should the driver not provide it. This can result in gaps in the employer’s records, making it difficult to establish the full extent of their knowledge in respect of the driver’s activities.

Overall, compliance with work diary requirements is expected to be improved relative to current logbook compliance by: the adoption of a work diary format based more directly on factors that affect a driver’s work day; the sign-off obligation imposed on second parties (see below); and the requirement that employers actively seek copies of their drivers’ work diaries.
Local area work

Regulations currently require employers and self-employed drivers to keep records of local area work but the format is not prescribed, leading to difficulties in extracting and understanding the information that the records contain.

To overcome this situation, employers and self-employed drivers carrying out local area work will be required to prepare and keep records of that work in a manner that can be easily understood and to store or archive the records in a way that permits them to be easily accessed in chronological order.

Sign off by other parties

The NTC proposes that relevant parties in the transport chain such as consignors and consignees countersign relevant entries in the drivers’ work diary. Countersigning would constitute second party verification of the accuracy of work diary entries. It is proposed that the times of completion of loading or unloading should be signed off, these being the times usually relevant to the completion or exchange of commercial documentation.

‘Safe Driving Plan’

Several elements of these work diary proposals – taking of odometer readings and sign off by other parties – are consistent with recommendations for a Safe Driving Plan in respect of each trip made in the Quinlan report (see Appendix F of this RIS).

5.3.4 Other record keeping requirements

To allow the chain of responsibility to be identified in each case, operators will be required to maintain other trip-related records in a form that allow ready identification and collation by an enforcement officer. Relevant records could include:

- customer invoices;
- bank statements;
- fuel purchase records;
- receipts relating to overnight accommodation and meals;
- telephone accounts;
- road usage tolls paid; and
- petty cash records.

Many of these records would be required, although probably not in trip-related form, for taxation and auditing purposes.

In addition, operators in the normal course of business would typically retain transport specific information which could include:

- schedules and rosters;
- driver specific monitoring device records;
- vehicle tracking reports; and,
- electronically generated manifests.
5.3.5 Enforcement powers

To effectively enforce new national chain of responsibility provisions in the areas of truck driver fatigue management, speeding heavy vehicles, vehicle standards, and mass and loading requirements, adequate inspection and investigation powers are needed. The powers proposed in the Road Transport (Compliance and Enforcement) Bill will enable officers to pursue all relevant parties in the chain of responsibility, whether they are drivers, operators or ‘off-road’ parties such as loaders or consignors. The provisions will provide enforcement officers with the power to:

- stop, direct, move and inspect heavy vehicles;
- enter and inspect premises to monitor compliance;
- enter and inspect premises;
- enter and search heavy vehicles;
- require the production of information, documents, records and devices from all parties in the chain of responsibility;
- require certain parties to provide their name and address and the identity of other parties in the chain of responsibility; and
- require reasonable assistance.

The new provisions will create a number of general offences that will apply to any person. The offences include:

- obstructing or hindering enforcement officers;
- impersonating authorised officers;
- making false or misleading statements to enforcement officers;
- providing false or misleading documents to enforcement officers;
- failing to provide reasonable assistance to enforcement officers when directed to do so; and
- disobeying the lawful direction of enforcement officers.

The provisions in the Bill have been subject to a separate RIS and accordingly they are not subject to separate assessment (as they relate to fatigue) in this RIS.

5.3.6 Risk based categorisation of offences

Under the NTC’s risk based approach to compliance and enforcement, each offence is categorised according to the seriousness of the risk it poses to safety, infrastructure, the environment, traffic efficiency and competitive equity. Appropriate powers, penalties and sanctions are then set, based upon the category into which that risk falls.

The aim of this approach is to provide enforcement officers and courts with an appreciation of the relative seriousness of offences, and to promote fair and nationally consistent penalty outcomes.

The structure of the current penalties and sanctions is not inconsistent with this approach. The maximum penalty for most safety-related offences is set at $1,500 while the penalty for breaches of less serious administrative type requirements is generally limited to $500. Further, the maximum penalties for breaches of driving, work or rest times vary from $1,000.
to $1,500 depending upon the period by which the maximum driving or work time was exceeded or the shortfall in rest.

It is proposed that any revised offences be divided into three categories – administrative offences, substantial risk offences and severe risk offences.

Offences categorised as administrative would include breaches of record keeping or other administrative requirements which are minor or do not affect the integrity of the record, and as such present no risk to safety (by masking some other safety-related breach).

Substantial risk offences would include inadvertent and less severe breaches of provisions for example by breaching prescribed hours by less than one hour.

Severe risk offences would be those involving extended breaches of driving or working hours, large shortfalls in rest times, deliberate or premeditated breaches of safety-related provisions and record keeping offences involving fraud.

5.3.7 Sanctions and penalties

The Compliance and Enforcement Bill also proposes a comprehensive suite of sanction and penalty options designed to maximise compliance by all parties in the chain of responsibility.

These options have been tailored to address specific types of offenders (for example, first-time offenders, those who might benefit from compliance supervision and ‘systematic or persistent’ offenders) and specific consequences (for example, offences involving a risk to safety or the reaping of large commercial profits from the wrong-doing).

The options form a hierarchy beginning with administrative sanctions and penalties – improvement notices, formal warnings and infringement notices. For more serious offences, there are court-imposed sanctions and penalties – fines, commercial benefits penalties, restitution orders, supervisory intervention orders, orders affecting driver licence or vehicle registration and orders prohibiting an offender from involvement in the road transport industry.

In addition to these generally applicable penalties and sanctions, a number of special penalties apply to certain road transport offences; for example, the ‘three strikes’ penalty applies only to speeding heavy vehicles.

It is envisaged that these sanctions and penalties will further contribute to the effectiveness of chain of responsibility provisions by ensuring that an appropriate balance is struck between punitive and rehabilitative elements of sanctions and penalties. The proposed regulations will include provision for:

- improvement notices;
- formal warnings;
- infringement notices;
- fines;
- commercial benefits penalties;
- restitution orders;
- supervisory intervention orders;
- orders affecting driver licences or vehicle registration;
- prohibition orders;
- mutual recognition and cross-border enforcement; and
- roadside powers following detection of an offence.
6. ASSESSMENT OF THE REGULATORY PROPOSAL

6.1 Affected parties

This section estimates impacts the following impacts:

- compliance costs, largely accruing to operators but also in lesser degree to other transport chain parties such as consignors and consignees;
- administration and enforcement costs accruing to road transport agencies including the costs of managing the Basic Fatigue Management and Advanced Fatigue Management options under NHVAS; and
- benefits, including reductions in fatigue and speed-related road crash costs, reduced workplace accident costs and reductions in fuel use by heavy vehicles.

Table 18 towards the end of this section shows the distribution of costs between these affected groups. The incidence of benefits is not estimated because of the complexities associated with the composition of road crash and workplace accident costs related to employers, employees and their families, the health, welfare and justice systems and the community generally.

6.2 Types of impact

6.2.1 Costs

The regulatory proposal could have the following impacts:

- operators could incur higher driver-related costs because of the more restrictive rest and working hours in the standard hours and Basic Fatigue Management options relative to the limits allowed in the current regulations;
- operators could incur additional driver-related costs in moving from non-compliance with the current Regulations to compliance with the requirements of the regulatory proposal, reflecting the enhanced compliance and enforcement provisions (and the full compliance assumption that underlies this analysis). The cost impacts relevant to this and the previous point are not necessarily additive in that drivers exceeding current prescribed working hours may also exhibit rest and work patterns that would be inconsistent with requirements in the regulatory proposal;
- operators could incur additional costs in complying with the general duty to manage fatigue;
- operators could incur additional costs in demonstrating compliance with the fatigue general duty;
- operators doing non-local work could incur additional costs in using work diaries as distinct from logbooks currently required. These operators could also incur additional costs in requesting work diaries and in having a system in place for retention of completed diaries;
- other parties could incur additional costs in taking actions to acquit their duties under the code of practice including the requirement to sign off arrival and departure times at truck loading/unloading or consigning/receiving;
• operators who elect to comply with Basic Fatigue Management requirements could incur additional costs for risk assessment, training and driver medical examinations and audit;

• operators who elect to comply with Advanced Fatigue Management requirements will incur additional costs in complying with the relevant standards including risk assessment. This current RIS derives those costs from the separate RIS on the Advanced Fatigue Management option prepared for Queensland Transport;\(^{40}\)

• operators and other parties could incur additional costs in complying with record keeping requirements in the regulatory proposal;

• regulatory agencies could incur additional costs in operating the Basic Fatigue Management and Advanced Fatigue Management schemes; and

• regulatory agencies could incur additional costs in enforcing the chain of responsibility provisions contained in the regulatory proposal.

6.2.2 Benefits

The regulatory proposal is expected to reduce costs attributable to road crashes in which the heavy vehicle driver is fatigued. Other benefits, not all quantifiable, could also accrue, including:

• increased productivity facilitated by more flexible work and rest requirements\(^{41}\) and more alert drivers;

• improvements in driver health associated with increased opportunities for rest and reductions in sleep debt;

• reductions in vehicle operating costs such as fuel consumption associated with better performing drivers;

• reductions in speed-related crashes;

• improvements in management practices associated with record keeping requirements; and

• stimulation of a safety culture within road transport organisations.

6.3 Issues in the Assessment

6.3.1 Description of the base case

The base case against which the regulatory proposal is assessed is taken to be the regulatory environment as currently exists (and the compliance outcomes described in 6.3.5 below) including the regulation of driving hours by Western Australia and the Northern Territory under their OHS legislation. Issues in the analytical treatment of the base case are discussed immediately below. An alternative view on these issues is provided in section 6.3.3.


\(^{41}\) Operators in the Advanced Fatigue Management Advanced Fatigue Management pilot scheme were unable to estimate these benefits and they are not estimated here. The RIS does assume however that some of the negative productivity impacts of reducing current non-compliance would be offset by the opportunities operators will have to work under the Basic Fatigue Management or Advanced Fatigue Management Advanced Fatigue Management options.
6.3.2 Treatment of the base case

The influence of current OHS law on the base case is problematic. Although OHS legislation in each jurisdiction imposes a general duty to manage a safe workplace, only WA and NT spell out the duty as it relates to fatigue, in their codes of practice. In one sense it could be argued that operators should now be complying with that duty such that the proposed fatigue code of practice will not impose any additional duty or cost on operators and, in fact, might reduce their costs because it provides them with additional guidance in the management of risk. There are two reasons why the impact analysis does not construe the base case in this way:

• firstly, while employers typically have a general duty in respect of the health and safety of their employees and others, that duty is not necessarily focussed on road safety risk, as is the regulatory proposal. An OHS based fatigue code of practice directed at the health and safety of employees and others may contain different duties to one directed at the safety of road users (as would be the case of the proposed fatigue code in the regulatory proposal). In addition, any OHS code may carry implications for rest and work hours not entirely consistent with, and possibly more stringent than in the regulatory proposal, to the extent that an OHS code would be concerned with the health as well as the safety of the driver and possibly as well with the safety of other road users; and

• except in WA and NT, employers, particularly small operators, do not have access to objective, officially sanctioned advice on the management of fatigue for road safety. Arguably, legislators have imposed a duty in OHS legislation but not spelt out the means by which it is to be acquitted (although they have done so for other OHS hazards such as manual handling). Extending this argument, in respect of road safety, legislators until now have neither promulgated nor explicated a general duty to manage fatigue as would be applicable in each jurisdiction. Some operators may already undertake tasks such as risk assessment and training that might eventually be included in the code but the proportion who do so is unknown, and in the case of TFMS, which imposed some explicit fatigue management duties on operators in exchange for a regulatory concession, disturbing proportions of employers appear not to have complied with those duties.

OHS agencies have indicated to the NTC that they are looking to the Fatigue Review to provide direction in addressing fatigue in road transport. In the absence of the regulatory proposal, OHS agencies in some if not all jurisdictions would probably focus more strongly on road transport fatigue with the consequence of widening inconsistencies between road transport and OHS regulation. The impact would be increased uncertainty and compliance costs for participants in the road transport industry.

In estimating the impacts of the regulatory proposal, the RIS makes allowance, particularly in respect of operators, for increases in costs attributable to the fatigue duty of care and the spelling out of that duty in the proposed code of practice. In making these estimates the RIS applies assumptions about the proportions of operators who could currently be complying with and providing verification of compliance with the types of duties that might be included in the eventual code.

6.3.3 Alternative treatment of the base case

The view might also be taken that in the absence of a general duty and a supporting code of practice in the regulatory proposal, OHS agencies in the various jurisdictions would move to explicitly regulate heavy vehicle drivers under their own legislation. The base case would then be a set of duties and possibly a set of prescribed hours similar to those in the regulatory proposal. The incremental costs to achieve compliance with the requirements of the
regulatory proposal would accordingly be lower than estimated here, as would the benefits. This is a difficult base case to address because it relies on judgement as to whether and when the OHS agencies might act to address driver fatigue, whether all or some of the agencies would act, and whether they would act with cross-border consistency. For these reasons, the implications of this alternative construction of the base case are addressed in the sensitivity testing at the end of this section.

6.3.4 Compliance with rest and working hours

The regulatory proposal is likely to cause costs (losses in productivity) to the extent that illegal driving hours are reduced by more effective enforcement activity. In addition provisions regarding nights off and maximum numbers of consecutive night shifts will reduce the scope for some drivers to work when they want to work. Survey evidence suggests some overlap in these types of change (drivers working long hours may also work extended consecutive shifts) such that the negative productivity impacts will not necessarily be additive.

The estimates of heavy vehicle driver-related fatigue accident costs presented earlier in this RIS would be the result at least in part of non-compliance with the current regulations, although some would argue that the compliance with the regulations themselves may cause some of these costs because they encourage drivers to work excessive hours and at the wrong times. Because the fatigue-related accident savings that will make up part of the benefits of the regulatory proposal derive from the existing pattern of compliance, current levels of compliance are appropriately included in the base case. The general provisions of the Road Transport (Compliance and Enforcement) Bill could have the effect of lifting compliance with a range of provisions on road transport law. However the analysis assumes that any significant impact will only arise when the proposed regulations give specific effect to those provisions in relation to fatigue.

Levels of compliance with the requirements of the regulatory proposal are impossible to forecast. The RIS assumes full compliance with the requirements of the regulatory proposal, estimates the costs of achieving it, and compares those costs with the costs of crashes in which the heavy vehicle driver was fatigued. The assumption of less than full compliance would result in lower cost estimates, but benefit estimates would be lower as well.

Contrary to views expressed in industry submissions, the RIS assumes but does not forecast or foreshadow full compliance. The advantages of the full compliance assumption are that:

- it provides an estimate of the total or maximum compliance cost (at the assumed distribution of takeup between the proposed three compliance options). Cost estimates based on less than full compliance could mislead stakeholders about the likely burden of the regulatory proposal;
- the basis for comparison is relatively straightforward and the RIS avoids a range of potentially contentious comparisons of benefits and costs; and
- the decision criterion in the assessment of benefits and costs is clear: if at the assumed 100% compliance, the costs of the regulatory proposal exceed its benefits, the regulatory proposal would be clearly undesirable in economic terms.

The NTC recognises that given fatigue is a life style issue it is probable that there will still be crashes where fatigue is at least a contributing factor if the the proposed regime is adopted. It is not possible to determine what proportion of the benefits would arrive from those operators who are not complying (and who would therefore bear the full costs) or those operators who are complying but have fatigue related crashes - or any mixture of cost/compliance between.
It would be misleading to make a simplistic assumption such as even if there was full compliance there would still be X number of deaths because fatigue is avoidable and if the proposal was implemented in full, particularly the General Duty to Manage Fatigue to Minimise Road Safety Risk, this would mean theoretically that there would be no fatigue related incidences in those drivers covered by the regulations as the duty is on the driver to stop if feeling fatigued.

However, recognising the strength of concern about this issue expressed in industry submissions, section 6 of this RIS includes consideration of alternative compliance assumptions.

Base case levels of compliance with the current Regulations are estimated from driver survey data.

6.3.5 Compliance with the general duty to manage fatigue

The RIS takes a similar approach to the estimation of the costs of complying with the proposed general duty to manage fatigue. That is, the additional costs are estimated of moving from the current state, in which some operators will be doing the things to be required by the proposed code, to the regulatory proposal state in which all operators are assumed to comply with the code duties. A similar approach is taken in respect of other parties who will have duties under the regulatory proposal. In respect of the general duty to manage fatigue, the analysis assumes that 75% of small and medium size operators would not be managing in a way that would comply with the regulatory proposal. The non-compliance proportion for large operators is assumed to be 50%.

6.3.6 Scope of the assessment

General

The regulatory proposal explicitly applies to operations involving vehicles with a gross mass over a 12 tonne threshold and to buses that seat more than twelve adults. Subject to its eventual content the code could have implications for other operations (that is, at or below 12 tonnes) in defining the state of knowledge available to operators in managing their fatigue risk under OHS legislation. A successful prosecution by OHS agencies for breach of the duty to manage fatigue involving a below threshold operator could stimulate similar operators to comply with the proposed code.

Because of the difficulty of predicting these responses, the RIS does not estimate impacts in the below threshold sector. For consistency, only those benefits attributable to reduced fatigue crash risk for 12 tonne and heavier vehicles are estimated in the impact analysis. In the subsequent section the costs and benefits of extending the regulatory proposal to operations below the 12 tonne threshold are considered.

Exclusion of buses

Presently, bus operators are excluded from TFMS, but will have access to the Basic Fatigue Management and Advanced Fatigue Management options in the regulatory proposal, providing them greater scope to devise rosters which meet fatigue management and productivity requirements. From the NTC’s discussions with industry representatives, the bus industry is unlikely to be affected in any significant way by the regulatory proposal except perhaps in respect of some coach and tour operations. Otherwise, bus driver work patterns are governed by customer requirements and schedules that largely constrain any driver fatigue problem in bus transport. In the tour sector, the impacts of the Basic Fatigue Management and Advanced Fatigue Management options in the regulatory proposal are expected to be
positive, but relative to the estimated impacts on the road freight industry, they would be quite small. Accordingly the impact analysis does not consider the impact of the regulatory proposal on the bus industry.

6.4 Take up of regulatory options

The regulatory proposal will allow drivers to work according to the Standard Hours, Basic Fatigue Management or Advanced Fatigue Management options. Some operators may have different drivers working under different options depending on the type of driving work they do, and the effect would be to inflate administrative costs for those operators. The cost estimates here effectively assume that each operator will adopt one option, so that the sets of operators who adopt each of the standard hours, Basic Fatigue Management and Advanced Fatigue Management options will be mutually exclusive.

Estimates of take up in each option influence estimates of the costs of the regulatory proposal.

From ABS Survey of Motor Vehicle Use data there are approximately 152,000 trucks over 12 tonnes in Australia but excluding WA and NT), including 105,600 in urban operation and 46,400 in non-urban operation. It is assumed that equal numbers of full time driver equivalents (52 weeks per year) would drive these trucks (a driver to truck ratio of 1:1), with the exception of medium and large non-urban fleets for which a driver to truck ratio of 2 is assumed. With these assumptions, there could be 164,000 drivers driving trucks subject to the regulatory proposal; that is with gross mass of 12 tonnes or more.

From drivers’ survey data, around 25% of long distance drivers work in excess of 72 hours per week. Assuming working hours of this extent to be confined to long distance (non-urban) drivers, and that there are 58,400 drivers of above-threshold vehicles in long distance work, about 14,600 drivers would be working in excess of the base hours in the regulatory proposal.

These long distance drivers or their employers are likely to find the Basic Fatigue Management and Advanced Fatigue Management options to be the most appealing. The number of drivers involved (14,600) is taken to be the maximum combined take up of these two options. The separate Advanced Fatigue Management RIS estimated that take up of that option would be 3,000 drivers in 430 fleets. The residual take up of the Basic Fatigue Management option would be around 11,600 drivers in approximately 1,600 fleets, based on the average fleet size estimate in the TFMS evaluation troubleshoot footnotes. Of the remaining 149,400 drivers, 105,600 in urban operations are assumed to work according to the Standard Hours option as are 43,800 drivers in non-urban work. For operators assumed to adopt the Standard Hours option, take up is further categorised as follows:

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42 The reasoning behind the driver truck ratios is that in urban operation where truck utilisation is relatively low, it is unlikely that more than one full time driver equivalent would be required to operate each truck. In non-urban operations in which articulated trucks could be working an average of 250,000 kms annually, it is reasonable to assume that more than one full time driver equivalent would be required for each truck. The exception in these non-urban operations is small operators, particularly and owner drivers, who, almost by definition would have a full time driver to truck ratio of 1.

43 Williamson and Feyer (2000) p 33

44 Because consignor and consignee opening times and local government regulations would together put a cap on urban hours.

45 From ABS (pers comm) Survey of Motor Vehicle Use data


47 Tonkin and Edwards (2001)
by fleet size, because compliance cost parameters are assumed to vary according to fleet size; and

by level of fatigue risk, because it is assumed that the proposed fatigue code of practice will place higher or more stringent duties on operators with higher levels of fatigue risk. Unit compliance costs are assumed to be accordingly higher for this group of operators.

Other take up assumptions are as follows:

**Fleet size**

- 93.2% of fleets are small (1 to 2 vehicles, average 1.14 vehicles);
- 5.4% of fleets are medium (3 to 9 vehicles, average 4.4 vehicles); and
- 1.3% of fleets are large (10+ vehicles, average 27.3 vehicles).

**Fleet risk categorisation**

- 70% of urban fleets have low fatigue risk and 30% have high risk;
- 30% of non-urban fleets have low fatigue risk and 70% have high risk; and

Take up is summarised in Table 9.

**Table 9. Estimated take up of options in the regulatory proposal**

<table>
<thead>
<tr>
<th>Option</th>
<th>Urban operator</th>
<th>Non-urban operators</th>
<th>All operators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Drivers</td>
<td>Fleets</td>
<td>Drivers</td>
</tr>
<tr>
<td>Standard hours</td>
<td>105,640</td>
<td>63,257</td>
<td>43,806</td>
</tr>
<tr>
<td>Basic Fatigue Management</td>
<td>-</td>
<td>-</td>
<td>11,600</td>
</tr>
<tr>
<td>Advanced Fatigue Management</td>
<td>-</td>
<td>-</td>
<td>3,000</td>
</tr>
<tr>
<td>Total</td>
<td>105,640</td>
<td>63,257</td>
<td>58,406</td>
</tr>
</tbody>
</table>

Note: Excludes fleets based in WA and NT

### 6.5 Additional driver costs

Costs estimated here are based on driving hours parameters contained in the draft proposal. With the data available it has not been possible to cost the implications of the revised night work proposal (one pair of consecutive nights off, plus two other nights off in a fortnight relative to the draft policy proposal requirement for two pairs of nights off in a fortnight). It is expected however that with this change, the additional night driving cost estimates in the RIS are likely to be overstated and the net benefits of the regulatory proposal to be understated.

#### 6.5.1 Drivers currently working in excess of maximum hours

As noted in section 6.4, approximately 14,600 drivers could be working above the 72 hours weekly maximum provided for in both the Standard Hours option and the averaged maximum

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48 Estimates derived from ABS Survey of Motor Vehicle Use data via NTC
of 72 hours in the Basic Fatigue Management option (the latter allowing in effect 84 hours in one week and 60 in the other week in a fortnight). The Basic Fatigue Management and Advanced Fatigue Management options are available to assist operators who periodically need to work in excess of the 72 hours weekly allowed in the Standard Hours option. Both of these options allow up to 84 hours work in a week and up to 144 hours work in a fortnight (Basic Fatigue Management) or 154 hours work in a fortnight (Advanced Fatigue Management). Although they would incur costs in participating in either Basic Fatigue Management or Advanced Fatigue Management (and those costs are separately estimated later), a reasonably high proportion of operators who work long shifts could be expected to take up these options, particularly given that the compliance and enforcement provisions in the regulatory proposal will make for easier detection and prosecution of illegal hours.

Operators whose drivers are consistently working hours in excess of the current permitted weekly maximum will not be totally accommodated by Basic Fatigue Management and Advanced Fatigue Management. In the Basic Fatigue Management option, a long 84 hour week must be followed by a shorter 60 hour week. In the Advanced Fatigue Management option, normal permissible working hours are established individually for each operator. An operator whose drivers consistently worked say four hours in excess of the 72 hours provided in the regulatory proposal could be accommodated by the Basic Fatigue Management option every second week of a driver’s roster. In order to comply with that provision, the operator would need to re-work his schedules or lose four driver hours per week perhaps to other operators who have slack in their schedules, in which case the re-distribution of work would occur at no net cost to the economy. Taking a conservative position, and assuming that 50% of currently illegal driving hours are ‘absorbed’ by the Basic Fatigue Management or the Advanced Fatigue Management option, that the remainder cannot be costlessly taken up by a re-distribution of work to other operators, and that 14,600 drivers are currently working four hours per week over the maximum in the regulatory proposal, the cost to the economy would, at an hourly driver cost of $27, be $41.0 million annually.\(^49\)

6.5.2 Impact of night work requirements

There are two night driving requirements in the regulatory proposal:

- over a seven day period, drivers would be required to work no more than six consecutive shifts that cover all or part of the period midnight to 6 am; and
- over a fourteen day period, drivers would be required to have one pair and two other nights off work.

From a recent study prepared for the NTC\(^50\), the first restriction would affect less than 3% of long distance drivers and the second restriction about 10% of long distance drivers.

\(^{49}\) It could be argued that operators would experience no net cost in moving to compliance with the provisions of the regulatory proposal if drivers’ labour was homogeneous and perfectly divisible, and all drivers had the same marginal disutility of work. The argument has a number of weaknesses. Drivers’ labour is not perfectly homogeneous (some drivers may be reluctant to work at night or for prolonged periods away from home) or divisible (not all drivers will be indifferent as to whether they work in hourly or weekly blocks). In addition, the marginal disutility of work could be expected to vary between drivers. Some drivers will benefit from working extra hours. Others may not be prepared to work extra hours at the prevailing wage rate. The assumptions made in the text, recognise that there is potential to absorb some but not all of the current non-compliance in a costless way.

\(^{50}\) Williamson et al (2002)
With respect to both of these parameters it is not possible to discern from the data whether long hours per se or shift structure – that is, constant shuttle trips back and forth – would cause drivers not to comply with these factors. The first group of drivers might well be a subgroup of the first, and all might be part of the population of drivers who work in excess of 72 hours per week. The immediately preceding discussion assumed that drivers who work in excess of 72 hours per week work four hours over that limit on average. Estimation of the impact of the regulatory proposal on operators whose drivers are in these situations is more problematic than in the case of working hours in excess of the permitted weekly maximum. Some of this non-compliance could be absorbed by the Advanced Fatigue Management option (the Basic Fatigue Management option is not sufficiently permissive) but the proportion cannot be estimated because each operator’s permitted work limits in Advanced Fatigue Management will be case specific. In addition some of the driving involved, such as livestock transport, may face scheduling constraints that even Advanced Fatigue Management could not accommodate. The fact that only around 10% of long distance drivers are affected suggests that the problem is confined to particular load types.

The number of long distance drivers involved would be around 5,800 (that is, 10% of 58,400). If one-quarter or say 1,500 of these 5,800 drivers could be accommodated by the Advanced Fatigue Management option, they would represent 50% of that option’s take-up, a reasonable assumption given that it is operating scenarios such as this that Advanced Fatigue Management is intended to address. In respect of the remaining 4,300 drivers, operators may need to reduce working hours or reschedule to be in compliance with the requirements of the regulatory proposal. A conservative position is that the drivers involved in specialist freight (such as livestock), and that additional shifts are required to cover their consecutive work breaks. At say one additional twelve hour shift per driver per week at $27 per hour the additional costs would be $72.4 million annually.

6.5.3 Total additional driver costs

On the basis of the assumptions adopted here, additional driver costs attributable to the regulatory proposal would be $113.4 million annually, comprising $41.0 million to achieve compliance with proposed weekly work hours, and $72.4 million to achieve compliance with continuous rest break requirements.

6.6 Costs to operators in demonstrating compliance (Standard Hours option)

It follows from the full compliance assumption that all operators would comply and be able to demonstrate compliance with the proposed regulations. The code of practice will provide guidance to operators and drivers on how to meet their obligations under the general duty to manage fatigue. The code will provide guidelines on how to identify and assess fatigue risks plan operations and implement control measures. With the regulations, particularly the record keeping requirements, not drafted the level of detail required in demonstrating how operators have met their obligations under the regulations is not known (for example, would operators need to keep records of each meeting with employees to discuss fatigue issues, or would a record that the meeting took place suffice).

For some operators with low fatigue risk, an initial confirmation of the low risk might be sufficient, with review of risks being appropriate perhaps every three years or when the pattern of operations changed. For high risk operators, demonstration of compliance might be an on-going task.

The analysis assumes that the code will separately identify duties according to nature and severity of fatigue risk. All operators will initially assess their risk status, develop a system to ensure compliance can be demonstrated, and maintain that system on an annual basis. The
costs parameter used in estimating these costs are shown in Table 10. Other than for large fleets, each of the activities shown would involve one to three days of managerial time for set up and less than one day per year for the operation of the system developed to demonstrate compliance.

Some operators will already be carrying out tasks that would comply with duties that could be included in the code. To the extent that that is the case, compliance costs in the regulatory proposal will be lower than otherwise. The following compliance assumptions are made:

- 75% of small and medium fleets would presently not be carrying out the types of tasks that might eventually be required of operators to demonstrate their compliance with the proposed code of practice;

- 50% of large fleets would presently not be complying; and

- an allowance of 10% is added to estimated costs to reflect the circumstances of mixed fleets (fleets with operations both inside and outside the regulatory proposal). In these fleets it might be logistically inefficient to partition code compliance only to above threshold vehicles. The issue of mixed fleets was raised by ATA, and although the number of fleets that could be affected is not known, the inclusion of the 10% cost adjustment acknowledges the possibility raised by the ATA.

The cost parameters below and the subsequent total cost estimates do not include Basic Fatigue Management and Advanced Fatigue Management operators who would be expected to be able to demonstrate compliance as a condition of their NHVAS accreditation.

**Table 10. Cost parameters for demonstration of compliance - Standard Hours option**

<table>
<thead>
<tr>
<th>Compliance inputs</th>
<th>Urban operators</th>
<th>Non urban operators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low risk</td>
<td>High risk</td>
</tr>
<tr>
<td>No of fleets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>41,269</td>
<td>17,686</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>2,391</td>
<td>1,025</td>
</tr>
<tr>
<td>Large fleets</td>
<td>620</td>
<td>266</td>
</tr>
<tr>
<td>Cost per managerial day ($)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Large fleets</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Risk assessment cost ($/fleet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Large fleets</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td>Compliance system development cost ($/fleet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>120</td>
<td>240</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td>Large fleets</td>
<td>2,400</td>
<td>5,600</td>
</tr>
</tbody>
</table>
With these assumptions, Table 11 shows that operators would incur costs of $29.8 million or approximately $362 per fleet to establish systems for demonstrating compliance. The costs of maintaining systems to demonstrate compliance would be $18.4 million or $223 per fleet per year.

**Table 11. Estimated operator costs in demonstrating compliance - Standard Hours option**

<table>
<thead>
<tr>
<th>Compliance activity and fleet size</th>
<th>Urban operators</th>
<th>Non-urban operators</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upfront costs</strong></td>
<td>($m)</td>
<td>($m)</td>
<td>($m)</td>
</tr>
<tr>
<td>Initial risk assessment</td>
<td>9.728</td>
<td>2.925</td>
<td>12.652</td>
</tr>
<tr>
<td>Small fleets</td>
<td>1.127</td>
<td>0.339</td>
<td>1.466</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>0.584</td>
<td>0.176</td>
<td>0.760</td>
</tr>
<tr>
<td>Large fleets</td>
<td>11.439</td>
<td>3.439</td>
<td>14.879</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development of compliance system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>7.588</td>
<td>2.983</td>
<td>10.571</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>1.465</td>
<td>0.576</td>
<td>2.042</td>
</tr>
<tr>
<td>Large fleets</td>
<td>1.637</td>
<td>0.679</td>
<td>2.316</td>
</tr>
<tr>
<td>Sub-total</td>
<td>10.690</td>
<td>4.239</td>
<td>14.928</td>
</tr>
<tr>
<td>Total upfront costs</td>
<td>22.129</td>
<td>7.678</td>
<td>29.807</td>
</tr>
<tr>
<td><strong>Recurrent costs</strong></td>
<td>$m/yr</td>
<td>$m/yr</td>
<td>$m/yr</td>
</tr>
<tr>
<td>Maintenance of compliance system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>10.110</td>
<td>4.561</td>
<td>14.671</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>0.976</td>
<td>0.440</td>
<td>1.417</td>
</tr>
<tr>
<td>Large fleets</td>
<td>1.646</td>
<td>0.647</td>
<td>2.294</td>
</tr>
<tr>
<td>Total recurrent costs</td>
<td>12.732</td>
<td>5.649</td>
<td>18.382</td>
</tr>
</tbody>
</table>

Note: Cost estimates exclude Basic Fatigue Management and Advanced Fatigue Management operators. See accompanying text.

### 6.7 Operator costs to comply with general duty (Standard Hours option)

As distinct from demonstrating compliance, operators will also be required to carry out tasks that would enable fatigue to be managed. Pre-empting the proposed regulations and the code somewhat, the analysis assumes that operators will be required to undertake on-going risk assessment, initial training of and consultation with drivers and other employees in the
management of fatigue, and ongoing training and consultation with employees about fatigue management.

Based on data in the evaluation of TFMS\textsuperscript{51}, average training inputs of four to eight hours per driver are allowed for. In addition, the analysis assumes that in small fleets, all personnel will receive training, in medium sized fleets that one ancillary staff member will receive training for every four drivers who receive training, and in large fleets one ancillary staff member will receive training for every ten drivers who receive training. Allowance is made for 20% of initial training costs to be re-incurred annually after the first year to reflect the impacts of driver turnover. Similarly, on-going training costs include a 20% turnover factor.

Parameters used for cost estimation are contained in Table 12. As for demonstration of compliance, assumptions have been made about the proportions of operators who would presently be acting in compliance with likely duties in the proposed code. The assumptions are that:

- 75% of small and medium fleets would not be in compliance;
- 50% of large fleets would not be in compliance; and
- costs are escalated by 10% to account for mixed fleets.

The cost parameters below and the subsequent total cost estimates do not include Basic Fatigue Management and Advanced Fatigue Management operators who would be expected to be able to demonstrate compliance as a condition of their NHVAS accreditation.

Cost estimates are contained in Table 13. Initial training, which is a set up cost, is estimated to amount to $23.7 million or $288 per fleet. On-going training and on-going risk assessment are each recurrent costs. Together they are estimated to amount to $26.8 million or $325 per fleet per year.

### 6.8 Compliance costs in the Basic Fatigue Management option

The regulatory proposal subjects Basic Fatigue Management operators to a set of management standards including driver health, scheduling and rostering, training, management practices, system documentation, and regular review. In addition, Basic Fatigue Management operators will be subject to the audit requirements of NHVAS. The detail of these requirements is not yet defined. In costing these impacts, regard has been had to costs estimated for Standard Hours operators in the preceding discussion and for Advanced Fatigue Management operators in the separate RIS\textsuperscript{52}. Cost parameters are provided in Table 14. The impact analysis assumes that the current TFMS has in effect expired. This is a reasonable assumption given evidence in the TFMS evaluation\textsuperscript{53} of poor compliance with several scheme requirements and because several requirements of Basic Fatigue Management have not been features of TFMS (for example, independent audit and the general duty to manage fatigue).

It is assumed that take up of Basic Fatigue Management would comprise 11,600 drivers in approximately 1,600 fleets. In Table 15, total set up costs for Basic Fatigue Management operators would be $7.6 million ($4,665 per fleet) and the recurrent costs $5.8 million annually (equal to $3,537 per fleet per year).

\textsuperscript{51} Tonkin and Edwards (2001)

\textsuperscript{52} Economic Associates (2002)

\textsuperscript{53} Tonkin and Edwards (2001)
### Table 12. Cost parameters for operator compliance with general duty - Standard Hours option

<table>
<thead>
<tr>
<th>Compliance inputs</th>
<th>Urban operators</th>
<th>Non urban operators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low risk</td>
<td>High risk</td>
</tr>
<tr>
<td>No of fleets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>41,269</td>
<td>17,686</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>2,391</td>
<td>1,025</td>
</tr>
<tr>
<td>Large fleets</td>
<td>620</td>
<td>266</td>
</tr>
<tr>
<td>No of drivers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>46,796</td>
<td>20,056</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>10,357</td>
<td>4,439</td>
</tr>
<tr>
<td>Large fleets</td>
<td>16,794</td>
<td>7,197</td>
</tr>
<tr>
<td>Cost per managerial day ($)</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>On going risk assessment ($/fleet/yr)</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Small fleets</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td>Large fleets</td>
<td>162</td>
<td>324</td>
</tr>
<tr>
<td>Initial training and staff consultation ($/driver/yr)</td>
<td>135</td>
<td>270</td>
</tr>
<tr>
<td>Small fleets</td>
<td>119</td>
<td>238</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>62</td>
<td>123</td>
</tr>
<tr>
<td>Large fleets</td>
<td>68</td>
<td>135</td>
</tr>
<tr>
<td>On-going training and staff consultation ($/driver/yr)</td>
<td>59</td>
<td>119</td>
</tr>
</tbody>
</table>
### Table 13. Operator costs of compliance with the general duty - Standard Hours option

<table>
<thead>
<tr>
<th>Compliance activity and fleet size</th>
<th>Urban operators</th>
<th>Non-urban operators</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upfront costs</strong></td>
<td>($m)</td>
<td>($m)</td>
<td>($m)</td>
</tr>
<tr>
<td>Initial training and staff consultation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>11.615</td>
<td>4.607</td>
<td>16.222</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>2.142</td>
<td>1.699</td>
<td>3.842</td>
</tr>
<tr>
<td>Large fleets</td>
<td>2.038</td>
<td>1.616</td>
<td>3.654</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>15.795</td>
<td>7.923</td>
<td>23.718</td>
</tr>
<tr>
<td><strong>Recurrent costs</strong></td>
<td>$m/yr</td>
<td>$m/yr</td>
<td>$m/yr</td>
</tr>
<tr>
<td>On going risk assessment</td>
<td>9.727</td>
<td>2.925</td>
<td>12.652</td>
</tr>
<tr>
<td>Small fleets</td>
<td>1.127</td>
<td>0.339</td>
<td>1.466</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>0.584</td>
<td>0.175</td>
<td>0.760</td>
</tr>
<tr>
<td>Large fleets</td>
<td>11.439</td>
<td>3.439</td>
<td>14.879</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On-going training and staff consultation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fleets</td>
<td>5.297</td>
<td>2.101</td>
<td>7.397</td>
</tr>
<tr>
<td>Medium fleets</td>
<td>1.285</td>
<td>1.020</td>
<td>2.305</td>
</tr>
<tr>
<td>Large fleets</td>
<td>1.223</td>
<td>0.970</td>
<td>2.193</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>7.805</td>
<td>4.090</td>
<td>11.895</td>
</tr>
<tr>
<td><strong>Total recurrent costs</strong></td>
<td>19.244</td>
<td>7.529</td>
<td>26.774</td>
</tr>
</tbody>
</table>
### Table 14. Cost parameters for Basic Fatigue Management operators

<table>
<thead>
<tr>
<th>Cost parameter</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of fleets</td>
<td>272</td>
<td>1,132</td>
<td>232</td>
</tr>
<tr>
<td>No of drivers</td>
<td>311</td>
<td>4,949</td>
<td>6,339</td>
</tr>
<tr>
<td>Set up costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial risk assessment ($/fleet)</td>
<td>200</td>
<td>400</td>
<td>1,200</td>
</tr>
<tr>
<td>Management system development ($/fleet)</td>
<td>400</td>
<td>800</td>
<td>5,600</td>
</tr>
<tr>
<td>Initial training, education ($/driver)</td>
<td>255</td>
<td>255</td>
<td>255</td>
</tr>
<tr>
<td>Accreditation audit ($/fleet)</td>
<td>640</td>
<td>960</td>
<td>1,600</td>
</tr>
<tr>
<td>Recurrent costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management system operation ($/fleet/yr)</td>
<td>650</td>
<td>650</td>
<td>5,200</td>
</tr>
<tr>
<td>Management system review ($/fleet/yr)</td>
<td>216</td>
<td>216</td>
<td>2,600</td>
</tr>
<tr>
<td>Driver medicals ($/driver/yr) (1)</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Training, education ($/driver/yr)</td>
<td>123</td>
<td>135</td>
<td>119</td>
</tr>
<tr>
<td>Compliance audits $/fleet/audit) (2)</td>
<td>640</td>
<td>960</td>
<td>1,600</td>
</tr>
</tbody>
</table>

(1) Drivers medicals assumed to be required once every two years at a cost of $100 per medical.

(2) Audits are costed as follows: Initial accreditation audit followed by compliance audits six months after accreditation and within two years of accreditation; subsequent compliance audits every two years.
Table 15. Compliance cost estimates for Basic Fatigue Management operators

<table>
<thead>
<tr>
<th>Cost item</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set up costs</strong></td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
</tr>
<tr>
<td>Initial risk assessment</td>
<td>0.054</td>
<td>0.453</td>
<td>0.278</td>
<td>0.786</td>
</tr>
<tr>
<td>Management system development</td>
<td>0.065</td>
<td>0.906</td>
<td>1.299</td>
<td>2.270</td>
</tr>
<tr>
<td>Initial training, education</td>
<td>0.101</td>
<td>1.366</td>
<td>1.506</td>
<td>2.943</td>
</tr>
<tr>
<td>Accreditation audit</td>
<td>0.174</td>
<td>1.087</td>
<td>0.371</td>
<td>1.632</td>
</tr>
<tr>
<td>Sub-total set up costs</td>
<td>0.394</td>
<td>3.782</td>
<td>3.454</td>
<td>7.631</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recurrent costs</th>
<th>$m/yr</th>
<th>$m/yr</th>
<th>$m/yr</th>
<th>$m/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management system operation</td>
<td>0.106</td>
<td>0.736</td>
<td>1.206</td>
<td>2.048</td>
</tr>
<tr>
<td>Management system review</td>
<td>0.035</td>
<td>0.245</td>
<td>0.603</td>
<td>0.883</td>
</tr>
<tr>
<td>Driver medicals (1)</td>
<td>0.016</td>
<td>0.247</td>
<td>0.317</td>
<td>0.580</td>
</tr>
<tr>
<td>Training, education</td>
<td>0.038</td>
<td>0.668</td>
<td>0.753</td>
<td>1.549</td>
</tr>
<tr>
<td>Compliance audits (2)</td>
<td>0.087</td>
<td>0.544</td>
<td>0.186</td>
<td>0.816</td>
</tr>
<tr>
<td>Sub-total recurrent costs</td>
<td>0.282</td>
<td>2.440</td>
<td>3.065</td>
<td>5.787</td>
</tr>
</tbody>
</table>

6.9 Operator compliance costs in the Advanced Fatigue Management option

Estimates of take up and compliance costs for the Advanced Fatigue Management option have been drawn from the separate RIS on the fatigue management pilot program prepared for Queensland Transport\(^{54}\). Costing parameters and cost estimates are shown in Table 16. Presently only 460 drivers or 15% of the estimated potential take up of Advanced Fatigue Management are working under the fatigue management pilot program. For simplicity, the analysis assumes the pilot program has expired even though the pilot operators who choose to migrate to Advanced Fatigue Management will have already incurred their set up costs. The slight overstatement of costs has only a very marginal effect on the analysis.

Total set up costs would be $2.7 million ($6,252 per fleet), and recurrent costs $1.5 million annually ($3,507 per fleet per year).

\(^{54}\) Economic Associates (2002)
### Table 16. Operator costs in the Advanced Fatigue Management option

<table>
<thead>
<tr>
<th>Take up</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of operators</td>
<td>428</td>
</tr>
<tr>
<td>Number of drivers</td>
<td>3,000</td>
</tr>
</tbody>
</table>

#### Cost parameters

<table>
<thead>
<tr>
<th>Cost parameters</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Set up cost per driver</td>
<td>$681 (excl accreditation audit) (1)</td>
</tr>
<tr>
<td>Recurrent cost per driver</td>
<td>$255-$659; average $457(2)</td>
</tr>
</tbody>
</table>

#### Estimated compliance costs

<table>
<thead>
<tr>
<th></th>
<th>Set up ($m)</th>
<th>Recurrent</th>
<th>Total over 10 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit</td>
<td>0.633</td>
<td>0.281(2)</td>
<td>3.162</td>
</tr>
<tr>
<td>Management system</td>
<td>2.043</td>
<td>1.220</td>
<td>13.023</td>
</tr>
<tr>
<td>Total</td>
<td>2.676</td>
<td>1.501</td>
<td>16.185</td>
</tr>
</tbody>
</table>

(1) Accreditation audit costs separately estimated

(2) Based on two-year reaccreditation audit cycle, at an average annual cost of $0.316 million averaged over 9 years for consistency with averaging of management system costs


### 6.10 Operator record keeping costs

#### 6.10.1 Replacement of logbooks with work diaries

The level of complaint about and disdain for logbooks in the industry suggests that any simpler system would be cheaper, with any cost savings accruing predominantly to operators. At the same time, because failure to carry or to fill out a logbook is readily detected, compliance with these tasks is probably high in non-local work even though information contained in completed logbooks might be of dubious veracity. For these reasons even though more information will be required the RIS takes the conservative position that the work diary will neither reduce or increase operator costs.

#### 6.10.2 Operators to retain work diaries

All operators engaged in non-urban work including those working as sub-contractors will be required to seek copies of work diaries from drivers in respect of work with vehicles at or over 12 tonnes, and to retain those records in a meaningful form. It is assumed that large and medium operators will tend to abide by this requirement to meet award, industrial regulation or occupational and health and safety requirements. If say 50% of small operators doing non-urban work do not retain records (the other 50% being required to do so by prime contractors), annual compliance costs would be $5.3 million. This cost estimate is based on the following assumptions: 50% of 17,725 small operators in non-urban work do not currently collect and retain records; doing so would entail one managerial hour per month at an average cost of $50 per hour, with the work of collecting and collating diaries being done by the proprietor.
6.11 Other operator costs

6.11.1 Employment of additional drivers

Both the ATA and NatRoad argued in submissions that the draft RIS had not allowed for the costs of employing additional drivers. The draft RIS and this final RIS include estimates of additional driver wages costs because more driver hours will be needed to carry out the same transport task as before the regulatory proposal. These additional hours translate into a requirement for an additional 2,000 to 3,000 full time equivalent drivers equal to between 1.4% and 2% of the existing driver population estimated to be covered by the regulatory proposal. At an average cost of say $10,000 per new driver to cover training, induction, supervision and the like, the one-off cost would be a midpoint of $25 million.

6.11.2 Other costs

Other costs that operators could incur to meet code of practice/general duty requirements – including for example cabin air-conditioning, provision of quiet sleep/rest rooms and the like – cannot be established at this stage although risk controls such as these might already be required under OHS legislation.

6.12 Costs to other parties with duties

With a full compliance assumption, other parties in the transport chain with duties in respect of driver fatigue would take steps to ensure their duties were carried out. Relevant management practices could include estimation and promulgation throughout the organisation of safe truck travel times, implementation and tightening of contract procedures, training of staff, record keeping and the like. The potential coverage of the chain of responsibility provisions in the legislation is so comprehensive that any cost estimation would be highly speculative.

One direct cost of the regulatory proposal which is appropriately addressed here is the proposed sign off of the driver’s work diary by parties which dispatch or receive consignments using trucks over the 12 tonne threshold and which are subject to the work diary requirement. The following assumptions are used:

- the sign off requirement will apply in respect of all loads on-non-urban trucks over the 12 tonne threshold including those in the Basic Fatigue Management and Advanced Fatigue Management options. 46,400 trucks will be affected by this requirement;
- the sign off requirement would apply only to full truck loads;
- each of 46,400 trucks will be subject to the sign off requirement twice daily, four days per week (the four days per week being to allow for trips taking more than one day); and
- each sign off will entail two minutes of a dispatch clerk’s time at an all up cost of $20 per hour (equal to $0.67 per sign off).

With these assumptions, the cost of this requirement would be $12.9 million annually. This estimate excludes other compliance costs for ‘sign off’ parties, and truck and driver delay costs during the sign off process.

6.13 Agency costs

In implementing the regulatory proposal, agencies will incur costs in:
enforcement, including enforcement of the chain of responsibility (drivers, operators and other parties); and

delivering and managing the Basic Fatigue Management and Advanced Fatigue Management options within the fatigue management module of NHVAS.

Enforcement

The RIS prepared on the Road Transport (Compliance and Enforcement) Bill\textsuperscript{55} estimated that the additional costs of enhanced approaches to compliance and enforcement – including for offences relating to driving hours – would be approximately $19 million annually. With the prevalence of fatigue and the difficulties inherent in proving chain of responsibility offences, it is reasonable to conclude that a third of these costs, or around $6 million per annum would be attributable to the enforcement of regulations made under the regulatory proposal.

Basic Fatigue Management and Advanced Fatigue Management

Agencies will incur costs in managing the Basic Fatigue Management and Advanced Fatigue Management options within the fatigue management module of NHVAS. Set up costs for these schemes have arguably been incurred already in respect of TFMS, the fatigue management pilot program and NHVAS more generally, and, being sunk, their inclusion in this RIS would be inappropriate.

Costs are derived from costing parameters in the FMP RIS as follows:

- NSW and Vic 1.5 full time staff equivalent each, at $70,000 pa;
- Qld 1 full time staff equivalent, at $70,000 pa; and
- SA, Tas 0.5 full time staff equivalent each, at $70,000 pa.

Each full time equivalent officer is assumed to travel interstate four times annually for inter-jurisdictional meetings, at an average cost per officer trip of $1,000. On costs for accommodation, computer back up, administrative support and the like are assumed to equal 50\% of staff costs.

Basic Fatigue Management, with its higher take up will naturally have higher costs but not necessarily in direct proportion because of its relative simplicity. Consequently it is assumed that the costs of the Basic Fatigue Management scheme will be twice those of the Advanced Fatigue Management scheme.

Estimated agency costs are shown in Table 17. Annual costs would be $1.635 million of which the management of the Basic Fatigue Management option would account for 67\% and management of the Advanced Fatigue Management option 33\%.

\textsuperscript{55} Jaguar Consulting (2001)
Table 17. Estimated agency costs - Basic Fatigue Management and Advanced Fatigue Management options

<table>
<thead>
<tr>
<th>Cost item</th>
<th>Basic Fatigue Management ($m pa)</th>
<th>Advanced Fatigue Management ($m pa)</th>
<th>Total ($m pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td>0.700</td>
<td>0.350</td>
<td>1.050</td>
</tr>
<tr>
<td>Travel</td>
<td>0.040</td>
<td>0.020</td>
<td>0.060</td>
</tr>
<tr>
<td>Other costs</td>
<td>0.350</td>
<td>0.175</td>
<td>0.525</td>
</tr>
<tr>
<td>Total</td>
<td>1.090</td>
<td>0.545</td>
<td>1.635</td>
</tr>
</tbody>
</table>

Including enforcement costs, total agency costs would be $7.635 million annually.

6.14 Costs summary

Over the ten year analysis period, the regulatory proposal would have costs of $1,997.5 million in nominal terms, or approximately $200 million annually (see Tables 18 and 19). Of that cost, $410 million over ten years or 21% would be attributable to achieving compliance with provisions regarding maximum working hours (which are the same currently as in the regulatory proposal).

The distribution of the total costs of $1,997.5 million over ten years would be:

- road transport operators $1,792.1 million or 90%;
- other transport chain parties $129.0 million or 6%; and
- agencies $76.4 million or 4%.

In all cases, costs assume no industry growth over the ten year analysis period. A similar assumption is made in respect of benefits in the subsequent discussion below.

If the costs of removing current non-compliance with maximum working hours are excluded, road transport operators would incur costs over ten years of $1,382.1 million ($138 million per year) to achieve full compliance with the requirements of the regulatory proposal.

Expressed in another way, the total costs of the regulatory proposal would be:

- $2,368 per fleet per year; or
- $1,218 per driver per year; or
- approximately 2% of road freight industry turnover in the sectors affected by the regulatory proposal.56

56 The assumptions in this estimate are: from national input output data that the turnover of the road transport industry is $24 billion annually of which 80% is road freight turnover ($20 billion) and that the 12 tonne and over sector covered by the regulatory proposal generates approximately half of that turnover.
## Table 18. Summary - costs of the regulatory proposal

<table>
<thead>
<tr>
<th>Cost item</th>
<th>Set up costs</th>
<th>Recurrent costs</th>
<th>Total 10 year set up and recurrent costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>($m)</td>
<td>($m/yr)</td>
<td>($m)</td>
</tr>
<tr>
<td><strong>Operator costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reductions in driving hours</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced non-compliance hours (over 72 hrs/wk)</td>
<td>41.0</td>
<td>410.0</td>
<td></td>
</tr>
<tr>
<td>Night driving restrictions</td>
<td>72.4</td>
<td>724.0</td>
<td></td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>113.4</td>
<td>1,134.0</td>
<td></td>
</tr>
<tr>
<td><strong>Standard hours-compliance with general duty</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk assessment</td>
<td>14.9</td>
<td>14.9</td>
<td>149.0</td>
</tr>
<tr>
<td>Compliance management system</td>
<td>14.9</td>
<td>18.4</td>
<td>180.5</td>
</tr>
<tr>
<td>Training, consultation-initial</td>
<td>23.7</td>
<td>4.7</td>
<td>66.0</td>
</tr>
<tr>
<td>Training, consultation-recurrent</td>
<td>-</td>
<td>11.9</td>
<td>107.1</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>53.5</td>
<td>49.9</td>
<td>502.6</td>
</tr>
<tr>
<td><strong>Basic Fatigue Management-compliance with management standards</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk assessment</td>
<td>0.8</td>
<td>-</td>
<td>0.8</td>
</tr>
<tr>
<td>Compliance management system</td>
<td>2.3</td>
<td>2.0</td>
<td>20.3</td>
</tr>
<tr>
<td>Training</td>
<td>2.9</td>
<td>1.5</td>
<td>16.4</td>
</tr>
<tr>
<td>Driver medicals</td>
<td>-</td>
<td>0.6</td>
<td>6.0</td>
</tr>
<tr>
<td>Management system review</td>
<td>-</td>
<td>0.9</td>
<td>9.0</td>
</tr>
<tr>
<td>Audits</td>
<td>1.6</td>
<td>0.8</td>
<td>8.8</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>7.6</td>
<td>5.8</td>
<td>61.3</td>
</tr>
<tr>
<td><strong>Advanced Fatigue Management-compliance with management standards</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accreditation audit</td>
<td>0.6</td>
<td>0.3</td>
<td>3.3</td>
</tr>
<tr>
<td>Management system</td>
<td>2.0</td>
<td>1.2</td>
<td>13.0</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>2.7</td>
<td>1.5</td>
<td>16.2</td>
</tr>
<tr>
<td><strong>Other operator costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment of additional drivers</td>
<td>25.0</td>
<td>-</td>
<td>25.0</td>
</tr>
<tr>
<td>Record keeping</td>
<td>-</td>
<td>5.3</td>
<td>53.0</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>25.0</td>
<td>5.3</td>
<td>78.0</td>
</tr>
<tr>
<td><strong>Total operator costs</strong></td>
<td>88.8</td>
<td>175.9</td>
<td>1,792.1</td>
</tr>
<tr>
<td></td>
<td>Option</td>
<td>Costs 1</td>
<td>Costs 2</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Agency costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Enforcement</strong></td>
<td></td>
<td>6.0</td>
<td>60.0</td>
</tr>
<tr>
<td><strong>Basic Fatigue Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff</td>
<td>0.7</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>0.1</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Other costs</td>
<td>0.4</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>1.1</td>
<td>10.9</td>
<td></td>
</tr>
<tr>
<td><strong>Advanced Fatigue Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff</td>
<td>0.4</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>0.1</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Other costs</td>
<td>0.2</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>0.5</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td><strong>Total Agency costs</strong></td>
<td>7.6</td>
<td>76.4</td>
<td></td>
</tr>
<tr>
<td><strong>Other parties’ costs</strong></td>
<td>12.9</td>
<td>129.0</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL COSTS</strong></td>
<td>88.8</td>
<td>196.4</td>
<td>1,997.5</td>
</tr>
</tbody>
</table>
Table 19. Estimated costs of the regulatory proposal per driver and per fleet

<table>
<thead>
<tr>
<th></th>
<th>Cost per driver</th>
<th>Cost per fleet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional driver costs (1)</td>
<td>$/yr</td>
<td>691</td>
</tr>
<tr>
<td><strong>Standard Hours option (2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General duty/code costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set up</td>
<td>$</td>
<td>326</td>
</tr>
<tr>
<td>Recurrent</td>
<td>$/yr</td>
<td>333</td>
</tr>
<tr>
<td>Record keeping</td>
<td>$/yr</td>
<td>36</td>
</tr>
<tr>
<td><strong>Basic Fatigue Management option (2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set up</td>
<td>$</td>
<td>650</td>
</tr>
<tr>
<td>Recurrent</td>
<td>$/yr</td>
<td>500</td>
</tr>
<tr>
<td><strong>Advanced Fatigue Management option (2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set up</td>
<td>$</td>
<td>892</td>
</tr>
<tr>
<td>Recurrent</td>
<td>$/yr</td>
<td>500</td>
</tr>
<tr>
<td>Employment of additional drivers (1)</td>
<td>$</td>
<td>15</td>
</tr>
<tr>
<td>Agencies-administration and enforcement (1)</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>Second parties (eg consignors) (1)</td>
<td>$/yr</td>
<td>79</td>
</tr>
</tbody>
</table>

(1) Averages relate to all drivers and fleets subject to the regulatory proposal.
(2) Averages relate to numbers of drivers and fleets assumed to take up each option.
(3) Average of set up and recurrent costs over ten year analysis period.

6.15 Benefits of the regulatory proposal

6.15.1 Fatigue-related road safety benefits

Section 3.3 estimated that $243 million annually in heavy vehicle driver fatigue-related crash costs are attributable to heavy vehicles covered by the regulatory proposal. If full compliance was achieved it is reasonable to conclude that the regulatory proposal should largely eliminate those costs. If so, the benefits of the regulatory proposal would be $243 million annually.

Improved workplace safety

Drivers who are not fatigued could be expected also to experience fewer workplace incidents in and around the truck either at depots or on the road. Further, the regulatory proposal with its strong focus on OHS regulatory principles should stimulate greater attention to workplace
health and safety among road freight operators generally. Estimation of the OHS costs of fatigue is confounded by the paucity of data and the incomplete coverage of workers compensation statistics which typically exclude the self employed. Taking incidence estimates of 44.6 per 1,000 workers and an average incident cost of $31,750, and assuming that the incident rates for employed and self employed workers are equal, incident costs relevant to the 164,000 drivers covered by the regulatory proposal would be $232 million annually. If say half the previously estimated fatigue road crash costs are netted from this estimate (that is, half of $243 million), the resulting costs of workplace incidents (other than driver fatigue related incidents) would be $111 million annually. If 10% of this could be saved through better regulation and management of fatigue, the benefits attributable to the regulatory proposal would be $11 million annually.

### 6.15.2 Other benefits

The draft RIS proposed benefits of $46 million annually attributable to the impacts of the regulatory proposal on drivers’ behaviour, leading to fewer speed related crashes and to reduced fuel consumption. The industry objected to the inclusion of these benefits but provided no evidence to rebut the estimates in the RIS. The NTC maintains that the regulatory proposal would yield benefits of this type but accepts the absence of empirical supporting evidence. Accordingly these benefits are not quantified in this final RIS.

### 6.15.3 Summary – benefits of the regulatory proposal

In total, if full compliance were achieved, the benefits of the regulatory proposal are estimated to be $254 million per year, comprising:

- reduced fatigue-related crash costs $243 million per year
- reduced OHS incident costs $11 million year
- total benefits $254 million per annum

### 6.15.4 Benefits and the take up of Basic Fatigue Management and Advanced Fatigue Management options

Section 6.4 estimated that the take up of the Basic Fatigue Management and Advanced Fatigue Management options would comprise those operators whose drivers work in excess of the maximum hours to be permitted in the regulatory proposal or have work/rest patterns that the proposal would not permit. Those operators are assumed to be able to ‘absorb’ at least some of those excesses within the more permissive outer operating limits in the Basic Fatigue Management and Advanced Fatigue Management options, provided they implement and maintain compliance with the applicable management standards. From Table 18, annual

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57 NOHSC (1999) p 10

58 Industry Commission (1995) Vol 1 p 18; estimate in original of $28,000 inflated according to change in the all capitals consumer price index between June 1993 and June 2000

59 For example, ATSB (2002) reports that only 15% of articulated crashes involving a heavy vehicle were single vehicle crashes. The assumption that 50% of the $243 million represents costs incurred in respect of the heavy vehicle driver may be overstated (meaning that the non-fatigue workplace incident costs may be underestimated). The crash cost estimates in BTE (2000) are comprehensive so that in the context of this RIS they include costs accruing to heavy vehicle drivers and operators as well as to other parties involved in road crashes. Based on the BTE’s estimates, the heavy vehicle driver and operator component of those costs, excluding vehicle related costs, could be 30%.
compliance costs in these options would average $7.6 million. The benefits to operators (the ‘absorbed’ excess driver costs) would be $65 million per year (from section 6.5).

Therefore subject to the assumptions adopted and if full compliance was achieved, the Basic Fatigue Management and Advanced Fatigue Management options would be beneficial to some of those operators whose current operations would breach the requirements of the regulatory proposal.

6.16 Comparison of benefits and costs

With average annual benefits of $254 million and average annual costs of $200 million, the regulatory proposal would yield annual benefits of $54 million if full compliance were achieved. It would therefore be an economically efficient response to the regulatory problem. As already noted, the costs of additional night driving hours are now likely to be overstated given changes made in the regulatory proposal since preparation of the draft RIS. These net benefits are therefore likely to be somewhat understated.

6.17 Incidence of the regulatory proposal

The regulatory proposal will impact on a range of affected parties in a round of first, second and possibly subsequent effects. Of these effects only the first round can be stated with any precision.

Road transport operators will directly bear the largest cost of approximately $179 million per year. Directly offsetting benefits to operators could range between $84 million and $132 million depending on the proportion of fatigue and speed related safety benefits assumed to represent private savings to heavy vehicle drivers and operators60, and including savings in private road crash costs ($73 million to $121 million per year) and savings in other workplace incident costs of $11 million per year. The residual costs to operators (that is, costs not covered by benefits) of up to $95 million per year (assuming the lowest operator benefit estimate) or about 1.0% of total road freight costs would be shared between operators and their customers according to the competitive structure of each segment of the industry. It should be noted that the proportion of fatigue crash cost savings accruing directly to drivers and operators will be determined in part by the workers compensation arrangements applying in each jurisdiction.

Second parties (consignors and consignees) will incur costs of $12.9 million annually in sign-off of driver work diaries. The distribution of those costs between road transport operators, their customers and further downstream parties will be a function of the competitive balance in each segment of the industry.

Agencies would incur costs of $7.6 million annually from which they could leverage community road safety benefits of between $122 million and $170 million annually61. These community savings in road crash costs would accrue in respect of other drivers involved in crashes with heavy vehicles, their families, the health, welfare and justice systems, and road management agencies.

60 From section 6.15.2 that proportion could range between 30% and 50%.

61 That is, total fatigue and speed crash cost savings of $243 million per year less the private crash cost savings component to drivers and operators of between $73 million and $121 million per year).
6.18  Sensitivity tests

6.18.1  Application of sensitivity tests

Following consideration of comments made in submissions, the sensitivity analysis has been recast to focus on three issues:

- the severity multiplier of 1.5 used in estimating fatigue crash reduction benefits;
- the take up of the medium and full flexibility options; and
- levels of compliance.

The sensitivity cases examined here are:

- main case (as reported previously in this section) incorporating the assumptions adopted in the RIS (case 1);
- the main case but with a severity multiplier of 1 (case 2); and
- the main case but with altered assumptions about levels of compliance. This impacts on compliance costs, benefits and takeup of the flexibility options (cases 3 and 4).

The cases are summarised in the following Table:
### Table 20. Structure of the sensitivity analysis

<table>
<thead>
<tr>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
<th>Case 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main case</strong></td>
<td><strong>Main case with reduced severity multiplier</strong></td>
<td><strong>Medium take up of flexibility options, high realisation of benefits</strong></td>
<td><strong>High take up of flexibility options, low realisation of benefits</strong></td>
</tr>
<tr>
<td><strong>Severity multiplier</strong></td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>% of operators complying</strong></td>
<td>100%</td>
<td>100%</td>
<td>60%</td>
</tr>
<tr>
<td><strong>% of benefits realised</strong></td>
<td>100%</td>
<td>100%</td>
<td>80%</td>
</tr>
<tr>
<td><strong>Take up of options – fleets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Hours</td>
<td>82,275 (97.5)</td>
<td>82,275 (97.5)</td>
<td>76,333 (90.5)</td>
</tr>
<tr>
<td>Basic Fatigue Mgmt</td>
<td>1,636 (1.9)</td>
<td>1,636 (1.9)</td>
<td>6,326 (7.5)</td>
</tr>
<tr>
<td>Advanced Fatigue Mgmt</td>
<td>428 (0.5)</td>
<td>428 (0.5)</td>
<td>1,687 (2.0)</td>
</tr>
<tr>
<td><strong>Take up of options – drivers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Hours</td>
<td>149,446 (91.1)</td>
<td>149,046 (91.1)</td>
<td>86,738 (52.8)</td>
</tr>
<tr>
<td>Basic Fatigue Mgmt</td>
<td>11,600 (7.0)</td>
<td>11,000 (7.0)</td>
<td>61,105 (37.2)</td>
</tr>
<tr>
<td>Advanced Fatigue Mgmt</td>
<td>3,000 (1.8)</td>
<td>3,000 (1.8)</td>
<td>16,295 (9.9)</td>
</tr>
</tbody>
</table>

Note: represent fleet takeup percentages. Slight discrepancies between fleet and driver totals arise due to rounding error. Compliance assumptions apply to Standard Hours operators. All Basic Fatigue Management and Advanced Fatigue Management operators are assumed to comply with the requirements of these options.

The costs and benefits applicable to these cases are shown in Table 21. Several features of the Table are worth noting:

- the main case embodies the assumptions and cost and benefit results reported in Table 18 previously;
- in the main case with low severity multiplier (case 2), the fatigue crash severity multiplier reduces from 1.5 to one;
- in the case with medium takeup of flexibility options (case 3) additional driving hours costs are assumed to be absorbed by one or other of those options. The test assumes conservatively that between 40% and 50% of the additional driving hours costs from the main case will not be absorbed (where high take up of the flexibility options should see high proportions of these costs being absorbed). It is also assumed that 60% of Standard Hours operators will comply with the regulatory proposal in terms of code compliance costs, and that all Basic and Advanced Fatigue Management operators will fully comply. (All of these latter groups of operators are assumed to take up one of the flexibility options). Small operators who take up the flexibility options are assumed to do so because they currently work in excess of Standard Hours at least on occasion. These compliance outcomes are assumed to result in 80% of the main case’s benefits; and
• similar comments are relevant to case 4 with its high take up of flexibility options except that 80% of standard hours operators incur code compliance costs but only 60% of the regulatory proposal’s benefits are realised.

The results in Table 21 show the main case (case 1) and the medium take up of flexibility options (case 3) to produce very similar (positive) results. The main case with low crash severity multiplier produces net benefits of $-27 million per year, but it is unlikely that a multiplier as low as one would be supported by the data. As discussed in section 8.3, the average severity multiplier for all fatal crashes in Australia is 1.1, and the average for all fatal heavy vehicle crashes is 1.36. Finally the high take up of flexibility options (case 4) produces net benefits of $-30 million per year because, despite high compliance and a high take up of the flexibility options, benefit realisation is assumed to be only 60% of the main case. With 15% of fleets and 50% of drivers assumed to be taking up one or other of these options, combined with the operation of the proposed code of practice and elevated enforcement levels, 60% compliance would be towards the low level of expectation.

The benefit cost ratio from these tests ranges between 1.27 (best, in case 1) and 0.83 (worst, in case 4) and the net benefits between $54 million annually and $-30 million annually. With the worst case being subject to very unfavourable assumptions about the relativities between compliance costs and compliance benefits, and case 2 being subject to an unsupportably low crash severity multiplier, the results of the sensitivity tests would not be sufficient to overturn a conclusion that the regulatory proposal is likely to be economically viable if perhaps marginally so.

Table 21. Results of sensitivity tests – annual benefits and costs

<table>
<thead>
<tr>
<th></th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
<th>Case 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benefits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$(Sm/yr)</td>
<td>254.0</td>
<td>173.0</td>
<td>203.2</td>
<td>152.4</td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional driving hours</td>
<td>41.0</td>
<td>41.0</td>
<td>20.5</td>
<td>16.4</td>
</tr>
<tr>
<td>Night driving restrictions</td>
<td>72.4</td>
<td>72.4</td>
<td>36.2</td>
<td>29.0</td>
</tr>
<tr>
<td>Standard hours compliance</td>
<td>50.3</td>
<td>50.3</td>
<td>16.6</td>
<td>24.6</td>
</tr>
<tr>
<td>Basic Fatigue Management compliance</td>
<td>6.1</td>
<td>6.1</td>
<td>28.7</td>
<td>27.0</td>
</tr>
<tr>
<td>Advanced Fatigue Management compliance</td>
<td>1.6</td>
<td>1.6</td>
<td>26.1</td>
<td>52.6</td>
</tr>
</tbody>
</table>
6.18.2 Other sensitivity test issues

One potential sensitivity test not reported in Table 20 relates to the influence of OHS legislation on the viability of the regulatory proposal. The specific question is whether the base case should reflect the possibility that OHS agencies might focus more on the regulation of driver fatigue in the absence of the regulatory proposal. At its simplest, adoption of a base case such as this could reduce costs by approximately $51 million annually (the costs of complying with the general duty and code in the regulatory proposal). Offsetting this saving, estimated benefits would also be lower because the base case would imply a higher level of fatigue management in the industry than assumed in the main case analysis. The jointness or synergy between the general duty, code and other elements of the regulatory proposal is such that the net benefits of this alternative base case cannot be estimated.

A related consideration is whether operators who might be attempting to comply with a fatigue management duty (as they might interpret it) will incur savings because the regulatory proposal clarifies those duties. The high level of non-compliance with the current driving hours regulations is not consistent with there being a large number of these operators. Similarly, the low penetration in the industry of accreditation arrangements – perhaps covering only 1% of fleets\textsuperscript{62} and possibly reflective of the predominance of small operators - is not suggestive of an industry with a strongly systematic approach to risk management. Accordingly, any savings in compliance costs attributable to the regulatory proposal would probably be marginal.

6.18.3 Adoption of the regulatory proposal by WA and NT

Adoption of the regulatory proposal by WA and NT could increase the net benefits of the regulatory proposal by around $14 million annually (from $54 million to $68 million) if benefits and costs were to be simply pro-rated according to vehicle numbers. Net benefits would probably be lower than this if operators were largely complying with legislative requirements in those jurisdictions. A perhaps more significant category of benefit and one

\begin{table}
\centering
\begin{tabular}{|l|c|c|c|c|}
\hline
Operator record keeping & 5.3 & 5.3 & 5.3 & 5.3 \\
Employment of additional drivers & 2.5 & 2.5 & 1.3 & 1.0 \\
Enforcement costs & 6.0 & 6.0 & 6.0 & 6.0 \\
Agency Basic Fatigue Management costs & 1.1 & 1.1 & 3.3 & 4.4 \\
Agency Advanced Fatigue Mgmt costs & 0.6 & 0.6 & 1.6 & 3.3 \\
Other parties costs & 12.9 & 12.9 & 12.9 & 12.9 \\
Total costs & 199.8 & 199.8 & 158.5 & 182.6 \\
Annual net benefits & 54.2 & -26.8 & 44.7 & -30.2 \\
\hline
\end{tabular}
\caption{Costs and benefits of fatigue management}
\end{table}

\textsuperscript{62} See Hassall et al (2001)
not able to be estimated in the RIS would be the reduced duplication of compliance costs on behalf of operators whose vehicles travel between WA, NT and other parts of Australia.

6.18.4 Summary – results of sensitivity tests

The main case and sensitivity test results taken together indicate that the regulatory proposal is likely to be neutral to mildly positive in economic terms.

7. ALTERNATIVES TO THE REGULATORY PROPOSAL

7.1 Introduction

The regulatory proposal has been subjected to intensive preparatory work since 2000 including the NTC’s Discussion Paper and Issues Paper, the Fatigue Expert Group report and the NTC’s interim option paper all distributed in 2001. Over this period, the NTC has conducted one formal round of workshops with stakeholders in each of the jurisdictions and has continued informal discussions with industry bodies and agencies on an on-going basis. The Commission has been assisted by a Fatigue Reference Group of industry, union and agency representatives including representatives of OHS agencies.

The regulatory proposal has emerged after this comprehensive consultation process. Alternatives considered below have been canvassed either formally or informally in those consultations.

7.2 No road transport regulation

Earlier sections have identified the extent of fatigue in road transport and its complexity in terms of external factors that give rise to a fatigue problem, the causes of fatigue in individuals and the identification of the most effective counter measures.

No regulation in the context of road transport law would leave the fatigue problem subject to control by OHS law and the civil law in which insurance markets could have a quasi-regulating role.

In the absence of relevant road transport law, operators would remain bound by the general duty to provide a safe workplace that characterises Australian OHS law. Only WA and NT, in their fatigue codes of practice, have explicated that duty as it applies to fatigue in road transport. In the absence of regulations or codes, operators would lack the guidance in meeting their duty that these instruments provide, and enforcement officers would lack definition as to the characteristics of a breach of the general duty with respect to fatigue. In what would be a purely performance based environment, operators would be forced to anticipate the judgements of the courts as to the nature of the general duty in response to particular breaches. Those operators who attempted to comply with the general duty would potentially face higher costs, in characterising that duty and responding to it, than would be

63 It could be argued that the WA and NT codes could provide guidance to operators in other jurisdictions. By the same token however, WA and NT adopted the code approach under their OHS legislation because they believed that their risk characteristics were quite different to those in other jurisdictions. An operator in another jurisdiction seeking to rely on those codes in meeting their general duty would need to exercise a judgement about whether any particular guidance might not be relevant in their jurisdiction, and the issues that would be relevant in their jurisdiction but not covered in the WA and NT codes. In other words, operators would need to anticipate how other OHS agencies and the courts would interpret the applicability of those codes to their particular jurisdictions.
the case under the regulatory proposal. The advantages of pure performance based regulation are acknowledged, but these advantages are likely to be weaker the more complex is the problem subject to regulation. In addition it is unlikely that the community would tolerate an outcome in which the duty to manage fatigue is detailed only in response to injuries and fatalities investigated by the courts.

A variation on this option would see the OHS agencies developing regulations or codes of practice to explicitly address the issue of heavy vehicle driver fatigue. This approach would not necessarily remove the ambiguity that would arise from an absence of road transport regulation because the objectives of road transport law (road safety among other things) and OHS law (workplace health and safety) are not entirely consistent. A definition of the general duty in terms of workplace health and safety (for example maximum hours of work in a day or a week or factors relevant to the driver’s health) may exclude or place less emphasis on safety factors particularly pertinent to the driver in the on-road environment, such as distribution of breaks, night work, rest at home versus rest in the vehicle, and the like. In developing the regulatory proposal with its general duty and code elements and in continuing liaison with OHS agencies, the NTC is attempting to enhance the consistency between road transport and OHS law in relation to driver fatigue and to reduce the uncertainties and overlaps that presently prevail.

The operation of the civil law could also deter operators from operating in an unsafe manner, in a fatigue sense, for fear of civil damages against them in the event of an accident. This option has similar disadvantages to the performance based regulation approach. Ex ante, neither insurers nor operators necessarily have the expertise to judge the risk factors. Operators, particularly small operators will lack the resources to identify the nature of their fatigue problem and the best means to acquit it. Insurers would be left to identify risk across a complex matrix of operators and operating conditions, and in addition would be reliant on operators to provide information that would allow efficient underwriting decisions to be made. Because serious or fatal fatigue crashes are relatively infrequent, insurers might have insufficient data on which to rate operators, and when a claim is made with possible fatigue causes, insufficient knowledge to judge whether an operator was complying with the terms of their insurance arrangements.

As in a performance based environment, the decisions about fault made by the civil courts would assist both operators and insurers in understanding duty as it relates to fatigue but those decisions are subject to delay in the court process and are essentially reactive in their effect.

A no regulation option (that is, no road transport regulation) is unlikely to contribute directly or in a timely manner to the reduction of fatigue incidence, and any contribution it does make in reducing fatigue crashes may be at a higher cost than envisaged under the regulatory proposal.

7.3 Retain existing regulations

In a do nothing option, the current regulations would be retained. The prescribed working and driving hours in the regulations and the logbook requirements have been criticised for focusing on the fatigue problem from too limited a perspective, and for their unintended consequences such as drivers being forced to drive when fatigued. The non-standard hours schemes in the current regulations – TFMS and the pilot fatigue management program – were intended only as temporary measures and are probably not sustainable in the absence of decisions about their long-term future. The regulatory proposal incorporates measures to enhance the consistency of road transport and OHS law in the management of fatigue. In the no regulation option, this move to legislative consistency would not occur. Rather, with the evolution of OHS law, the field of inconsistency would be likely to widen. Inconsistency in
the legislative coverage of fatigue leaves operators, drivers and other parties unsure of their duties and more prone to duplication of cost in attempts to meet what they perceive to be their regulatory duties.

Accordingly, the NTC believes that doing nothing would be an unsatisfactory alternative to the regulatory proposal.

7.4 Delete the general duty/code of practice

The general duty and the code of practice are integral to a comprehensive regulatory scheme for the management of fatigue. The general duty provision recognises that fatigue management entails a range of processes other than scheduling according to a set of prescribed hours.

The inclusion of a code of practice is generally supported by the road transport industry and by agencies. With the full compliance assumption used in section 6, deletion of the general duty and code could save operators $51 million annually – that is, the costs of the regulatory proposal would be $51 million lower than estimated. On the other hand, provided a general duty remained in the regulatory proposal, some operators, aware of the nature of the general duty under OHS legislation, would elect to carry out tasks they believe necessary to acquit their fatigue general duty. To the extent that they do so, the potential savings would be somewhat less than $51 million per year relative to the regulatory proposal. Because of the jointness or synergy between the general duty and code and the other elements of the regulatory proposal, the foregone benefits associated with this option cannot be estimated.

The proposed code is significant in a number of respects. Firstly it aligns the proposed changes in road transport law with existing provisions under OHS law providing a more consistent, predictable legislative scheme for operators and other parties. Secondly, the code is intended to guide operators in managing a complex risk. Thirdly, it assists agencies and the courts in interpreting the general duty for enforcement purposes. Arguably, some of the guidance in a code could be placed in a regulation, for example, a duty to assess and control risk. A code on the other hand has the advantage of providing guidance in a form applicable to a range of risk situations and in a readily comprehended manner.

Deletion of the proposed code could force the regulatory proposal to focus on prescribed hours of work and rest which are essentially outcomes of a system of risk management and only maximum permitted outcomes at that. Those permitted hours will not be desirable in all cases. They will not of themselves control other influencing factors such as the driver’s readiness to drive, the nature of the work tasks, the conditions under which the task is performed and the like.

This option would cause the regulatory proposal to revert to the limited regulatory scheme now in place which is acknowledged as being inadequate by the industry, regulators and fatigue experts.

7.5 Extend the coverage of the regulatory proposal

The regulatory proposal could be extended to cover operation of those heavy vehicles under the GVM threshold – that is those vehicles between 4.5 tonnes and 12 tonnes. The 12 tonne threshold (in combination with the 100 km from base distance threshold) is a risk targeting measure predicated on the likelihood that the long distance work which is thought to be the core of the fatigue problem is characterised more by large than small vehicles. In other words, size of vehicle (the gross mass threshold) signifies a likelihood of long distance work and its attendant fatigue risk; the distance from base threshold ensures that those above threshold vehicles doing only local work are not burdened with the work diary costs of the
regulatory proposal. Below threshold vehicles, which are thought to be associated with a lower driver fatigue risk, are excluded from the regulatory proposal irrespective of where they work.

Little is known about the hours worked and the rest patterns of drivers of below threshold vehicles, and consequently the cost impacts of restricting those hours cannot be estimated. However, the total cost impact would at minimum include compliance with the general duty to manage fatigue and with the record keeping requirements of the regulatory proposal.

There are approximately 118,000 vehicles in Australia between 4.5 and 12 tonnes. Adjusting for WA and NT which are assumed to be outside the regulatory proposal, the total is approximately 103,000 vehicles (equating to 111,000 drivers). Using the cost parameters in section 6 for compliance and demonstration of compliance and assuming 70% of below threshold operators have low fatigue risk and 30% have high fatigue risk, the average compliance cost would be $308 per driver per year. For 103,000 below threshold vehicles, annual costs would be $34.2 million (that is, $34.2 million higher than estimated for the regulatory proposal). Were operators of below threshold vehicles to be covered by the regulatory proposal, they would also incur record keeping costs. From ABS data, approximately 70% of below threshold vehicles operate in urban areas. Doing predominantly local work, these operators would be required to maintain management records. Assuming an average fleet size as for above threshold operators (1.8 vehicles per fleet), there would be approximately 57,200 below threshold fleets, of which 40,100 would be doing local work (these numbers excluding WA and the NT). Current compliance would be zero because at present these operators are not required to keep management records of the type specified in the regulatory proposal. Taking the assumptions from the regulatory proposal that each operator would spend one hour per month at $50 per hour collecting, collating and storing records, annual costs would be $24.1 million.

Below threshold non-urban operators would incur costs associated with the keeping of work diaries by drivers and maintenance of records from those diaries, neither of which is currently required. The number of fleets affected would be 17,200 employing 33,300 drivers. At say 30 minutes per driver per week and an average all up driver cost of $27 hour, work diary costs would be $23.4 million annually. Using the assumptions above for keeping of management records, costs for these 17,200 fleets would be $10.3 million.

Total costs of extending the regulatory proposal to below threshold operators would therefore be $92.0 million per annum.

7.6 Delete the night driving restrictions

There are two night driving requirements in the regulatory proposal:

- over a seven day period, drivers would be required to work no more than six consecutive shifts that cover all or part of the period 0000 to 0600; and

- over a fourteen day period, drivers would be required to have two pairs of two consecutive nights off work. As noted previously this parameter has been amended to one pair of consecutive nights and two other nights.

From a recent study prepared for the NTC, the first restriction would affect less than 3% of long distance drivers and the second restriction about 10% of long distance drivers. Section 6 estimated that the industry’s cost in complying with this requirement would be approximately $72 million annually.
Following the broad thrust of the Fatigue Expert Group recommendations, these changes are fundamental to the regulatory proposal in that they recognise the pivotal importance of adequate rest in determining rest and work hours and also the importance of restorative sleep throughout the working week. Empirical data that would allow the benefits of this proposal to be compared with its costs are not available. The proposal is consistent with the recommendations of the Fatigue Expert Group and has been refined through several rounds of consultation with the industry.

From the analysis in Appendix D, fatigue-related crashes in the midnight to 6 am period could account for one-third of all fatigue-related crashes in which the heavy vehicle driver was fatigued. If so, deletion of the night driving restrictions could reduce benefits by $81 million annually. The cost savings would be $72 million per year and the overall outcome would be that the net benefits of the regulatory proposal would be approximately $9 million less per year than estimated.

For this reason, and because the night driving restrictions are integral to the philosophy of a comprehensive approach to the management of fatigue and its costs are expected to be relatively low, the NTC believes it should remain part of the regulatory proposal.

7.7 Reduce the number of options in the regulatory proposal

The regulatory proposal provides three tiers or entry points at which operators may meet their regulatory obligations: a base prescriptive ‘standard hours’ level; a Basic Fatigue Management level; and an Advanced Fatigue Management level. The higher the level chosen by an operator the more flexibility they can use in scheduling work and rest hours, but the greater will be the fatigue management and compliance verification obligations that they will be required to assume.

With the high proportion of small operators in the industry, and a low take up of risk management/quality management systems, the retention of a Standard Hours option is probably inevitable. Consideration was given however to the deletion of the Basic Fatigue Management option, leaving operators to choose between the Standard Hours and Advanced Fatigue Management options. A two-tiered regulatory structure would have the advantage of greater simplicity and ease of entry for operators and possibly lower administrative costs for agencies. It would also address the danger that operators might be confused about the relationship between the Basic Fatigue Management and Advanced Fatigue Management options, or that the options might be too close in terms of cost or benefit for operators.

In considering these alternative approaches, the NTC took the view that in the long term, the industry would gravitate towards the Advanced Fatigue Management option as its risk management skills mature and in recognition of the ever widening field of general duty obligations. Realistically however, irrespective of their motivation, many operators could be expected to find the progression between the Standard Hours and Advanced Fatigue Management options too difficult, either financially or managerially, and would be deterred by the size of that step from moving towards more comprehensive risk management approaches. The NTC also recognised that the retention of the Basic Fatigue Management and Advanced Fatigue Management options allows a closer matching of compliance strategy and risk. Operators for example who have occasional need for flexibility or with continuing flexibility needs in discrete parts of their business might find the Basic Fatigue Management option a cost effective solution. Operators with a more general need for flexibility across their operations, or an organisational commitment to comprehensive fatigue management would be more attracted to the Advanced Fatigue Management option.
While the maintenance of the Basic Fatigue Management and Advanced Fatigue Management options will not be costless for agencies, the existence of the NHVAS administrative infrastructure and the developmental work done as part of the fatigue management program pilot should assist in constraining costs.

For these reasons, the NTC believes the three options for operators should remain in the regulatory proposal.

### 7.8 Comparison of alternatives to the regulatory proposal

Table 21 compares each of the options against the regulatory proposal in terms of two criteria taken from the proposal’s objectives (improving safety and improving productivity), two criteria that are important in the proposal’s philosophy (increase legislative consistency and encourage fatigue management practices) and one criterion noted by the Commonwealth parliamentary committee on fatigue in road transport (that costs should not be disproportionate for small operators). The comparison is qualitative.

An important point clear from this comparison is the temporal scope of change. Some options are better in the short term than the regulatory proposal, and some options will be worse in the long term in the absence of compensating action by other parties such OHS agencies or the insurance markets.

Four of these alternatives are fairly clearly worse than the regulatory proposal: no road transport regulation; do nothing; delete the general duty and code of practice from the regulatory proposal; and extend the coverage of the regulatory proposal. Each either induces further uncertainty about regulatory duties, is reliant for its effectiveness on uncertain action by other parties, fails to focus on the causes of fatigue, or sustains the currently inequitable, and inefficient competitive balance that exists between compliant and law breaking operators, or has costs that are high relative to the estimated benefits. Reducing the number of options in the regulatory proposal is on balance undesirable because it could leave operators without the potentially cheaper and simpler Basic Fatigue Management option as a means to maintain productivity while adopting some level of structured fatigue management. The three-tiered approach in the regulatory proposal is motivated by the intention that operators be encouraged to progressively move, probably over the medium term, from standard hours through to Basic Fatigue Management and ultimately to Advanced Fatigue Management.

Based on the data (albeit limited) that is available, deletion of the night driving restrictions could reduce the net benefits of the regulatory proposal by $9 million annually. This element of the regulatory proposal is estimated to account for 40% of the road freight industry’s costs and 36% of the total cost impact of the regulatory proposal. However, the restrictions are fundamental to the advice of the Fatigue Expert Group and to the fatigue management philosophy in the regulatory proposal. The changes to the night driving parameters as the result of the consultation address much of the industry’s concern. Even with these restrictions, the regulatory proposal will still permit drivers in the Basic Fatigue Management option to work up to 144 hours in a fortnight and those in the Advanced Fatigue Management option up to 154 hours a fortnight (subject to prior approval by the regulatory authorities as part of the operators agreed fatigue manage).

Nonetheless, overall, the RIS favours the regulatory proposal over the alternatives because it is likely to yield benefits greater than its costs and because it comprehensively addresses its objectives.
### Table 22. Comparison of alternatives to the regulatory proposal

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>Performance relative to the regulatory proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No road transport regulation</td>
<td>Do nothing</td>
</tr>
<tr>
<td>Improve road safety</td>
<td><strong>Worse</strong>, unless and until OHS agencies draft legislation to address road transport fatigue as a road safety issue.</td>
</tr>
<tr>
<td>Improve transport productivity</td>
<td><strong>Worse</strong>, once allowance is made for crash cost externalities and transactions costs</td>
</tr>
<tr>
<td>Assessment criteria</td>
<td>Performance relative to the regulatory proposal</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td><strong>No road transport regulation</strong></td>
<td>Ultimately better provided OHS agencies can develop road transport regulatory skills and infrastructure. In the short term, would leave operators, drivers and other parties vulnerable to uncertainty about legal obligations.</td>
</tr>
<tr>
<td><strong>Do nothing</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Delete the general duty and the code of practice</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Extend coverage of the regulatory proposal</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Delete the night driving restrictions</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Reduce the number of options in the regulatory proposal</strong></td>
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</tbody>
</table>

| **Encourage adoption of fatigue management practices** | Worse unless OHS agencies quickly amend their legislation to address road safety (as distinct from workplace safety) issues or insurers more aggressively rate operators according to fatigue management. | Worse because the current regulations are not focussed on causes of fatigue. | Worse: Both the general duty and the code have their genesis in the need to manage the causes of fatigue. | Better, to the extent that the scientific advice is strongly against unrestricted night driving. | Worse. Without an intermediate Basic Fatigue Management option operators will face a large jump between standard hours and Advanced Fatigue Management as compliance options. |
| **Minimise costs to small operators** | Better in the short term but law abiding operators would be very vulnerable to competition from illegal operators. | Probably better in the short term but inaction will continue to constrain the competitive position of those small operators who comply with the law. | Neutral. Small operators will incur costs although their management problem is less complex. Balancing this, the regulatory proposal will help them to target their limited compliance resources. | Worse: the extent of the fatigue problem in the below threshold sector is largely unresearched. This option could unnecessarily impose costs. | Probably better in the short term, but might be unsustainable in the face of an aging pool of drivers, and anecdotal evidence of driver shortages. | Worse. Without an intermediate Basic Fatigue Management option operators will face a large jump between standard hours and Advanced Fatigue Management as compliance options. |

*Better* signifies for example that the option is judged to be better than the regulatory proposal.
7.9 Conclusion

The regulatory proposal has emerged after a long process of development and consultation with industry, road transport and OHS agencies, fatigue experts and union representatives. It contains measures to address key fatigue issues such as the work/rest balance, fatigue management strategies and the adequacy of enforcement in a comprehensive structure containing general duties, specific duties, provision of guidance to operators and improved compliance and enforcement provisions.

None of the options considered here are superior to the regulatory proposal in terms of achieving satisfactory fatigue risk outcomes at reasonable cost.

8. CONSULTATIONS

In 2001 the NTC circulated its Discussion Paper and Interim Option that outlined a number of issues relating to the NTC’s review of heavy vehicle driver fatigue regulations. A total of 23 submissions were received from various industry stakeholders ranging from regulators, operators, heavy vehicle manufacturers and industry associations.

The issue that raised the most concern from both regulators and operators was the night driving provisions recommended by the Fatigue Expert Group. In among jurisdictions the Northern Territory and Western Australia were frequently at odds with the remaining jurisdictions. The Northern Territory and Western Australia have taken an OH&S approach to fatigue management which is at odds with the proposal to have prescription as the base regulatory option and a risk management approach as the alternative, such as FMP.

The proposal for a code of practice also caused confusion with uncertainty surrounding whether (if adopted) a code of practice should be contained in regulations or be voluntary. However, one submission suggested that if a code of practice were tested in the courts, the finding might be that existing schedules (based on the prescriptive regime) are unsafe.

The draft policy proposal and draft RIS were released in late 2002.

The following sections summarise the views contained in submissions made on the NTC’s Fatigue Review discussion paper, interim option, draft proposal and on the draft RIS.

8.1 Submissions on the NTC Discussion Paper

Comment is sought on the need for a revised regulatory approach and, if deemed necessary, possible options to improve the current regulatory approach.

On balance there was agreement across the submissions on the need for a revised regulatory approach to fatigue management in road transport. However, two submissions expressed some dissent. One submission argued that enforcement of the current regulatory framework should be pursued before regulations are revised and another argued that the current prescriptive arrangements did not adversely affect fatigue management, but supported the introduction of FMS as an alternative means of managing fatigue in the industry. The need for increased flexibility in the base case approach was almost universally accepted.

A number of submissions raised concerns regarding the ‘any 24 hour rule’ and argued that it should either be removed or amended, because it was not conducive to effective fatigue management. Another point which received wide support was that all parties along the transport chain be advised of their responsibilities as part of chain of responsibility provisions.
The need for increased and targeted enforcement with penalties being brought in line with occupational health and safety law was also raised.

While there was widespread support for a multi option regulatory approach to fatigue in heavy vehicle drivers, submissions were evenly split on the number of tiers in the approach – two or three. Submissions that argued for a two tiered approach recommended the removal of TFMS to leave prescriptive regulation in the base regime and FMP as the alternative. This argument was based on the proposition that TFMS was always intended as a short term or transitional scheme to assist in the development of FMP. However one submission argued that in a two tiered system TFMS should be the base option and FMP as the alternative option.

On the other hand numerous submissions argued for a three-tiered system with prescriptive regulation as the base regime; TFMS as an intermediate option; and FMP as the third option.

*Comment is sought on the feasibility of a regulatory based approach based solely on a Code of Practice or on an approach comprising a Code of Practice supported by Regulations.*

There was a strong level of support for a code of practice for heavy vehicle transport, however there was no consensus on whether a code should stand outside of regulations or be incorporated within regulations. Concerns were raised about the enforceability of a code of practice unless it was called up in regulation. One submission supporting a code of practice nonetheless questioned whether the industry was ready for one.

**Response:** The regulatory proposal provides for a code or codes of practice to be approved by Ministers

*Comment is sought as to what break points are appropriate and whether there should be any differentiation between types of operations eg. remote area, livestock and short and long haul operations.*

A number of submissions supported different breakpoints for different areas of operation and different types of freight hauled. However, opinions were mixed as to whether a 12 tonne breakpoint was necessary.

Some submissions supported a 12 tonne breakpoint, while others suggested that since there are vehicles less than 12 tonnes undertaking long haul driving, a 12 tonne breakpoint would not be consistent with risk management principles. This pointed was argued further in one submission which pointed out that there may be grounds to differentiate between long and short haul driving but not by size of vehicle (since the size of the vehicle is unlikely to affect the driver’s fatigue level).

**Response:** The regulatory proposal provides for a 12 tonne breakpoint. The costs of extending coverage to vehicles below the breakpoint are expected to be high and to exceed the benefits of doing so.

*Comment is sought on possible measures to improve enforcement and increase chain of responsibility provisions.*

Chain of responsibility provisions were supported on the whole. Some submissions argued the need for stronger penalties for non-compliance (in some cases raising penalties to the same level as those for OH&S breaches) as a means of improving the effectiveness of those provisions. Right of entry was identified as a means to improve enforcement of chain of responsibility provisions. Two submissions suggested allowing DSMDs to be used by
companies that wish to use them to provide evidence of compliance on the driver’s part. Another suggestion was to have all parties sign off at each stage of the transport chain. Improved coordination between agencies (road authorities, OH&S authorities and police) was widely supported as a means of improving the effectiveness of chain of responsibility provisions. Targeted enforcement of known offenders was also offered as a means of improving chain of responsibility measures.

**Response:** Provisions in the regulatory proposal to improve enforcement along the chain of responsibility include more stringent duties on parties, improved offence provisions, and more stringent record keeping requirements including provision for sign off of relevant entries in drivers’ work diaries (see below).

Comment is sought on the record keeping requirements which should form part of a revised regulatory package.

The abuse of logbooks is widely recognised throughout the industry and many submissions made recommendations on how to solve the problems associated with fraudulent logbook entries. Some submissions argued for supporting documentation to be required, including for example include receipts, ATM slips or phone records. Other submissions recommended allowing electronic logbooks, but some reservations were expressed. One submission suggested that if electronic logbooks were to be allowed they would have to give the driver flexibility at the end of a driving period to find an appropriate rest area or return home. Other submissions cautioned against mandating electronic logbooks, because of the significant costs they could impose on operators.

In relation to FMP most submissions supported increased documentation requirements for FMP operators.

**Response:** The regulatory proposal includes driver work diaries in lieu of logbooks for drivers operating more than 100 km from base. In a change from the current regulations, employers will be required to actively seek duplicate work diary sheets from their drivers.

Comment is sought on means of more effectively applying the chain of responsibility principle to driver fatigue.

Comments ranged across five broad areas: stronger penalties; improved training; application of OH&S provisions (such as the general duty of care); a requirement for all parties to sign logbooks; and increased access to evidentiary records by enforcement officers.

All of the submissions that commented on penalties recommended that penalties for serious fatigue breaches be increased, with some submissions arguing that penalties be increased to the same levels as those for OH&S breaches. However, one submission pointed out the need for a tiered system of penalties so that minor breaches such as spelling errors in logbooks do not attract the same penalty as major breaches.

A number of submissions recommended increased education and training levels throughout the industry and the transport chain, because some industry participants are unaware of their responsibilities as parties along the transport chain. An education and training campaign may improve understanding of the fatigue problem throughout the industry and transport chain.
The application of OH&S provisions was also identified as a means of more effectively applying chain of responsibility provisions through general duty of care provisions set out in OH&S law.

Having all parties along the transport chain sign logbooks was identified as a possible means of applying chain of responsibility provisions. When each party along the chain signs the logbook they acknowledge their responsibility.

Submissions also identified the need for better access to evidentiary records for enforcement officers during investigations.

**Response:** Provisions in the regulatory proposal to improve enforcement along the chain of responsibility include more stringent duties on parties, improved offence provisions more stringent record keeping requirements including provision for sign off of relevant entries in drivers’ work diaries (see below).

Comment is sought on the safety and productivity effects of constraining the amount of night driving undertaken by individual drivers.

There was very little support for night driving restrictions. Most submissions argued that limiting night driving could increase overall driving risk. Limiting night driving would increase daytime heavy vehicle traffic and congestion which could possibly result in an increase in daytime accidents and driver fatigue. Productivity effects from restricting night driving also raised concerns among operators. Restricting night driving will cause scheduling and other logistics problems for operators.

One submission stated that restricting night driving could have serious and substantial impacts on livestock transport. Livestock is frequently transported at night to reduce heat stress among livestock being transported.

**Response:** The night driving restrictions in the regulatory proposal are less strict than envisaged by the Fatigue Expert Group on account of the countervailing influence on crash risk of lower traffic volumes at night. The night driving restrictions in the proposal are expected to affect perhaps 10% of long distance drivers.

Comment is sought on possible approaches to be adopted for the identification of sleep disorders.

While it was generally acknowledged that sleep disorders could be a significant problem for fatigue management there was little consensus on how the problem of sleep disorders should be addressed. There was some support for pre-employment screenings of drivers and regular medicals. However the proposition which seemed to receive the most support was increased education and for employers to provide self-assessment information to drivers. This would allow affected drivers to manage their sleep disorder.

**Comment is sought on the need for training, the content and method of delivery.**

There was widespread support for more or better training as to the nature of the fatigue problem and approaches to its management. A majority of submissions recommended that all personnel involved in the transport chain be trained in fatigue management. This was also seen as a means of reinforcing chain of responsibility provisions.
Comment is sought on whether the management of heavy vehicle driver fatigue be primarily contained in road transport law, left exclusively to OH&S legislation or integrated under both.

On balance most submissions supported the inclusion or integration of fatigue provisions in both road transport and OH&S law. Views about how integration could be achieved were however mixed. Some submissions stated that if fatigue provisions were contained in both road transport and OH&S law there should be a single agency to enforce and coordinate those provisions. Other submissions suggested the formation of a Memorandum of Understanding between road transport and OH&S agencies which would outline the respective responsibilities of each agency.

Support for integration was not unanimous however, with a small number of submissions arguing that fatigue provisions be contained either under OH&S law or separately under road transport law.

One submission recommended inclusion of fatigue provisions in both road transport and OH&S law but with road agencies enforcing road safety aspects while an individual driver’s fatigue would be dealt with as an OH&S issue.

Response: Other than in WA and NT, road transport and OHS agencies are agreed that driver fatigue should remain subject to road transport law but in a manner consistent with the general OHS legislative approach in Australia. The general duty to manage fatigue and the provision for code(s) of practice able to be approved by transport Ministers are measures intended to achieve better consistency between road transport and OHS legislation.

Comment is sought as to whether these ‘design principles’ are appropriate to evaluate the current prescriptive hours approach and as a basis to develop possible alternative approaches to fatigue management.

There was a broad level of support for the proposed design principles to evaluate the current prescriptive hours approach with the exception of the night work principles. Many submissions saw the night work restrictions proposed as impractical and possibly compromising road safety by increasing heavy vehicle traffic volumes during daylight hours.

One submission stated that the design principles needed to be revised. For example, minimum sleep requirements could be impractical if a driver was forced to sleep at an unsuitable time or place. The submission also recommended revising the definition of a workday as 6am to 6am as opposed to midnight to midnight.

Response: Following analysis of driver survey data and discussions with industry, the night driving restrictions contained in the regulatory proposal are less onerous than recommended by the Fatigue Expert Group. Under the Standard Hours option, drivers will be able to drive on six consecutive nights before being required to take a night off.

Comment is sought on the appropriateness of maintaining prescribed hours as a base option with the possibility of limited changes to take account of the Fatigue Expert Group’s concerns and to provide a limited increase in flexibility.

All but one submission supported prescription as a base regulatory option. However, reservations were expressed about the ‘any 24 hour rule’ and the night driving principles.
The strong support for maintaining prescriptive hours as a base option was based on the belief that many smaller operators would not have the resources to implement FMP.

One submission while supporting the concept of maintaining prescriptive hours as the base compliance option suggested that the Fatigue Expert Group’s recommendations were too inflexible and complicated.

**Response:** The regulatory proposal contains a default or base ‘standard hours’ prescriptive option. The adoption of a three-tiered structure of options recognises the varying circumstances of operators, the desire of perhaps many small operators to follow prescribed hours, and the opportunity that the Basic Fatigue Management option gives operators to move to an intermediate structure of fatigue management.

Comment is sought on the feasibility of removing fatigue management from road transport regulation.

Generally submissions did not believe it feasible to remove fatigue management from road transport regulation. WorkSafe WA and DIPE (NT) however put the opposite view noting that both jurisdictions believe that it is feasible given that both Western Australia and the Northern Territory have removed fatigue management from road transport law and included it under OH&S law.

One submission pointed out that if fatigue management were included under OH&S law, the courts might find that many schedules currently permitted are unacceptable. Another submission suggested that it might be feasible to include the general duty of care provision into road transport law.

See earlier response.

Comment is sought on the desirability of increasing flexibility and possible options that would both increase road safety and productivity within the industry.

Flexibility in fatigue regulations was unanimously seen as desirable. Options proposed to increase flexibility were to allow operators to apply risk management principles outside of the prescriptive hours model and to include short breaks of under fifteen minutes in the required break time.

One submission however stated that the current proposed model of prescriptive hours is too complex and that as a result any flexibility is lost.

One submission also stated that if flexibility in driving hours is to be permitted it needs to be accompanied by adequate compliance monitoring systems (such as DSMDs).

**Response:** As already noted, the inclusion in the regulatory proposal of three compliance options for operators allows operators choice as to the compliance approach that suits their particular circumstances.

Comment is sought on the feasibility of moving to an Advanced Fatigue Management System approach.

There was widespread support for moving to an Advanced Fatigue Management System approach. However this support was conditional on retaining prescriptive hours as a base option for operators who were not ready for FMS. Submissions also stated that there must be adequate monitoring and enforcement of operators who choose to move to FMS.
Response: The NTC does not believe that at this stage an Advanced Fatigue Management system would be appropriate for all operators. The Basic Fatigue Management option included in the regulatory proposal represents an intermediate step from standard hours to fatigue management requirements that are more modest than those contained in the Advanced Fatigue Management option. The NTC expects more operators to opt for fatigue management options as familiarity with the general duty and code requirements increases.

Comment is sought on possible options from tight prescription to full flexibility which could be applied under either road transport or OH&S provisions.

All submissions favoured a multi-tiered approach rather than a single regulatory option. The main areas of disagreement related to the number of tiers, whether TFMS should be included and the flexibility of prescriptive hours. It was widely agreed that operators should have the option to pursue a risk management approach such as FMP while allowing other operators to remain with a prescriptive scheme.

Night driving restrictions are generally seen by industry as being detrimental to both road safety and productivity.

Response: The regulatory proposal provides operators with a range of compliance options within a framework which is broadly consistent with OHS regulatory approaches.

8.2 Submissions made on the NTC Interim Options Paper

Multi Option Approach

The NTC suggests that the preferred option would be a multi-option regulatory approach comprising three regimes namely:

- base prescription;
- basic Fatigue Management; and
- full flexibility.

Submissions on the Interim Option paper universally supported a multi-option approach. However, there was some dissent about the make up of a multi-option regime. Some submissions preferred a two-tier regime with full prescription in the base regulatory option and Advanced Fatigue Management as the alternative option. However, one submission proposed a two-tier regime where TFMS was rolled back into the base regulatory option and the alternative option would be FMS. Some submissions also criticised the options as having too many parameters which may make the regulation too complicated. One submission raised the point where truck driving is not the core business (for example farming) that the proposed regulations could be too complicated to comply with.

Response: The NTC believes that the regulatory proposal should maximise the range of options available to operators, and that the step from standard hours to Advanced Fatigue Management (without a Basic Fatigue Management option) would deter operators from moving towards adoption of fatigue management principles.
**Code of Practice**

*It is recommended that a Code of Practice for fatigue be developed. Such a Code would:*

- provide guidance to road transport and OH&S requirements;
- be endorsed by ATC and be available for adoption by OH&S agencies;
- be applicable to vehicles of 12 tonnes GVM and above under road transport legislation; and
- under OH&S legislation be applicable to all road transport fatigue exposed workplaces.

Submissions that commented on the Code of Practice proposal were supportive of it. These submissions supported the development of a Code of Practice that was applicable to all heavy vehicles over 4.5 tonnes.

**Response:** The regulatory proposal provides for a code or codes to be approved by Ministers. The code(s) will be consistent with OHS design principles but the take up of the code(s) in OHS legislation will be a matter for the relevant agencies and their Ministers.

**Coverage**

*It is recommend that in the absence of sufficient justification to extend the coverage of the regulation that 12 tonnes GVM remain as the default position and that consideration be given to recognising the special requirements of remote area operations.*

The recommendation to maintain existing breakpoints did not receive universal support across submissions. Some submissions supported the proposal, but raised concerns about how the special requirements for remote areas would be determined. For example, one submission pointed out that many farms in New South Wales were in areas considered rural rather than remote.

A number of submissions argued that the breakpoint should be lowered to 4.5 tonnes GVM, because of the large number of vehicles between 4.5 tonnes GVM and 12 tonnes GVM undertaking long distance work.

One submission raised the need for a consistent definition of local area work across jurisdictions. A 200 km radius was suggested.

**Response:** The NTC does not believe that the costs of extending coverage of the regulatory proposal below the 12 tonne breakpoint would be justified by the safety benefits.

**Enforcement Issues**

*As part of this Review process the NTC is investigating:*

- the current powers, strengths, weaknesses and applicability;
- the potential impact of the proposed Compliance and Enforcement Bill;
- what (if any) additional driving hours specific provisions might be required; and
- consideration of Mass Dimensions and Load restraint sanctions and penalties regime, in particular provision for roadside enforcement.

The result of this work will be development and improved enforcement process that will form part of the submission to ATC. The enforcement process will apply to any regulatory option or regime.
Submissions that expressed a view on enforcement all agreed on the need for targeted enforcement and greater powers for enforcement officers to require evidence to be presented on demand or to an officer within a nominated timeframe.

**Response:** Provisions in the regulatory proposal and in the *Compliance and Enforcement Bill* will in combination increase the chances of successful chain of responsibility prosecutions.

### Record Keeping

*At this stage of the review it is expected that any regulatory option that allows greater flexibility in driving hours will be accompanied by an enhanced record-keeping requirement. This flexibility will be for records that are either paper or electronically based.*

There was broad support for increased record keeping requirements in return for greater flexibility, but there was little support for increasing record keeping requirements under the prescriptive hours option.

Most submissions that commented on record keeping requirements supported allowing both paper and electronic records.

### Chain of Responsibility

*A strengthened Chain of Responsibility process will be a key part of any reform package.*

With the exception of one submission the recommendation for strengthened chain of responsibility measures was supported. The dissenting submission raised concerns about how the chain of responsibility provisions will relate to loads that are consolidated en route by a large number of consignees. The concern was, is a consignee responsible when another consignee insists on a delivery time that is unacceptable under the regulation?

Also, while some submissions supported the strengthening of chain of responsibility provision they identified that they would be pointless without enforcement.

**Previous responses address these issues.**

### Sleep Disorders

*At this stage it is proposed that a medical certificate be a requirement for any regulatory regime other than the base case but that there be no compulsory requirement for sleep disorder screening. The cost however will need to be justified in the RIS.*

There was strong support for no compulsory sleep disorder screening requirement. Only one submission supported sleep disorder screening. However, one submission although not supporting sleep disorder screenings did recommend that a sleep disorder unit be inserted into fatigue management training programs to help drivers and operators self assess.

### Training

*It is proposed that in any new regulatory regime there would be a training requirement for any flexible option with extent and content to be determined.*

There was universal support for the training recommendation, but some submissions believed that training could be extended to the base option. It was argued that training in the base
option is likely to have significant safety benefits. One submission argued that training should be mandated with the cost of training being borne by Government.

**Night Driving**

*In any revised regulatory regime it is necessary to balance road safety and productivity effects. Key outcomes are:*

- increase the recognition of fatigue, and the determinants of fatigue;
- limit the potential for dangerous and illegal operations; and
- align operations into regimes commensurate with level of risk

There was little support for the proposed night driving limits. Submissions that argued against night driving limits identified increased daytime traffic and significant productivity impacts caused by such limits.

However, one submission felt that the proposed night driving limits had relaxed the FEG recommendations too much and argued for greater limits on night driving. One submission expressed ‘in principle’ support for the limits, if daytime heavy vehicle traffic would not be increased.

**Response: The NTC believes that the night driving restrictions contained in the regulatory proposal are consistent with the spirit of the Fatigue Expert Group recommendations while recognising the lower overall exposure risk posed by lower traffic volumes at night.**

**Other Comments**

Some submission identified declining freight rates as a possible cause of driver fatigue. This submissions generally argued that while costs were rising freight rates were declining forcing drivers to work more hours. These submissions proposed regulating freight rates to prevent drivers overworking.

**8.3 Draft RIS**

Of the submissions made on the policy proposal and draft RIS, five are of specific relevance to the RIS. A number of submissions make reference to the RIS, but the issues they raise are ones of policy to be addressed in respect of the policy proposal. Submissions which address the RIS in detail and to which response is made here were received from:

- Australian Trucking Association (ATA);
- NatRoad;
- Australian Livestock Transporters Association (two submissions); and
- Victorian Transport Association (VTA).

In addition a submission from Wildman River Stock Contractors commented on compliance costs and a response is provided below. Submissions from Transport Forum WA Inc and Bruce Wright Removals & Storage Pty Ltd commented on the effect of reducing the daily driving cap from 14 to 12 hours. These comments are addressed in responses to the industry submissions.
Issues raised

The issues raised in submissions have been categorised and addressed here according to the following headings:

- the 100% compliance assumption in the RIS;
- crash incidence/crash characteristics;
- night driving;
- requirements for additional drivers;
- fleet size, take up of options and compliance costs;
- relationship between benefits and costs; and
- the RIS process.

Response to submissions

100% compliance assumption.

Comment by ATA, ALTA, VTA

Comment: The draft RIS estimated the costs and benefits of the regulatory proposal proceeding from the assumption that there would be 100% compliance with the proposal’s requirements. This assumption is unsupportable.

Response: The draft RIS on page 36 states that ‘Levels of compliance with the requirements of the regulatory proposal are impossible to forecast. The RIS assumes full compliance with the requirements of the regulatory proposal, estimates the costs of achieving and compares those costs with the costs of crashes in which the heavy vehicle driver was fatigued.’

The draft RIS does not forecast or convey an expectation of full compliance. At a philosophical level, the adoption of the full compliance assumption is consistent with the notion that legislation envisages compliance by all who have a duty to comply. Operationally, the adoption of a full compliance assumption is an analytical measure which contributes in a number of ways to the RIS’s role in informing decision making: (1) It provides an estimate of the total or maximum compliance cost. Cost estimates based on less than full compliance could mislead stakeholders about the likely burden of the regulatory proposal. This is particularly so in the case of fatigue: the existing level of compliance is believed to be low; and an intention of the regulatory proposal is to achieve better fatigue outcomes, in part through improved compliance. (2) The basis for comparison of benefits and costs is relatively straightforward and the RIS avoids a range of potentially contentious comparisons of benefits and costs. (3) The decision criterion in the assessment of benefits is clear: if at the assumed 100% compliance the costs of the proposal exceed its benefits, the proposal is clearly undesirable from an economic point of view.

Recognising concerns raised by the industry, the RIS now includes estimates of the regulatory proposal’s costs and benefits according to a wider range of compliance assumptions.
**Crash incidence/crash characteristics.**

**Comment by ATA**

Comment: The draft RIS overestimates the number of fatal crashes in which the heavy vehicle driver was fatigued because it does not allow for the 79% of crashes attributable to drivers other than truck drivers.

Response: The DOTARS methodology used in the draft RIS and explained in Appendix D assumes that heavy vehicle driver fatigue is a factor in 15% of fatal crashes involving heavy vehicles. In the recent ATSB report *Fatigue related crashes: an analysis of fatigue related crashes on Australian roads using an operational definition of fatigue*, the heavy vehicle driver was assessed as being fatigued in 11.3% of fatal crashes involving articulated heavy vehicles over the period 1992 to 1998. The ATSB operational definition is conservative.

**Comment by ATA**

Comment: The draft RIS’s estimate of 3,403 heavy vehicle crashes (all severity levels) involving heavy vehicle driver fatigue relies on subjective assumptions and ignores the much lower crash incidence evidence from the NTI insurance claim data.

Response: The draft RIS relied on ATSB crash data and DoTARS’ earlier interpretation of that data to estimate heavy vehicle driver fatigue crash involvement and to estimate the costs of those crashes. The ATSB data is reported by the jurisdictions and derives from police reports and coronial reports of crashes. By way of comparison: (1) the NTI data derives from one insurer which while large does not hold 100% of the heavy vehicle insurance market (a share of 30% to 35% is cited in the RIS) (2) the data only captures the crash involvement of insured heavy vehicles (3) crash cause is reported by claimants, some of whom may have an interest in suppressing fatigue as a crash cause (4) Not all claimants will have the skill required to diagnose fatigue as a crash cause.

**Comment by ATA**

Comment: The estimation of fatal crashes attributable to heavy vehicle drivers relies unjustifiably on the assumption that fatigue is understated as a crash cause by a factor of three.

Response: The ATSB paper *Fatigue-related crashes: An analysis of fatigue-related crashes on Australian roads using an operational definition of fatigue* (2002) reports that police and coronial reports understate fatigue as a crash cause. The degree of understatement which can be inferred from the report is a factor of 2.5. Conservatism in the coronial system, insufficient training and resourcing of police personnel and the unwillingness of crash survivors to cooperate in accident reconstruction are identified as factors contributing to under-reporting.

**Comment by ATA**

Comment: The ATSB Australian Truck Crash Database (ATCD) summary is more reliable than the assumptions made in the RIS.

Response: The report referred to contains only six months of data.

**Comment by VTA**

Comment: The statement in the Policy Proposal (also contained in the RIS) that crashes in which the heavy vehicle driver is fatigued are ‘reasonably prevalent’ is inconsistent with the
incidence of these crashes relative to heavy truck activity; for example according to the VTA there is one of these crashes every 1,609,229 trips.

Response: The average fatal crash rate in Australia for 2000 for (all vehicle types) was 0.9 fatal crashes per 100 million vehicle kilometres of travel (vkt)\(^{64}\). Using the data in the VTA submission, vehicles subject to the regulatory proposal travel 4.6 billion kms annually and from the draft RIS are involved in 36 heavy vehicle fatal crashes per year in which the heavy vehicle driver was fatigued. The incidence of those crashes is therefore 0.8 per 100 million vkt. These heavy truck crashes involving heavy vehicle driver fatigue occur therefore at a rate not much lower than for all fatal crashes. The logical extension of the VTA’s argument is that fatal crashes generally, having a low incidence, should not be a focus of transport policy.

Comment by VTA

Comment: The application of a ‘severity multiplier’ (of 1.5 times) to crash costs is both unprecedented and unsustainable.’

Response: Table 7.1 of the BTE’s report *Road Crash Costs in Australia* (2000) shows the average fatal crash cost to be $1,652,994 and the average cost per person killed $1,500,000. By inference, the average number of people killed in the average fatal crash (all vehicle types and causes) is 1.1. By inference from the same Table, the average number of people injured in a serious injury crash is 1.25.

The crash costs cited in the draft RIS are presented on a cost per crash basis not per person killed/injured, and the cost parameters cited from BTE are averages across all crash types, including crashes involving heavy vehicles. In the case of fatal crashes for example, the 1.5 severity multiplier implies that 1.65 people are killed in each heavy vehicle fatigue crash (in which the heavy vehicle driver was fatigued) as compared with 1.1 people in all fatal crashes. From the Australian Truck Crash Database 2000, the average number of fatalities in all heavy vehicle crashes (all causes, not only heavy vehicle driver fatigue related) is 1.36. As part of the preparation of the RIS, newspaper reports were identified of court processes associated with twelve crashes of this type in which 23 people were killed, an average of 1.9 fatalities per crash.

The draft RIS noted in its Table 20 that with a severity multiplier of one, the regulatory proposal would have benefits greater than its costs. In section 6 the RIS now contains a sensitivity test of a severity multiplier of one combined with the deletion of speed crash reduction and fuel savings benefits. With those assumptions net benefits fall to -$27 million per annum. However there is no empirical evidence to support the adoption of such a low severity multiplier.

Comment by NatRoad

Comment: The draft RIS (and the policy proposal) should have made recommendations for action in respect of drivers other than truck drivers who cause 84% of multi-vehicle accidents involving trucks.

Response: The RIS is required to address the particular regulatory proposal at hand.

\[^{64}\text{ATSB (2002) Road crash data and rates, Australian States and Territories 1925-2001, September.}\]
Comment by NatRoad

Comment: The latest data from ATSB shows continuing declines in the number of fatal crashes involving articulated trucks.

Response: ATSB data certainly shows marked declines in fatal crashes involving articulated trucks certainly from the early 1980s. Since 1991 however, the numbers of these crashes have fluctuated around 150 per year in a range between 145 and 170. It is not clear therefore whether the trend in truck-driver involved fatigue fatal crashes since 1991 is downwards. If the measure of all heavy vehicle fatal crashes is used as an index of trends in heavy vehicle driver fatigued fatal crashes, it is not clear whether these crashes would have been declining since 1991. Finally because the number of fatigue fatal crashes involving heavy trucks is relatively small in absolute terms, any trend will be difficult to discern except over the fairly long term.

Night driving

Comment by ATA

Comment: The case that night driving is more dangerous (than driving at other times) has not been proven by the NTC. The NTC’s own policy proposal and draft RIS confirm this, but discount the evidence.

Response: The discussion in Appendix D of the draft RIS found the ATSB fatals crash data, the NTI insurance and Culway exposure data were not conclusive as to whether shifting heavy truck traffic to daytime hours would increase or reduce crash risk.

Comment by ATA

Comment: Restrictions on night driving will reduce the utilisation of capital intensive heavy vehicles, with negative implications for industry productivity. The current pattern of overnight transport to facilitate daytime deliveries will have to be reversed to accommodate the night driving restrictions.

Response: The draft RIS accepts that night driving restrictions will increase operating costs and in Table 18 estimates that the cost, assuming full compliance, will be $64.4 million per year ($72.4 million in the final RIS). The RIS methodology assumed that more driver input will be required to operate the same number of truck kms (that is, that the industry’s capital input is not affected by the regulatory proposal). Implicitly therefore the RIS estimates the costs of maintaining the current pattern of deliveries within the proposed night driving restrictions. That cost as just mentioned is estimated in the draft RIS to be $64.4 million annually (revised to 72.4 million in final RIS).

Comment by ATA

Comment: A comprehensive RIS is needed to quantify the economic, social and environmental impacts of the night driving restrictions.

Response: The RIS has estimated that the impacts of night driving on the industry and ultimately on its customers will be significant, that is, a cost of $64.4 million annually assuming full compliance (since revised to $72.4 million). In addition, the draft RIS estimated that deletion of the night driving restrictions from the regulatory proposal could reduce net benefits by $17 million annually (since revised to $9 million).
Impacts on driver requirements

Comment by ATA, NatRoad

Comment: The draft RIS has not assessed the need for additional drivers that the regulatory proposal will generate.

Response: The draft RIS assessed the additional driver cost at $100.8 million annually. The draft RIS does not estimate the additional number of drivers required which the ATA has estimated to be 9,500 in the first year. Using the RIS’s estimate of the fleet covered by the regulatory proposal, the additional driver requirement would be between 2,000 and 3,000 or between 1.4% and 2% of the driver population estimated by the draft RIS to be covered by the regulatory proposal. The RIS’s estimated additional driving hours costs represent the cost of employing these additional drivers.

Comment by ATA

Comment: The industry is struggling to attract drivers, overcome skills shortages and address large numbers of drivers expected to retire over the next decade.

Response: It can be inferred from the draft RIS that drivers will benefit from the retention of existing pay levels and a reduction in working hours which is implicit in the additional driver costs estimated in the RIS. These benefits should assist the industry in attracting additional drivers.

Comment by ATA

Comment: The RIS’s estimates of additional driver costs are understated because the minimum shift length permitted under current awards is four hours.

Response: In the draft RIS the additional driver costs attributable to removal of current non-compliance assume four hour blocks. In respect of additional night driving cost, twelve hour blocks are assumed.

Comment by ATA

Comment: The requirement for additional drivers will impose costs not included in the draft RIS of $59.7 million annually including superannuation, WorkCover premium, training etc.

Response: The derivation of the $59.7 million in Table 7 of the ATA submission is unclear. In Table 9 of the submission ATA’s ten year estimate of costs associated with additional driver requirements is $1.065 billion compared with the draft RIS’s estimate of $1.008 billion, a difference of only 6% equal to about $6 million per year.

Comment by ATA

Comment: The draft RIS should have costed the employment of additional drivers.

Response: The draft RIS estimated that the regulatory proposal implies additional driver inputs of $100.8 million annually. As discussed above, the additional driver requirement could be 2,000-3,000 full time driver equivalents. Even assuming a cost of $10,000 per driver to recruit, induct and train a full time driver the implementation cost would be $20 million to $30 million compared with the draft RIS’s estimate of total compliance costs of $1.8 billion over a ten year period.

The final RIS now includes an allowance for this cost on a one-off basis of $25 million.
**Fleet size, takeup of options and compliance costs**

*Comment by ATA*

Comment: The draft RIS underestimates the numbers of fleets that will be forced to adopt the Basic Fatigue Management and full flexibility options. The effect is to underestimate compliance costs.

Response: The draft RIS used the ABS Survey of Motor Vehicles (SMVU) to estimate the number of vehicles covered by the regulatory proposal, and from that the numbers of drivers and operators. In discussions subsequent to their submission, representatives of the ATA indicated that they adopted a much larger fleet (about 50% larger) on the assumption that OHS enforcement activity would eventually force all heavy vehicles into the coverage of the regulatory proposal. - in other words that eventually all heavy vehicles would be required to comply with the regulatory proposal because OHS agencies would take the proposal’s elements as representing desirable practice. The NTC is not aware of any evidence to support this proposition and accordingly does not support ATA’s fleet estimates or their consequent compliance cost estimates.

However, were the RIS to assume that all medium and large fleets would take up one or other of the flexibility options, and using the RIS’s fleet numbers, the additional compliance costs (relative to the RIS estimate) would be around $11 million per year rather than the additional $125.5 million per year estimated by ATA. Adjustments to the driving hours costs (Table 18 in the RIS) reflecting the benefits of flexibility for this larger number of operators would offset some of this additional compliance cost.

The NTC believes the fleet estimates contained in the draft RIS to be appropriate and they are accordingly carried through into the final RIS.

*Comment by ATA*

Comment: The draft RIS should have based its costs on analysis of ‘real life’ driving schedules and rosters.

Response: The industry submissions argue that each operators circumstances are different. With at least 84,000 fleets covered by the regulatory proposal (or 125,000 as the ATA argues), the task of selecting and analysing a statistically representative sample of schedules and rosters would be complex and expensive. The task would be complicated by present low levels of compliance and operator reluctance to reveal non-complying ‘real life’ driving schedules and rosters.

*Comment by ALTA*

Comment: The draft RIS for costing purposes estimates that only 8.9% of drivers do not comply with current regulations whereas driver surveys cited by the draft RIS put non-compliance at around one-third.

Response: The draft RIS clearly states on page 38 that non-compliance is assumed to represent 25% of long distance drivers not 8.9% of all drivers as construed by the ALTA.

*Comment by ALTA*

Comment: Based on current experience, 25% of operators would be covered by the proposed regulations.
Response: It could be inferred that the ALTA believes that 25% of operators will comply with the proposed regulations and consequently according to the Association, benefits would be only $23 million per annum. Were this proposition to be accepted, the draft RIS’s compliance cost estimate would also need to be reduced by 75% for consistency, that is, by $1.335 billion over ten years or $133.5 million per year.

Comment by ALTA

Comment: The draft RIS’s costs of demonstrating compliance of $130 per fleet per year for small fleets in urban areas is too low.

Response: The estimate of $130 per fleet per year applies to small ‘low fatigue risk’ fleets (1 to 2 vehicles) in urban and non-urban areas. For those standard hours operators whose drivers would rarely if ever be rostered to work long hours, night shifts or rotating shifts for example, the cost estimate envisages that the operator would need only to demonstrate that the basis of their initial risk assessment had not changed, for example by having time sheets, pay sheets, rosters and driver work diaries kept in a readily accessible form.

Comment by VTA

Comment: Compliance costs are under-estimated because the draft RIS has underestimated the numbers of operators who will feel compelled to adopt one or other of the flexibility options. Some 78,500 urban and non-urban drivers could be forced to take up the Basic Fatigue Management option in order to retain access, as needed, to a 14 hour working day.

Response: As noted in response to a related comment from the VTA (see later), it is possible that the draft RIS has under-estimated Basic Fatigue Management take up but probably not to the extent proposed by the VTA. That additional take up would comprise operators whose drivers work at or under the weekly 72 hours cap in standard hours but on some days work between 12 and 14 hours daily. According to survey data, about 5% of the days worked by those drivers have a duration between 12 and 14 hours. From the cost comparison reported later, these drivers would not have a strong incentive to take up Basic Fatigue Management unless they anticipated other types of flexibility benefit.

The NTC does not agree that take up of the flexibility options will be as high as the VTA proposes but revised sensitivity analysis in section 6 of the final RIS addresses the implications of higher take up of these options.

Comment by VTA

Comment: The draft RIS’s estimate of the costs of the proposed night driving restrictions are understated because the draft RIS has under-estimated the average cost of driver remuneration which should be at least $29.73 per hour or up to $36 per hour with on costs, rather than the $24 per hour allowed in the draft RIS.

Response: VTA commented that the relevant award with on-costs is $29.73 per hour and enterprising bargaining agreement rates are higher still, and in addition on-costs must be allowed for.

The VTA does not indicate how their estimated of $29.73 per driver hour was calculated. In the Transport Workers (Long Distance) Award 2000 (current from 24 August 2002) the (arithmetic) average hourly rate for classes 6,7 and 8 is $20.58. That rate when escalated by
10% in lieu of holidays, 10% for workers compensation premium\textsuperscript{65} and 9% for compulsory employers superannuation becomes $27.14. Review of several current long distance enterprise bargaining agreements available on the internet does not indicate rates dissimilar to those in the award. Even if EBAs were more lucrative for drivers the compensating factor of less than complete formal bargaining arrangements would point to a rate of $24.50 excluding workers compensation premium or $27 including workers compensation premium.

Were $27 adopted in the RIS, costs associated with reductions in permitted driving hours would increase by $126 million over ten years rather than by $340 million per year as proposed by the VTA.

A rate of $27 per hour is adopted in the revised cost estimates contained in the final RIS.

\textit{Comment by VTA}

\textit{Comment: How many drivers currently operate under TFMS.}

Response: According to the review of TFMS prepared for Queensland Transport (November 2001), 3,572 drivers and 499 employers were participating in TFMS. The draft RIS proposes take up of 11,600 drivers in 1,636 fleets in the medium flexibility option of the regulatory proposal, which is more than three times the TFMS take up.

\textit{Comment by VTA}

\textit{Comment: The draft RIS bases its estimate of Basic Fatigue Management takeup on weekly hours only. How many drivers currently work up to 14 hours per day but do not exceed 72 hours per week? The reversion from 14 hours to 12 hours in the base case will have an enormous impact on the industry. Up to 75,000 drivers will take up the Basic Fatigue Management option if only to retain the access to 14 hours per day when required.}

Response: ‘Re-examined’ data from the 2000 long distance driver survey shows that for drivers who comply with the current regulations, less than 5% of their driving days have working hours of between 12 and 14 hours\textsuperscript{66}. Around 17,500 long distance drivers in single vehicle fleets would fall in this category. At 220 working days per year, and an average of 1.5 hours worked between 12 and 14 hours, that 5% of working days would represent 289,000 hours per year falling between 12 and 14 hours in a day. The direct cost of those hours would be $6.9 million per year. Alternatively, if all these fleets (17,500) took up Basic Fatigue Management, the additional costs, over and above those estimated in the draft RIS would be approximately $11 million per year. Consequently for these drivers as a whole, Basic Fatigue Management would not be financially viable although they may elect to take up the option to gain other flexibility benefits.

As noted earlier, the implications of higher takeup of the flexibility options are now addressed in the final RIS.

\textsuperscript{65} Workers compensation premium represents a transfer of risk from employers to insurers and as such is not an economic cost. It is included here because it reflects cost incidence on employers.

\textsuperscript{66} The ‘re-examined’ survey data was data cited in the RIS as Williamson et al (2002) but the reference was inadvertently omitted from the RIS bibliography. The reference is Williamson, Ann; Anne-Marie Feyer and Rena Friswell (2002) \textit{Likely impact of proposed changes to the workings regulations governing long distance drivers: Evidence from drivers’ self-reports of a week’s work}, prepared for the National Road Transport Commission, April.
Comment by ATA, VTA

Comment: The draft RIS underestimates the audit cost impacts of the regulatory proposal.

Response: ATA and VTA each maintain that audit costs will be incurred by standard hours operators, with costs being annually $6.7 million (ATA) and $12.6 million (VTA). The regulatory proposal does not call for standard hours operators to be audited.

Comment by ALTA

Comment: The NTC’s own estimates suggest that approximately 25% of the industry is covered by existing regulations. If the proposed new arrangements had some benefit, they would impact on that 25%.

Response: The ATA does not provide any basis for this estimate. Were actual compliance to be at the level estimated by the ALTA (25%), compliance costs would be 75% less than estimated in the draft RIS.

Comment by VTA

Comment: Local operators will bear 64.4% of the cost of the regulatory proposal for little or no return even though they are not the prime focus of the regulatory proposal.

Response: Extrapolating from Tables 11 and 13 in the draft RIS, ‘local’ (presumably urban) operators would incur 16.2% of the costs of the regulatory proposal ($287.4 million out of $1,779.6 million over ten years), in the form of compliance with the proposed code of practice. Additional driving hours costs in the draft RIS are attributed to long distance (non-urban) operators.

Comment by Wildman River Stock Contractors Pty Ltd

Comment: The draft RIS’s estimate of average compliance costs of $2,110 per fleet is understated.

Response: The actual compliance cost for any particular fleet will be influenced by fleet size and the current level of compliance.

Comment by VTA

Comment: Enforcement cost estimates in the draft RIS are greatly underestimated. It could be argued that the $19 million annual cost to agencies (contained in the draft RIS for the Road Transport Reform (Compliance and Enforcement) Bill will be incurred in any event and any concerted enforcement effort in respect of this regulatory proposal would be additional

Response: The costs in the draft RIS are taken to be incremental over and above existing initiatives.

Comment by ATA

Comment: The costs of the regulatory proposal are high. What will be the effects of the national economy assuming the costs can be transferred from the industry to the community.

Response: The gross cost of the proposal on a full compliance basis (of $200 million per year as now estimated in the final RIS) represents approximately three cents in every hundred dollars of national output. Offsetting that would be savings in crash costs (again on a full compliance basis) of $243 million per annum and other benefits of $11 million annually as now estimated in the final RIS. For example, the Industry Commission (now the Productivity
Commission) in its 1995 report *Work, Health and Safety* estimated that a 10% reduction in workplace injury and disease could result in a 0.08% increase in gross domestic product (GDP). In today's values that GDP increase would equate to approximately $480 million. The nature and direction of that effect could also be applied to fatigue crashes which reduce productivity and impose unwanted health costs.

**Benefits of the regulatory proposal**

**Comment by ATA**

Comment: *The regulatory proposal will cause a 23.2% reduction in owner driver income because permitted daily working hours will reduce from 14 to 12.*

Response: As noted earlier reported earlier, the results of the most recent long distance driver survey show that around 5% of all long distance driver days involve work between 12 and fourteen hours per day (for those drivers who comply with the current regulations). If the average income loss of those drivers who work between 12 and 14 hours per day is 14%, the total income loss to the owner driver sector would be 0.7%. If a minimum four hour shift was allowed for the loss would be 1.4%.

**Comment by ATA**

Comment: *The draft RIS’s benefits should be discounted by 18% to reflect the behaviour of the 'cowboys' (18% non-compliance) and by 27.65% to reflect the poor readiness for duty behaviour of drivers.*

Response: The assumption in the draft RIS’s analysis is full compliance. However, so long as the benefit estimates are reduced by 18% to reflect endemic non-compliance as claimed by the ATA, compliance costs should also be reduced by the same proportion. The effect would be to reduce the draft RIS’s estimate of compliance costs by $283.3 million over ten years or around $28.3 million annually. The ATA provides no basis for its estimate that 27.65% of fatigue-related crashes are caused by fatigue occasioned by poor readiness for work. In a full compliance analysis, it would be appropriate for the ATA to provide an estimate of the cost of remediating poor readiness for duty.

**Comment by ATA, ALTA, VTA**

Comment: *The draft RIS’s estimates of fuel savings benefits attributable to reduced speeding are unsustainable and run counter to industry experience.*

Response: The ATA maintains that fatigued drivers speed less and use less fuel in the time immediately before a crash, but the Association does not allow for speeding which may occur before those same drivers become fatigued or on the part of drivers who do not experience fatigue but nonetheless experience commercial pressure to speed. According to the most recent long distance drivers survey reported in the draft RIS, (Williamson and Feyer et al, 2000 Table 54) between 8.3% and 21.2% of drivers exceeded the speed limit on their last trip prior to survey.

The NTC believes benefits to be achievable but concedes the empirical evidence is limited. Accordingly these benefits are not included in the final RIS.

**Comment by ATA, ALTA, VTA**

Comment: *The benefits included in the draft RIS attributable to reductions in speed related crashes are not relevant or not sustainable.*
Response: The submissions provide no evidence rebutting the proposition that there are links between the commercial pressures on drivers, speeding and fatigue. The NTC believes benefits to be achievable but concedes the empirical evidence is limited. Accordingly these benefits are not included in the final RIS.

Comment by ALTA

Comment: The occupational health and safety benefits included in the draft RIS are not relevant or not sustainable.

Response: The ALTA provides no basis for rejecting the propositions and estimates in the draft RIS and the NTC believes that less fatigued drivers are likely to perform the full range of their work tasks more safely. Accordingly these benefits which have been conservatively estimated are retained in the final RIS.

Comment by VTA

Comment: Benefits attributed in the draft RIS ($11 million per year) to improved workplace safety may or may not be accurate in the absence of any quantifiable data.

Response: The draft RIS acknowledges the paucity of data and proposes an assumption for stakeholders to judge. Section 6.15.4 of the draft RIS indicates that the resulting benefit is conservatively estimated and is already noted it is retained in the final RIS.

Relationship between the costs and benefits of the regulatory proposal

Comment by ATA, ALTA, VTA

Comment: The net benefits of the regulatory proposal are overstated in the draft RIS and are likely to be negative rather than positive. 67

Response: In part these submissions have a reached a view of overstatement because they have misunderstood the meaning of the full compliance assumption. The submissions, as discussed elsewhere, also disagree with the inclusion of benefits in respect of speed crash savings, fuel savings and OHS incident reductions. Together these benefits total $57 million per annum in the draft RIS. The submissions have provided no evidence against inclusion of these benefits, and in addition, the benefits have been conservatively estimated. However, as previously noted, the speed crash reduction benefits and fuel savings benefits have been deleted from the final RIS.

The RIS process

Comment by VTA

Comment: The section of the draft RIS entitled ‘Review/Implementation’ ‘rightly belongs in the policy proposal and has nothing whatsoever to do with a Regulatory Impact Statement’.

Response: RIS's prepared by or for the NTC are required to be consistent with the Council of Australian Governments Principles and Guidelines for National Standard Setting and Regulatory Action by Ministerial Councils and Standard-Setting Bodies as amended by COAG 1997. The Guidelines require that RIS's include a section entitled ‘review’ which

67 The ALTA’s second submission revised its estimates and concluded that the costs of the regulatory proposal could be in the order of $3 billion per year. The logic underlying this estimate is not readily discerned.
should include ‘consideration of how the regulation will be monitored for amendment or removal’.

Comment by VTA

Comment: The draft RIS addresses issues that are outside its scope. The RIS’s role is to ‘evaluate the impacts of a proposed policy, to assess the benefits and costs (and to provide evidence that the benefits outweigh the costs) and finally to undertake a National Competition Policy assessment.’

Response: The COAG Guidelines state that RIS's should also contain a statement of the regulatory problem, a statement of the objective of the regulatory proposal, a statement of the proposed regulation and alternatives, results of consultations, and review.

Comment by VTA

Comment: There is considerable detail in the draft RIS which is not addressed in the Policy Proposal and therefore would not come to the attention of most people who might accept the Policy Proposal at face value.

Response: The draft RIS contains the level of detail required to cost the regulatory proposal. The requirement for this section of the RIS is also set out in the NTC’s own RIS Guidelines.

Comment by VTA

Comment: ‘Most [readers] would regard a regulatory impact statement as, principally, a benefit cost analysis and would not go looking there for detailed policy statements. The draft RIS is misused as a vehicle to put forward arguments in favour of and to support the Policy, rather than conduct an objective study and evaluation of the impacts, costs and benefits’.

Response: According to the COAG Guidelines, ‘Impact assessment is a two step process: first identifying the need for regulation; and second, quantifying the benefits and costs of different methods of regulation. In demonstrating the need for the regulation, the RIS should show that an economic or social problem exists, define an objective for regulatory intervention, and show that alternative mechanisms for achieving the stated objective are not practicable or more efficient’. The sections of the draft RIS which describe the fatigue problem have been drawn from previous reports prepared by or for the NTC.

Comment by VTA

Comment: ‘...the argument for the necessity to change is detailed in the draft RIS in a more comprehensive (and more biased) way than in the Policy Proposal document itself.’

Response: The RIS is specifically required by the COAG Guidelines to state the nature of the problem to which the policy proposal is responding. The relevant discussion in the draft RIS draws largely on documents which have previously been made available for public comment.

Comment by VTA

Comment: It is disappointing that the entire draft RIS is devoted to economics and describes benefits of crash cost reductions as ‘economically efficient’. There is absolutely no mention of the number of lives that might possibly be saved’

Response: The draft RIS reports both the costs of crashes attributable to heavy vehicle driver fatigue and the numbers of people who are killed in those crashes.
Comment by ATA

Comment: The National Competition Policy Assessment in the draft RIS is defective in that it does not look at the impact on service providers capable of delivering the Fatigue Management (full flexibility) product.

Response: As the draft RIS on page 79 states, the arrangements pertaining to the operation of NHVAS have previously been approved by Ministers and are not specifically the subject of this particular RIS. There is nothing in the regulatory proposal that would prevent the ATA or TruckSafe from providing services which assist operators to obtain or manage their accreditation to the NHVAS full flexibility fatigue management module.

8.4 Draft Proposal

Following the release of the draft proposal a number of submissions were received from interested parties. In addition the NTC has been involved in ongoing consultations with both regulatory authorities and representatives of industry. As a result of this feedback the NTC has proposed the following changes to the draft proposal.

There was a general consensus that the night driving parameters were too restrictive and that the calculation of the night driving “penalty” was too complicated. As a result the NTC has proposed the following changes.

Firstly in respect of the Standard Hours and Basic Fatigue Management options the requirement for the opportunity for two pairs of consecutive nights sleep be changed to one pair and two other nights off. This change will provide operators with a more flexibility to aid their scheduling.

In respect of the “penalty” there was a general view that the formula was too complicated. Accordingly the NTC has developed the “Simplified 36 Hour Rule”. Each driver starts a week with a ‘bank’ of 36 ‘night hours’, to be used in a 7 day period. The bank is reduced by an hour for each hour of night driving (ie, 00.00 to 06.00), plus an additional hour for each hour (or part of an hour) of work beyond 12 hours in any 24 hour period. The ‘bank’ only applies to the 36 hours of ‘night work’ and does not enter the calculation for any other parameter.

For example for drivers working through the night (ie through the period from 00.00 to 6.00), the effect of this formula is:

- for drivers doing 12 hours work in a 24 hour period no additional hours apply:
  - they can work for 6 successive nights. This gives 6 nights @ 6 hours = 36 night hours.

- for drivers doing 13 hours work in a 24 hour period:
  - they can do 5 successive nights (5 nights @ 6 hours, plus an additional hour each day for work in excess of 12 hours, gives 35 hours); or
  - if they take a break of an hour during the night, they can do 6 successive nights (6 nights @ 5 hours, plus 6 additional hours, gives 36 hours).

- for drivers doing 14 hours work per day:
  - if they do not break during the night, they can do 4 successive nights (4 nights @ 6 hours, plus 8 additional hours gives 32 hours), with an additional 4 night hours available;
- if they take a break of an hour during the night, they can do 5 successive nights (5 nights @ 5 hours, plus 10 additional hours, gives 35 hours); or

- if they take a break of two hours during the night, they can do 6 successive nights (6 nights @ 4 hours, plus 12 additional hours, gives 36 hours).

For the Advanced Fatigue Management option the calculation is the same except the additional night hour starts after the shift has gone for 14 hours not 12 as in the Basic Fatigue Management option.

The third change is in respect of the definition for night sleep. In response to concerns expressed regarding the need to ensure that drivers can sleep during the hours of darkness, have some flexibility as to when they take their extended break and to address the needs of local drivers who often start at 5am the definition of night sleep has been changed to from 22.00 to 08.00. This would allow a driver to start at 5am following their extended break of 7 hours.

The final change is in respect of two up driving. For the Standard Hours and Basic Fatigue Management options the revised proposal is for 42 hours before a stationary break of 12 hours is required.

The effect of all the above changes will be to provide greater flexibility and reduce costs for industry compared with the original proposal. The cost savings relative to total costs of the proposal are considered not to be and accordingly the costings of the RIS have not been adjusted to reflect these changes from the original proposal.

A summary of the major issues raised in the submissions and the NTC response follows.

No. 1

Author: John Bain

Comment: Considers restrictions in some localised areas that limit the number of trailers in a road train, thus requiring multiple trips over those sections, can add to fatigue.

Response: Whilst consideration of local area issues is not part of the Fatigue Review the NTC urges all jurisdictions to work to alleviate such problems in order to reduce fatigue risk.

No. 2

Author: Patrick Sparks

Comment: Raises concerns over the ability of all heavy vehicle drivers to manage a more complex set of fatigue management rules and their ability to keep accurate records. Considers also that some operators will circumvent the system and that adequate resources may not be available for enforcement

Response: The need for simplicity is recognised and was a key determinate in development of the Standard Hours option. Invariably the provision of flexibility will lead to a more complex regulatory regime and whilst measures have been taken to mitigate against complexity, with progression through the options a degree of complexity is unavoidable. The NTC recognises the need for education/publicity to accompany introduction of the new regulatory regime.
No. 3

Author: Richard Jarvis, Rockdale City Council

Comment: Considers that the application of road transport legislation leads to a diminution of the regulatory controls over workplace fatigue. Notes that the definition of work does not pick up hours worked in a second job and that proposed guidelines do not provide an effective basis for control of fatigue from all sources that can diminish workplace safety. Accordingly, considers that fatigue in road transport should be under occupational health and safety legislation.

Response: OHS legislation will continue to apply if the draft proposal is adopted. The NTC considers that the proposal will complement, not diminish, the regulatory controls under occupational health and safety legislation and is working closely with OHS authorities to achieve consistency. Whilst it is not proposed to change the definition of “work” to include time spent working on second jobs, the proposal contains a general duty of care to manage fatigue to minimise road safety risk which will impose an obligation on all, including drivers, in the transport chain. In effect this will place an obligation on drivers to be in a fit state for work and not fatigued from either working a second job or as the result of any other activities. The fatigue code of practice will provide guidelines on how to manage fatigue.

No. 4

Author: Maxine Poulson, D&M Barnes Transport

Comment: Considers that the one main issue that leads to fatigue is low rates paid for freight movements.

Response: The freight industry is a competitive market with freight rates set by market forces.

No. 5

Author: Maureen Allatt, M L & M Allatt

Comment: Notes the high cost of fatigue crashes and that fatigue can strike quickly. Strongly raises the issue of inadequate rest areas. Also raises the issue of the need for everyone in the transport chain to be responsible for the management of fatigue and to educate light vehicle drivers on how to interact with heavy vehicles.

Response: The NTC recognises the importance of rest areas to enable heavy vehicle drivers to manage fatigue. A report on guidelines for rest areas will be taken to Ministers in the last quarter of 2003. The NTC considers that the proposed changes to the chain of responsibility provisions will strengthen the chain of responsibility regulations.

No. 6

Author: Sandra Hosking

Comment: Supports the focus on the opportunity to sleep. Raises the issue of problems with the 24 hour rule. Considers that by not using a day in its normal meaning as the definitive period, drivers are forced to drive through circadian low points to comply with the regulations.

Response: While the use of the normal day as a definition is easy to understand it has perverse effects in that it allow “days” to be run together leading to long stints of work not
envisaged by the regulations. The NTC considers that the proposal addresses the issues associated with circadian low points in a more effective manner.

No. 7

Author: John Stanley, Bus Association Victoria

Comment: Generally supportive of the draft proposal. Raises the concern that night work being defined as between 00.00 and 06.00 will present scheduling difficulties for route operators. Suggests that this be changed to 00.00-05.00 with a consequent reduction of total weekly hours from 72 to 66. Also seeks the present operating condition for the bus and coach industry of 4 days off in 28 be maintained to enable long distance coach operations. Finally, opposes the requirement for the Basic Fatigue Management option to be under NHVAS as Victoria already has operators who are required to be accredited.

Response: The NTC recognises the accreditation requirements of the bus & coach industry. The NTC considers that change in the definition of night’s sleep will address some of the scheduling difficulty highlighted. The NTC further notes that it is proposed that the bus and coach industry will be permitted access to the Basic Fatigue Management and Advanced Fatigue Management options which will provide additional flexibility in respect of scheduling. The NTC supports the continuation of the 28 day cycle.

No. 8

Author: Michael Apps, Bus Industry Confederation Inc

Comment: Notes that in recognition of the different operational issues between the trucking and bus industries, the current practice of dealing separately in relation to management of driving hours should be maintained. Specifically raises concerns over the definition of night hours as being between 00.00 to 06.00 and the requirement for two pairs of consecutive nights off as this will adversely affect operators who roster drivers who finish or start between these hours. Also raises concerns that the requirements for 24 hour continuous breaks does not take account of the requirements of 28 to 36 day extended tours.

Response: The NTC recognises the accreditation requirements of the bus & coach industry and the differences in treatment to the trucking sector. As noted previously the NTC considers that the change to the definition of a night’s sleep will address the scheduling difficulty highlighted. The NTC supports the continuation of the 28 day cycle. The requirement for two pairs of consecutive nights off has been changed to 1 pair and 2 other nights.

No. 9

Author: Keith Dunkerley

Comment: Considers that there should be separate driving hours for local drivers to long distance truck and bus operators. Considers that the operating conditions in local operations are different and the need to meet tight timetables in long distance work lead to fatigue and a road safety risk despite complying with present legislative requirements.

Response: The NTC recognises that the working patterns between local and long haul operations can be significantly different. In addition local drivers generally have the option of going home after their shift is finished. The key fatigue precursors are however the same no matter what operations are being undertaken. The use of length of trip to define break points would be complex and exceedingly difficult to enforce. The NTC considers that the changes
to the draft proposal in respect of night’s sleep will largely address the issues for local operations.

No. 10

Author: Davey McCloy

Comment: Considers that local bus route operators are more demanding than long haul operations and the present parameters are to liberal leading to a fatigue risk.

Response: The NTC considers that the available evidence does not support this proposition if operators are working according to the regulations.

No. 11

Author: Geoffrey Wright, Bruce Wright Removals and Storage

Comment: Considers that the proposal would add significant costs to their business operation. States that their operations have difficulty complying with 14 hours. Further considers that there should be increased policing of current regulations and educating drivers on what fatigue is.

Response: There is a significant body of scientific research that demonstrates working for extended periods on a regular basis constitutes a fatigue risk. The proposal provides for extended shifts, like those identified, if the operators take on additional responsibilities to manage the fatigue risk. The proposal will provide the opportunity for more effective enforcement of the regulations. The NTC supports any measures to educate drivers on the risks associated with fatigue.

No. 12

Author: Lou Arthur, L Arthur P/L

Comment: Believes that there should be different requirements for line haul or long distance work and local operators. Notes in local operations drivers have the advantage of being able to sleep at home and may not be required to drive long distances. Considers that the current standard hours are inflexible and do not allow for unusual occurrences.

Feedback from NTC: Refer to previous responses.

No. 13

Author: Queensland Trucking Association

Comment: Noted that the proposed driving hours must take into account that the majority of trucking businesses are small to medium sized companies. Further noted that many operators indicated they would move to the higher options if the base case became as restrictive as indicated in the current proposal. The reason for this was that operators considered that if they are required to implement a fatigue management system with compulsory training and audits combined with NHVAS standards, they would prefer to go to the full flexibility option to gain maximum operational benefit. Major issues opposed are reducing working hours from 14 to 12 in the Standard Hours option, the requirement for two pairs of consecutive nights off (want one pair with the other nights singularly) and the “penalty” for night driving.
Other comments included:

- supports electronic record keeping for the full flexibility option;
- 36 hour restriction for two up driving is inappropriate;
- regulations should apply to all vehicles over 4.5 tonnes; and
- definition of night should be from 10.00pm to 6.00am or 11.00pm to 5.00am.

Response: The bias of the trucking industry to small to medium sized companies was factored into the policy development considerations. The Standard Hours scheme was developed to be a simple, base scheme while complexity was kept to a minimum in the Basic Fatigue Management option. As demonstrated by the fatigue management pilot small to medium size entities can operate successfully under an Advanced Fatigue Management option. As detailed in the policy proposal the fatigue risk associated with long shifts and night driving need to be managed and this is done by the graduated options.

In respect of the other issues raised the parameter relating to two up driving, and the definition of night sleep have been changed. Another NTC project is looking at the issue of electronic record keeping devices but is not at a stage where the results can be included in this proposal. Reducing the break point to 4.5 tonnes can not be supported on economic grounds.

No. 14

Author: Graham Paton, Owner/Driver Steering Committee

Comment: Considers that the proposed changes are too complex. Major issues of concern are the requirement for two consecutive nights off, lack of rest areas, adverse impacts on earning capacity and life style of drivers and problems with enforcement (not detailed).

Response: Response to the issues of complexity, enforcement and the requirement for consecutive nights off are detailed previously. The NTC considers that the provision of adequate rest areas is an important issue and will be submitting draft guidelines to Ministers in the near future.

No. 15

Author: Department of Transport & Regional Services (DOTARS)

Comment: Supports the draft proposal and the three option approach. Considers the following reforms to be particularly important:

- inclusion of the maximum hours night work parameter in the Basic Fatigue Management option;
- inclusion of the requirement for two pairs of two consecutive nights off in 14 days in the standard hours and Basic Fatigue Management options;
- inclusion of compliance with speed limits in the Chain of Responsibility provisions;
- limiting total work as well as driving time to 12 hours per day in the Standard Hours option; and
- elimination of the distinction between driving and other work.
In respect of coverage of the regulations, DOTARS accepts that there is some justification (because of cost impacts and uncertain safety improvements) for not applying the full regulatory proposal to to vehicles between 4.5 and 12 tonnes, but considers it appropriate that the Code of Practice eventually covers these vehicles as the requirement to manage fatigue in the workplace is equally a responsibility for operators and drivers of these vehicles.

Response: The NTC welcomes the DOTARS support and notes that the reforms identified have been largely incorporated in the proposal.

No. 16

Author: Paul Freestone, Freestone’s Transport P/L

Comment: Supports the strengthening of the Chain of Responsibility provisions. Considers that the replacement of the log book with a work diary will not improve compliance and that verification of work diary entries by third parties will be unworkable. Believes electronic recording devices should be mandated. Further considers that an extensive education program will be required along with effective enforcement measures.

Response: The issue of electronic record keeping devices has been responded to earlier. The difficulties associated with work diaries and the third party sign off are recognised but must be viewed in the context of the total package. The record keeping requirements have been strengthened while the Compliance and Enforcement Bill will provide enforcement agencies with stronger powers.

No. 17

Author: Queensland Cane Growers Organisation

Comment: Notes the specialist characteristics of the logistical task being mainly undertaken by specialised vehicles with minimal on-road operations. Further notes that the seasonal nature of the work makes it impractical to be NHVAS accredited. The major issue for the sugar industry is that while operators can meet the requirement to have 2 consecutive rest periods of sleep after 6 shifts there is a problem with meeting the requirement that the sleep periods must be at night.

Response: The benefits of better restorative sleep at night have been clearly identified in scientific research. The requirement for two pairs of consecutive nights off contained in the draft proposal has been changed to one pair of consecutive nights off plus two other nights in 14 days.

No. 18

Author: Transport Forum WA Inc

Comment: Considers that the reduction of hours in the Standard Hours option from 14 to 12 is a retrograde step that will impact adversely on the industry and the Australian economy. Does not support the introduction of night work restrictions believing that they are too restrictive and complicated. Considers also that the two up driving proposals are basically unworkable as the 36 hours will not allow any of the long distance destinations to be reached without a long break. Further considers that there must be some level of mutual recognition particularly in relation to the code of practice.

Response: With the exception of mutual recognition of the code all other issues have been addressed in previous responses. The fatigue code of practice has been developed in close
consultation with WA and NT authorities and OHS authorities in order to achieve consistency.

No. 19

Author: Michael Swart, Wildman River Stock Contractors P/L

Comment: Considers that all three options in the draft proposal would be hard and expensive for the company to implement and do not take into account the conditions within rural and remote Australia. Raises specific issues regarding the lack of rest areas and the special requirements for livestock transport. Considers the form of fatigue management outlined in the draft proposal should only apply to the eastern seaboard and that remote Australia be further investigated and a fatigue system more applicable be developed in consultation with industry.

Response: The Advanced Fatigue Management option has been developed to take into account the risk associated with extreme operations such as those found in remote areas. The emphasis is on risk management. Jurisdictions have indicated their willingness to work with operators to facilitate their entry into an Advanced Fatigue Management scheme. While the operating conditions in remote areas may be different the risks of fatigue are the same no matter where the operations. Responses to other issues are included previously.

No. 20

Author: Rod Hannifey

Comment: Considers that extending the minimum continuous break from 6 to 7 hours would not see drivers getting any more sleep unless they had planned or, had that time available anyway. Further considers that the requirement for two pairs of consecutive nights off in 14 days will adversely impact on earnings and encourage drivers to change shifts with a worse fatigue outcome. Believes that there should only be two options and that flexibility should be added to the Standard Hours option. Raises the issue of the need for adequate rest areas.

Response: The NTC considers that having two options would not cover the diverse nature of the trucking industry. In addition the gap between the two options would be great with the possibility that a large percentage of operators, particularly smaller operators, would not have the expertise, nor the need, to move to a Advanced Fatigue Management option. Medical research has shown that for most individuals a minimum of 6 hours sleep is required to avoid fatigue. Even with this level an accumulated sleep deficit builds up. To get 6 hours sleep the continuous break must be longer. The other issues have been addressed previously.

No. 21

Author: Victorian Transport Association

Comment: Considers that the case to change the existing regulations has not been made and that there should be no action until a full evaluation has been undertaken of the existing regime and the primary failure in respect of the current regime is lack of enforcement. Further considers that the draft proposal is predominantly aimed at the long distance sector of the industry and will impose costs on local operations that do not represent a fatigue risk. VTA notes that there is a recognition of the need to better understand and better manage fatigue but believes that this won’t be achieved purely by regulation and there is a need for greater education and training.
VTA supports:

- three option approach*;
- general duty of care and a fatigue code of practice;
- combining driving and non driving under “work” but “work” will need to be defined; and
- strengthening chain of responsibility pressures but drivers should have a reasonable steps defence.

* notes moving operators to the Basic Fatigue Management option may in itself be a good thing though it would be restrictive for drivers.

VTA does not support:

- reducing the maximum hours of work from 14 to 12 in the Standard Hours option;
- two pairs of two consecutive nights off in fourteen days as this would be a significant problem for local drivers who work five night shifts and then a sixth day on overtime;
- totally opposed to a cap on night work principally because they consider it is unworkable and unenforceable;
- management standards and assessment for Basic Fatigue Management option;
- collegiate accreditation as they consider it would be complex, lengthy and costly; and
- believes measures like improved record keeping requirements and performance monitoring will be costly.

VTA recommends that:

- further development of the policy proposal be deferred until further research is undertaken into fatigue crashes and the impact of the current regulations;
- the Transitional Fatigue Management Scheme be strengthened;
- the Road Transport Reform (Compliance and Enforcement) Bill be implemented as a matter of urgency.
- NTC make every effort to obtain a commitment from State and Federal Governments to provide greater resources and direction for enforcement; and
- the introduction of a fatigue management competency standard as a mandatory requirement for a heavy vehicle driver’s licence.

Response: Whilst the extent of fatigue involvement in road crashes is hard to measure there is a significant body of research that has found fatigue to be a significant problem in the road transport industry and that the extent of the problem is under reported. Scientific evidence has also shown that accumulated sleep deficit, circadian rhythms and extended time on task are key fatigue precursors and lead to decreased levels of performance. All three elements are features of the road transport industry and are not adequately addressed under the current regulations. In particular the current regulations do not take account of the cumulative affect that comes from combining two or more of these key fatigue precursors.
The working for 14 hours, or a shift of 15 hours when including the compulsory breaks, is a long shift and in a base case with no fatigue counter measures represents a fatigue risk. There is no evidence to suggest that the current two hours of other work provides any benefit as a fatigue counter measurer is there any requirement that the two hours of other work be undertaken at the end of the shift when the driver is not on the road. Whilst it would be possible to address the administrative flaws in the TFMS what is permitted under the TFMS, namely ten consecutive 14 hour night shifts is not supported by fatigue experts. The NTC notes that the night driving parameters have been amended in the light of feedback from the consultation process the NTC notes that the measures in the compliance and enforcement bill and the total provisions contained in the proposal, in particular the strengthened chain of responsibility provisions, will strengthen enforcement provisions and improve compliance.

No. 22

Author: Northern Territory Livestock Exporters

Comment: Raises the issue of the need for flexibility to be maintained in Northern Australia to help account for the road conditions and long distances that are regularly encountered. Also raises the issue of the special requirements needed for transporting livestock. Considers that limiting a driver’s hours to 16.5 in a 24 hour period will simply not be adequate to transport cattle from property to destination and relief drivers and two up driving is not a feasible option.

Response: The Advanced Fatigue Management option provides flexibility for those operations that require extended operations. The NTC notes that to go beyond 16.5 hours driving, a total time on task of 18 hours with the inclusion of short breaks, is considered unacceptable by fatigue experts.

No. 23

Author: Barbara Anderson, Anderson Transport Services

Comments: Considers that emphasis should be placed on drug testing rather than fatigue management. Raises the issue of poor roads being a major contributor to road accidents.

Response: The NTC notes that by an improved regulatory regime will reduce the pressures to take artificial stimulants. The general duty of care places an obligation on drivers to be in a fit condition for work.

No. 24

Author: Queensland Transport

Comments: Queensland Transport supports the Standard Hours and Advanced Fatigue Management options and strongly supports the removal of the Transitional Fatigue Management Scheme. Queensland Transport also supports maintaining the coverage of the regulations at the present level, strengthening record provisions and replacing log books with a work diary and a provision for exemptions to deal with unusual operations and circumstances. In respect of compliance and enforcement Queensland Transport supports the Compliance and Enforcement Bill’s proposed uniform core powers but notes that the concept of absolute liability will not apply.

Queensland Transport considers that there should be two regimes and does not support the Basic Fatigue Management option. Queensland Transport believes that audit, training and
medical requirements should be the same between the Basic Fatigue Management and Advanced Fatigue Management options and therefore there would be minimal cost difference between the two. In particular Queensland Transport is concerned that some of the operating limits under the Basic Fatigue Management option are close to the limits under the full flexibility option and that the operating limit of 84 hours work in a 7 day period is the same. The latter would allow operators to work up to 84 hours every second week whereas under Advanced Fatigue Management that would only be allowable in certain circumstances.

Queensland Transport supports the inclusion of a general duty of care to manage fatigue and a fatigue code of practice but raised concerns how these would accord with other regulatory proposals, the NHVAS framework and OHS legislation.

Response: The NTC considers that the provision of two options would not meet the diverse requirements of the road transport industry. The NTC considers that for most of the road transport industry a simple base system that does not impose needless costs will meet the road safety requirements to manage the fatigue risk. The NTC further considers that a regime that comprised only two options would mean that either greater flexibility, with increasing costs and complexity, would need to be included in the base scheme. The NTC sees the inclusion of the middle tier as improving compliance by providing a manageable step that encourages operators and drivers to take additional responsibility for managing fatigue by providing additional flexibility. The NTC further considers that the two flexible options should be included under fatigue module of the National Heavy Vehicle Accreditation Scheme and the requirements and responsibilities to be consistent with the mass and maintenance modules of that scheme.

No. 25

Author: Bus and Coach Industrial Association (NSW)

Comments: BCA considers that many of the recommendations outlined in the proposal will promote the safety of the transport industry generally. Considers however that the standard driving hours being proposed are unworkable but acknowledge that the industry could comply with a slight variation to these hours if a fatigue management program was adopted.

Considers however that there are significant operational differences that warrant the bus industry being treated differently in respect of driving hours. Notes that in NSW operators are required to be accredited and are subject to audit.

The BCA supports:

- the development and implementation of policies and practices to assist in the management of fatigue of drivers in heavy vehicles;

- the accountability of all those with responsibility for or control over practices which result in unsafe outcomes;

- codes of practice to assist those in the transport chain in managing their duties; and

- enhanced enforcement powers, sanctions and penalties which should serve as a deterrent to non-complying and non-accredited operators.

Specific concerns are:

- amalgamation of “driving” time and “on duty” time into “work” time will impose unreasonable costs and restrictions on the industry;
• abolition of the 28 day cycle;

• the requirement for two pairs of consecutive nights off in 14 days does not allow flexibility for drivers who work part of the period from midnight to 06.00; and

• defining night hours as being between midnight and 06.00 does not take account of the route drivers who work beyond midnight or commence prior to 06.00.

The BCA is seeking endorsement of a fatigue management program that will incorporate a set of operating hours for rest and work, a code of practice for complying with the requirements and a compliance regime. Major differences to the draft proposal are:

• minimum continuous opportunity for sleep 8 hours;

• 4x24 hour periods off in 28 days; and

• maximum 72 hours night work (00.00-06.00) in 14 days.

Response: As noted previously the NTC recognises the different operating conditions of the bus and coach industry and supports the continuation of a 28 day cycle. The NTC further notes that the ability to work 72 hours of night work in 14 days would be possible under the proposal as long as the hours of work were limited to 12 hours in 24 hours. Other issues have been addressed previously.

No. 26

Author: NSW Road Transport Association

Comments: Considers that the draft proposal does not take account of the diverse business structure and business relationships within the industry. Further considers that there is insufficient flexibility in components of the three tiers as well as unnecessary complications that will make administration and enforcement more complex.

In respect of specific operating parameters has the following concerns:

• requirement for two pairs of consecutive nights off in 14 days should be replaced by 2x1x1;

• opposes reducing total hours from 14 to 12 under the Standard Hours option;

• opposes the limit on night driving in the Basic Fatigue Management option both in respect of the requirement to recalculate the hours and the maximum of 36 hours. Considers that the parameter does not meet the needs of drivers starting at 04.00 or the fact that long term shift workers adjust to working at nights; and

• Considers that the draft policy will increase demand for drivers in an already tight labour market.

Response: The NTC considers that the provision of a three option approach constitutes a practical approach that addresses the diverse structure of the road transport industry. It is administratively impossible to have a regime that is tailored for each segment of such a diverse industry but by having a three option approach that progresses from a base, simple regime to a Advanced Fatigue Management approach in manageable steps drivers and operators will be able to select the best option that accords with their operations. The other issues raised have been dealt with previously.
No. 27

Author: Australian Trucking Association NT

Comments: Considers that the proposed model is too restrictive and that a Code of Practice in line with the NT model is the appropriate regulatory approach. Rejects the Advanced Fatigue Management option as being not practical, too prescriptive, too expensive and too complicated for drivers and operators to follow.

Considers the Code of Practice should apply to all vehicles above 4.25 GVM. Believes that any restrictions on driving will lead to the need for extra drivers in a tight labour market.

Raises the issue of fatigue training, who will design, conduct and pay for training and notes that the cost of undertaking training and compulsory audits will be higher for remote areas.

Raises the issue of the need to provide adequate rest areas and that in remote areas the 24 hour break should be allowed to be taken in the cab, rather than away from the vehicle for reasons of security and comfort.

Considers that the proposed parameters for two up driving are too prescriptive and will not allow major line haul routes to be undertaken.

Response: A number of alternatives to the proposal were considered including the withdrawal of road transport legislation with regulatory control being through OHS legislation. On evaluation these approaches were rejected with some OHS agencies expressing support for the continuation of the road transport legislation. It is worth noting that WA has recently introduced regulations to support the Code of Practice. The two up driving parameters have been amended following consultations. The NTC strongly supports the provision of appropriate rest areas to enable drivers to rest to minimise the risk of fatigue.

No. 28

Author: Transport SA

Comments: Transport SA supports the following aspects of the Draft Policy Proposal:

- that the proposal under road transport law apply to all vehicles with a GVM over 12 tonnes and buses that seat over 12 adults;

- a multi-option tiered approach containing a standard hours – base prescription option, stepping up to an accredited Advanced Fatigue Management option albeit with a preference for the incorporation of the Basic Fatigue Management model under a single set of NHVAS – FM accreditation standards, equivalent to the Advanced Fatigue Management option;

- a general duty to manage fatigue;

- a fatigue Code of Practice that provides guidelines to support the general duty to manage fatigue, prepared to meet NOHSC standards to enable possible adoption under OHS legislation;

- the core operating elements in the options:
  - removal of the distinction between driving and work;
  - length of shift;
• minimum continuous break;
• night driving; and
• NHVAS accreditation for flexible fatigue management options;

**Compliance and Enforcement recommendations:**
• strengthening chain of responsibility;
• approach to reasonable steps defence;
• adopting risked based categorisation of offences;
• broader enforcement and evidence gathering powers; and
• approach to sanction and penalty options;
• record keeping requirements:
  • carrier/operator requirements;
  • calculation of the 24 hour period; and
  • provision for jurisdictions to grant exemptions.

Transport SA does not support the following aspects of the proposal:
• the relation of the two up driving parameter where both night and day work is to be roughly equally shared between the drivers; and
• change of terminology of the log book to a work diary.

In respect of two up driving considers that the proposal backing night and day work should be roughly equally shared is subjective and does not take account of the relative fatigue levels of each driver. Accordingly suggests that the parameter should remain as a guideline not a requirement. Supports the requirement to limit the continuous operation of a vehicle by a two up driving team.

To minimise potential changes to legislation and to address any cynicism about changing the name of an ineffective document while supporting the driver diary proposal Transport SA consider the document should be referred to as a log book. Suggests the inclusion of consigner information, odometer and location recordings and measurements that a scheduled trip plan should be included to demonstrate some level of trip planning.

**Response:** The NTC does not support the view that the requirement that drivers roughly share the driving should be removed. Whilst agreeing that the fittest driver should be at the wheel the NTC considers that the parameters provide flexibility for drivers working as a team the flexibility to share the driving task so that the least fatigue driver is at the wheel. There are no requirements as to the minimum time for each driving stint. Similarly the NTC considers that each driver should have the opportunity for roughly equal amounts of night sleep. The NTC further considers that a move to a work diary would provide a higher standard of record keeping that would be of benefit to both operators and regulators and acceptance should not be handicapped as the result of the negative perceptions of the current log book.
No. 29

Author: Australian Trucking Association

Comments: Considers that truck drivers and operators already manage their fatigue and does not believe a case has been made for change. Rejects any change to the existing regime until it has been subject to a full assessment. Further believes that the draft proposal does not cater for specialist sectors of the transport sector.

ATA supports a three-option approach with a middle option that offers a degree of flexibility that enables those operators requiring either regular or the occasional degree of flexibility to be recognised. As an alternative for consideration suggests a two option approach where:

- the TFMS is rolled back into the standard hours but with a limit of 84 hours before a 24 hour break is required and a requirement for fatigue training; and

- an Advanced Fatigue Management option where the parameters from the Basic Fatigue Management option are adopted as the normal operating limits.

Considers that coverage of the regulations should be extended to all heavy vehicles over 4.5 tonnes GVM and the definition of local operators be standardised at 200 km radius.

Strongly opposed to any restrictions on nighttime driving. Considers that although the existence of circadian rhythms and general conclusions about their effect on work practices and response times is established in medical science, the ATA believes that these general findings should not be applied in a simplistic fashion. In particular, the proposed parameters will lead to denigration to drivers’ established work/sleep routines, significantly reduce income and lead to negative road safety outcomes by forcing more vehicles onto the roads during daytime hours. Any night driving restrictions require a comprehensive RIS quantifying economic, safety and environmental impacts.

Considers that the proposal does not address the problem of “driver readiness for duty”, which they believe is a major cause of fatigue accidents. Notes that fatigue is a lifestyle issue and the NTC is wrong in believing changes to driving hours will radically benefit drivers’ readiness for work states.

In respect of the parameters detailed for the three options the ATA opposes:

- increasing the continuous break from six to seven hours on the grounds that operators cannot comply - it is impractical, particularly in remote areas;

- two pairs of consecutive nights off, which is seen to be impractical and cannot be achieved in operators freight task requirements and needs for flexibility;

- strongly opposed to a reduction in total work time from 14 to 12 hours, claiming that this would reduce income by up to 23%, particularly for owner drivers; and

- night driving parameters under the Basic Fatigue Management and Advanced Fatigue Management options and considers them to be unworkable.

In respect of accreditation, believes that other options rather than the collegiate model should be further explained and greater recognition given to industry schemes such as Trucksafe.

Two up driving should be re-examined as the ATA consider that the parameters do not meet the requirements of the transport tasks undertaken.
In respect of compliance and enforcement, ATA considers that these should be more effectively targeted, intelligence led policing by appropriately trained enforcement officers. Concerned that current powers are inadequate, particularly in respect of chain of responsibility and that heavy penalties on a graduated basis dependent on the seriousness of the offence be introduced.

Opposes any increase in record keeping requirements imposed in any option.

Considers that the role of correctly structured and placed rest areas is absolutely essential to underpinning sound fatigue management and the provision of these should be accorded high priority.

The ATA supports:

- introduction of the Compliance and Enforcement Bill subject to certain changes;
- development of a fatigue code of practice which the ATA consider to be an integral part of the overall package;
- review of log books;
- strengthening chain of responsibility provisions with the inclusion of a reasonable steps defence for drivers;
- risk based categorisation of offences; and
- requirement for medicals in the higher options but considers the frequencies should be reviewed and all the various licences eg dangerous goods, brought into line.

Considers that fatigue training for all new licence holders should be mandatory and phased in for current holders on a staged basis. Training should apply to all participants in the industry, drivers, schedulers, managers and road enforcement officers.

Response: The issue of extending the coverage to include all vehicles above 4.5tonnes was considered but could not be justified on economic grounds. The fatigue code of practice is being developed in consultation with OHS authorities and will be available for adoption by those authorities if they so wish. If picked up by OHS authorities it would apply to vehicles not covered by road transport legislation. Similarly the extension of fatigue training to all drivers can not be supported on economic grounds. The NTC considers that the issue of driver “fitness for duty” is addressed by the general duty to manage fatigue that fall on all parties in the logistics chain. The scientific evidence strongly supports the conclusions of the additional risk of fatigue associated with night driving particularly when in association with other key fatigue precursors. The NTC notes that the changes in the night driving parameters since the release of the draft policy proposal address the concerns of industry whilst addressing these fatigue risks. The collegiate for accreditation to the Advanced Fatigue Management option is required to give jurisdictions comfort that the proposed operations are appropriate and the fatigue counter measures are adequate. The use of the Risk Assessment Guide as the basic document for operators and jurisdictions will facilitate this process. The NTC does not accept the ATA view that record-keeping requirements should not be strengthened. When combined with the powers available to enforcement offices under the Compliance and Enforcement Bill improved record keeping will lead to better compliance an outcome sought by the ATA. Other issues have been addressed previously.
No. 30

Author: Australian Livestock Transporters Association

Comments: Opposes the proposal considering they would increase the current inflexibilities at enormous cost without achieving improved safety or any of the goals of fatigue regulations. Consider livestock transporters are subject to unique pressures and problems including:

- carry live loads;
- subject to seasonal conditions; and
- some companies have uncertainty as to when tasks are to be undertaken.

Would like to see a system which allowed for averaging:

- across two or three days;
- across a month; and
- across a year.

Does not support:

- night driving parameters;
- definition of 24 hour rule;
- a work diary to replace log book;
- provision for third party sign off; and
- two up driving parameters.

Response: The carriage of livestock, as for many other sectors of the road transport industry, has its own unique characteristics. This issue has been addressed previously but the NTC reiterates that the requirements of any sector of the industry must not compromise road safety rather the sector must look at how their operations can be structured under the proposed regime.

No. 31

Author: Bus Industry Confederation

Comments: Considers that the bus and coach industry needs to be dealt with separately from the trucking industry in relation to the management of driving hours. Considers that the requirement to have two pairs of consecutive nights off would adversely impact on some route services and would require rotation between day and night shifts that would be more disruptive to a driver’s body clock. Also considers that the requirements for 24 hour rest periods do not provide for extended coach tours which typically see a driver driving between 200 & 400 kilometres a day followed by long rest periods.

Proposes an alternative comprising:

- 4 days off in 28 days;
- 72 hours worked between 00.00 – 06.00 over a period of 14 days;
- change the definition of night in the base case to 00.00 – 05.00; and
• base option to have a requirement for an 8 hour rest period.

Supports the inclusion of a fatigue management course for the Basic Fatigue Management option.

Response: These issues have been addressed previously.

No. 32

Author: NatRoads

Comments: Considers the case for change has not been established and dismisses the research as being academically based conclusions of a narrow focus based on laboratory generated tests on sleep deprivation and other suggested fatigue aspects of night time driving. Based on this premise, considers that the existing base regulation for driving hours be maintained as the minimum baseline on which any new regulations are developed or investigated. Considers that the proposed regime could have serious negative impacts on the community’s safety and has not been properly assessed.

Believe that lack of enforcement is at the hub of the issue and that more resources should be made available for targeted enforcement and compliance verification and to monitor recurring infringers.

Supports the three option approach but considers that TFMS could be improved in several areas with minor modifications:

• timing of the 24 hour breaks;
• training content and applications; and
• audit process – introducing external auditors.

Considers that the proposal underestimates the number of operators who would need to move into a higher option with their survey results showing 25% standard hours, 26% Basic Fatigue Management and 46% Advanced Fatigue Management.

Strongly opposed to introducing restrictions on nighttime driving until research is undertaken that is aligned with the current regulatory framework and the impacts and costs of transferring heavy vehicle operations from night to day are considered. Notes that 25% of NatRoad members permanently operate between 6.00pm and 6.00am.

In respect of specific parameters, is opposed to:

• increasing continuous rest break from 6 to 7 hours instead suggesting that the Advanced Fatigue Management parameter with the option for split sleep be adopted;
• two pairs of consecutive nights off as they consider that it would have significant economic impact on permanent night shift operators and members who alternate between night and day and operators who are based in regional centres. Alternatives such as 2x1x1 or the night hours sleep between 9.00pm and 8.00am should be considered;
• reducing maximum hours work from 14 hours to 12 under the Standard Hours option is strong opposed considering the parameter– a smoke screen for compulsory accreditation; and
• night driving parameter in the Basic Fatigue Management option believing it is confusing and complex for drivers, though the 36 hour limit is not opposed.
NatRoad supports:

- accreditation for the two flexible options but recommends that Trucksafe should be permitted to administer the accreditation process;
- review of log books and considers introducing provisions for consignors and receivers to sign for the cartage of freight will provide the necessary records/audit track is a positive step;
- amendment of the 24-hour rule; and
- strengthening of chain of responsibility provisions and the Compliance and Enforcement Bill but opposes any limits on a reasonable steps defence in any area where absolute liability applies to the trucking industry.

Finally, NatRoads considers that coverage of the regulations should be extended to all vehicles over 4.5 tonnes and that a total review should be undertaken of rest areas, with particular reference to the need to align with existing driving hour regulations or to the final provisions determined from the driving hours review.

Response: The NTC does not consider that TFMS can be rectified with a few minor adjustments. While it is possible to address the administrative problems the parameters allowed under TFMS are in excess of what would be endorsed by fatigue experts. The other issues have been addressed previously.

No. 33

Author: NSW Roads & Traffic Authority

Comments: Strongly supports the incorporating into regulation the increased knowledge of the causes of driver fatigue. Considers it important that where practical the effect of night driving on driver fatigue are built into any regulatory requirements. Also supports a tiered approach with clear delineation between the options.

Notes that NSW has stricter limitations on hours of driving for buses than other jurisdictions. Supports the incorporation of fatigue management principles and practices that recognise other factors such as time of day and lifestyle factors into regulation considers that in relation to buses care needs to be exercised in considering any proposal that sought to extend the maximum driving hours shift length.

Supports increasing the opportunity for sleep from 6 to 7 hours and greater flexibility around short breaks. Supports improvement in record keeping but considers a number of issues need to be addressed including:

- development of regulations for electronic record keeping devices;
- type & form of records for local operations need to be more tightly controlled; and
- exemptions from work diary requirements.

Considers that the complexity of the Basic Fatigue Management option needs to be reduced and given the administrative burden, high costs, high risk if compliance is not closely monitored and low take up rate inclusion of the Advanced Fatigue Management option should be reconsidered.

Response: The NTC considers that in order that a national regime can be implemented it is essential that the three option approach be approved. In the absence of an Advanced Fatigue
Management option pressure for exemptions would result from operators who have extreme operations. These however are the very operations that should be under an Advanced Fatigue Management option. The exemption approach could also lead to inconsistent determinations. The development of regulations for electronic record keeping is the subject of a separate NTC project. The type and form of records that will be required will be developed if Ministers approve the proposed policy framework. Other issues have been addressed previously.

No. 34

Author: Northern Territory Government

Comments: Considers that there are benefits for industry and the general community in participating in a national approach.

Considers that the three tier approach is complex and a two tier approach is preferable. Considers that the Advanced Fatigue Management option is the most relevant for remote long distance operations but there are a number of areas that require additional consideration including complexity, auditing, training and outer operating limits. In particular seeks a maximum of 168 hours work in 14 days and clearly defined parameters for the use of two up drivers.

Considers that the collegiate accreditation approach for Advanced Fatigue Management is an unwieldy process and instead there should be mutual recognition between jurisdictions. Seeks consultation regarding the determination of breach points for risk based categorisation of offences and the implications of breaches on the level of fatigue management required by operators. In particular how cancellation of accreditation under the Advanced Fatigue Management option and the usual legal sanction provisions needs to be explained.

Concerned codes of practice could be used by parties to escape responsibilities under the Chain of Responsibility provisions and impose an administrative burden on jurisdictions.

Supports the development of a work diary with provision for third party sign off.

Response: The NTC notes that the code of practice will be for guidance only. It can however be used by operators and drivers in demonstrating how they met their obligations under the general duty to manage fatigue. The other issues have been addressed previously.

No. 35

Author: Work Cover NSW

Comments: Supports the inclusion of the Fatigue Expert Group design principles into the proposed regulations. Also supports:

- concept of managing fatigue precursors rather than the prescription of minimum driving hours;
- preference given to the adoption of a fatigue management scheme;
- supports the change in standard hours from 14 to 12; and
- two nights of unrestricted sleep per week in standard hours and Basic Fatigue Management.

Does not support 72 hours per week as an acceptable standard.
Response: The NTC acknowledges that 72 hours of work per week is long by contemporary Australian standards. The available evidence does not demonstrate that such hours constitute a road safety risk if controls are in place to manage the cumulative risk from key fatigue precursors.

No. 36

Author: South Australian Farmers Federation

Comments: Strongly supports the Australian Livestock Transporters submission. Opposes the reduction in the standard working day from 14 to 12 hours under the Standard Hours option as it would increase pressure on drivers and may lead to hurried unsafe practices.

Considers that the definition of night time does not take into account the effects of varying factors such as daylight saving, time zones, changing day lengths and more importantly the restrictions on night time would reduce the optimum time for transporting livestock.

Considers that it is particularly important that those transporting livestock have flexibility to respond to animal welfare needs without being excessively constrained by rigid requirements which take little requirement of circumstances.

Response: These issues have been addressed previously.

No. 37

Author: VicRoads

Comments: Supports the Standard Hours option and the Basic Fatigue Management option but notes that it is of some concern that the penalty approach increases the complexity of activity recording and enforcement tasks. Also has concerns about the increased road safety risk in hours 14 & 15 of a 15 hour “shift”. Considers the night driving penalty concept should only apply to long haul operations as it may tend to work against an increase in freight operations at night.

Does not support the Advanced Fatigue Management scheme and considers that it would require further consideration before being adopted due to uncertainty in the effectiveness of the fatigue counter measures.

Suggests that consideration be given, under the compliance and enforcement components to the role drug testing could play in reducing driver fatigue related accidents.

Response: The issue of drug testing is outside the scope of the Fatigue Review. Other issues have been addressed previously.

No. 38

Author: Department of Infrastructure, Energy & Resources Tasmania

Comments: Supports the draft proposal.

Response: The NTC thanks the Department for its support.
9. REVIEW/IMPLEMENTATION

9.1 Implementation Issues

The Fatigue Review is a key component of the 3rd Heavy Vehicle Reform Package. The full review encompasses:

- review of the operation of the Transitional Fatigue Management Scheme (TFMS);
- technical review of the Road Transport Reform (Driving Hours) Regulations;
- evaluation of the Queensland fatigue management trial;
- surveys of drivers and operators on operational and fatigue management practices and experiences of fatigue;
- report on comparison of fatigue management practices of operators under prescriptive regulation and operators not subject to prescriptive regulation;
- report of a technical expert group on options for regulatory approaches to managing driver fatigue (Fatigue Expert Group);
- review of driver fatigue detection and prediction devices (Review of the Research on Impacts of Day and Night Driving);68
- the preparation of guidelines for drivers and operators on napping strategies as a fatigue management technique;
- development of national guidelines for rest areas for drivers of heavy vehicles; and
- investigation of the application of driver specific monitoring devices (electronic logbooks).

Items 1 to 7 have been completed and the results used in the development of the proposed regulatory proposal. Draft guidelines on napping strategies as a fatigue management technique (Item 7) and national guidelines for rest areas will be included in the driving hours policy proposal when it is submitted to Ministers. Subject to agreement to the policy proposal the required model legislation will be developed by NTC and submitted to Ministers for their consideration. The results of the investigation of the application of driver specific monitoring devices will be the subject of a separate submission to Ministers in mid 2003. The policy proposal will also seek a decision from Ministers on the continuation of the Transitional Fatigue Management Scheme.

The project is scheduled for completion in 2003. Subject to agreement by Ministers the model legislation will become the basis for development of legislation in those States and Territories that choose to adopt the proposal. A number of administrative issues will need to be addressed if the policy proposal is adopted by Ministers, such as the design, printing and distribution of work diaries, communication with industry and development of training courses for both industry and enforcement officers. The implementation phase will take a number of months following the Ministers decision and will be overseen by the NTC.

Significant milestones for the project are:

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<th>Milestone</th>
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<tr>
<td>Policy to be presented to ATC for in-principle approval</td>
<td>November 2003</td>
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<tr>
<td>Draft legislation circulated for comment</td>
<td>December 2004</td>
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<tr>
<td>Full ‘package’ for submission to ATC</td>
<td>June 2005</td>
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A broad communication strategy is being delivered to create awareness and support for the project. Workshops, briefings and other consultations with transport agencies, industry and OHS agencies are augmenting this strategy. Workshops were held in all States and Territories (except WA and ACT) following the release of the NTC Discussion Paper. It is planned to hold similar workshops in a wider number of centres, including WA, to ensure the widest possible input into the project.

9.2 Future Review and Updating of the Driving Hours Regulations

An evaluation of the impact of this proposal on road safety and the management of fatigue by the road transport industry should follow the introduction of the new regulations. The NTC considers that further driver and operator surveys coupled with refinement of data bases will provide the information on for such an assessment. A key issue for investigation will be the take up rate of the three options and analysis of road safety and productivity benefits (and costs) associated with the progression to the fatigue management options.

It is also probable that as the knowledge of fatigue is refined and in light of the experience gained from the implementation of the proposed policy through the evaluation process that a further review will be required in the medium term. This need will be monitored by the NTC through its consultation mechanisms.
10. NATIONAL COMPETITION POLICY ASSESSMENT

Each RIS must be accompanied by a statement about the effect of a proposed regulatory change on competition. A regulatory change which restricts competition will be acceptable only if:

- the benefits of the restriction on competition cannot be obtained in any other way; and
- the benefits of the restriction on competition exceed the costs.

The regulatory proposal could potentially restrict competition by:

- imposing methods of work on operators;
- directly restricting the number of operators in the industry;
- advantaging large relative to small operators;
- erecting barriers to entry to the industry; and
- limiting the range of individuals or organisations able to supply services related to implementation or operation of the regulatory proposal.

10.1 Imposing methods of work on operators

The regulatory proposal allows operators three options for complying with rest and work requirements and is expected to adopt a guidance-based approach to the formulation of a code, according operators scope to find the best means to meet their general duty to manage fatigue. The Basic Fatigue Management and Advanced Fatigue Management options impose some process requirements on operators, such as system development, auditing and training, but operators will generally have scope to find methods of satisfying those requirements that suit their particular circumstances. In the Advanced Fatigue Management option, which is the most sophisticated and comprehensive of the options, operators would develop their own fatigue management systems for approval by their accrediting agency. Audit requirements for the Basic Fatigue Management and Advanced Fatigue Management options will be predetermined, but similar audit requirements within NHVAS have previously been approved by Ministers. Other parties will have duties under the regulatory proposal, but the manner in which they address those duties will not be prescribed. Therefore the regulatory proposal is not expected to be anti-competitive in this respect.

10.2 Directly restricting the number of operators in the industry

In no respect would the regulatory proposal limit the number of participants in the industry. All operators will retain the option to comply with a system of prescribed work and rest hours as is the case under the current regulations. Operators will be free to adopt the higher level options as they choose. There is nothing in the regulatory proposal that would restrict numbers of other parties such as consignors and consignees in road transport-related industry sectors. The regulatory proposal is not expected to be anti-competitive in this respect.

10.3 Advantaging large relative to small participants

The adoption of a three-tiered set of options for operators with a graduated Basic Fatigue Management step between the standard hours and Advanced Fatigue Management options is motivated by two broad considerations:
• those operators whose drivers typically work regular or predictable schedules and less than the prescribed maximum hours will not need to access the Basic Fatigue Management or Advanced Fatigue Management options although some may elect to do so as a precaution or so as to have a structure within which to meet their fatigue general duty.; and

• small operators, irrespective of the type of work they do are likely to have greater resource constraints or perhaps some greater reluctance to adopt the Advanced Fatigue Management option.

The Basic Fatigue Management and Advanced Fatigue Management options respond to the needs of those segments of the industry which are characterised by long and unpredictable or variable hours. All operators in those situations will be able to access either the Basic Fatigue Management or the Advanced Fatigue Management option (or indeed the Standard Hours option) taking account of their individual circumstances. With respect to small operators, the costs of the Basic Fatigue Management and Advanced Fatigue Management options are not expected to be onerous. The impact analysis in section 6 certainly suggests, partly based on the TFMS experience, that larger operators will be more likely to take up Basic Fatigue Management and Advanced Fatigue Management. However, there is no element in either option that would inhibit small operators in taking up these options either in their own right or as part of a principal contractor’s accreditation, and the evidence is that cost should not be a barrier to small operators in their take up of these options.

While small operators may face resource and managerial constraints in responding to the changes in the regulatory proposal larger, more complex operators will face the cultural and organisational challenges of introducing change in larger operations. Some of these challenges were identified by pilot fatigue management program operators. Other parties in the transport chain will face clearly stated duties that are similar to those contained in the NTC’s Road Transport (Compliance and Enforcement) Bill which has been subject to a separate RIS. Those duties could well be relatively more complex for large rather than small operators. The regulatory proposal is not expected to be anti-competitive in this respect.

10.4 Erecting barriers to entry to the industry

The regulatory proposal contains no element that would constrain entry to the road transport and related industries. Road transport operators will be presented with a range of options for complying with the regulations of which the Standard Hours option is similar in structure to the current regulations. Operators will incur additional costs in complying with their general duty to manage fatigue but the costs are not expected to be onerous, and in addition, the management tasks are similar to those that would be relevant to road transport employers under OHS legislation in respect of other types of work hazard. Related parties such as consignors and consignees have duties not to cause other parties to infringe the regulations. Those duties are reasonable and should not deter entry to road transport-related industries. They are similar duties to those contained in the NTC’s Compliance and Enforcement Bill which has been subject to a separate RIS.

10.5 Limiting the range of individuals able to supply services related to implementation or operation of the regulatory proposal

In the Basic Fatigue Management and Advanced Fatigue Management options within the NHVAS fatigue management module, auditors will need to be approved by the Quality Society of Australia as is the case with other the modules of NHVAS (maintenance management and mass management). It is fundamental to effective scheme operation and for
confidence in the integrity of NHVAS on the part of the public, agencies and the police that
auditors be capable and independent. For consistency with other modules of NHVAS, those
same requirements should apply to the Basic Fatigue Management and Advanced Fatigue
Management options in the regulatory proposal. Ministers have previously accepted this
requirement in their approval of NHVAS arrangements and accordingly NTC believes the
requirement to be appropriate in this instance also.

10.6 Conclusion

There is no element of the regulatory proposal that is anti-competitive with the exception of
approval of NHVAS auditors, and that requirement has previously been accepted by
Ministers. The key element of the proposal – the three regulatory options for operators – have
been designed in part to ensure no disturbance of the competitive balance in the road transport
industry. Other parts of the proposal, such as the imposition of duties to manage fatigue on
the part of operators and chain of responsibility duties on other parties are not expected to be
anti-competitive.
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APPENDIX A: Characteristics of fatigue

Description

The challenges of identifying and managing fatigue are compounded by the lack of a commonly agreed definition of the phenomenon.

After reviewing a variety of definitions, the Neville Committee in its *Beyond the Midnight Oil* report concluded that ‘...fatigue is the result of inadequate rest over a period of time...and leads to physical and mental impairment’. The Committee emphasised the need to distinguish between tiredness and fatigue and in this, it adopted the definition provided by the Committee on Flight Time Limitations in the United Kingdom:

‘Tiredness results from physical and mental effort that is a normal experience. Whilst tiredness may develop into fatigue it differs from it in that a tired person can be quickly aroused to a high level of performance. We have come to consider fatigue as a markedly reduced ability to carry out a task. It is a condition of reduced performance from which there is no certainty that a person can be aroused in an emergency even when considerable stimulus is present.’

Possible causal factors

The Fatigue Expert Group defined fatigue in terms of symptoms and contributory factors:

- The symptoms or effects associated with fatigue include impaired performance (loss of attentiveness, slower reaction times, impaired judgement, poorer performance on skilled control tasks and increased probability of falling asleep) and subjective feelings of drowsiness or tiredness;
- Contributory factors include long periods awake, inadequate amount or quality of sleep over an extended period, sustained mental or physical effort, disruption of circadian rhythms, inadequate rest breaks and environmental stresses (heat, noise and vibration).

It is evident from this definition that fatigue is not simply the result of extended hours working or ‘time on task’. A more sophisticated understanding of fatigue underpins concerns about the effectiveness of the current regulations and the design of options to control fatigue. The recent Canadian review of heavy vehicle driving hours provides a useful taxonomy of causal factors.

Circadian rhythm, sleep and performance

Circadian or ‘time of day’ effects contribute more to fatigue than time on task per se. Circadian rhythm and sleep effects are synergistic in that driving during circadian low points (particularly midnight to 6 am) and sleeping at times of the day when the body is unprepared

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69 HRSCCTA (2000) p 2
70 HRSCCTA (2000) p3
71 Fatigue Expert Group (2001), p 21
72 Transport Canada (1998) p 2 et seq
73 References are to Transport Canada except where stated otherwise.
for sleep together exacerbate fatigue. Related to this ‘…night driving cannot be treated as equivalent to day driving from either performance or sleep perspective.’

Cumulative fatigue and crash risk

Crash risk increases with time on task, with one study showing crash risk to double after eight hours of work, and in addition, one study shows that crash risk is elevated by the number of contiguous days of work. Transport Canada summed up the range of evidence saying that: ‘Studies show that hours worked and time of day interact, so that time of day effects are more pronounced the longer the hours worked and the greater the number of cumulative days on task’.

The Fatigue Expert Group adopted the position that the maximum time on task during a 24 hour period could be defined by reference to the length of time required for adequate rest, and on this basis the upper bound of time of time on task would lie between 12 and 14 hours. Longer work stints on a one-off basis might not generate greater than normal fatigue risk provided they did not extend into night shifts, and were compensated by a subsequent longer rest period.

Night versus day driving

Crash risk and evidence of fatigue induced drowsiness are in several studies eight times higher at night (variously defined as 10 pm to 6 am or 8 am) and several Australian and European studies estimate the crash risk of night driving to be between 22.8 and 50 times higher than that of day driving. In addition, risk increases when cumulative shifts are worked at night. (Other research indicates that for truck drivers, the night to day risk ratio might be only 3 to 1.) The Transport Canada report concluded its discussion of this issue noting that: ‘The large increase in accident risk seen at night, and the current equal treatment of night and day driving in the [Canadian] regulations, suggest that changes to deal with night driving are necessary. This is reinforced by the emerging understanding that almost no one in our society is a ‘night person’, although individual differences in tolerance to night driving appear substantial.’

A recent Australian review of international research, while not denying the higher fatigue-related crash risk at night presented qualifying evidence, indicating that the elevation of risk at night is not as great for truck as for car drivers, and that in general fatigue risk is higher among car than truck drivers. The authors posit fatigue conditioning among truck drivers or self selection as possible influencing factors. That same review, citing two recent US

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74 References are to Transport Canada except where stated otherwise.
75 Fatigue Expert Group (2001) pp 36-37
76 References are to Transport Canada except where stated otherwise.
77 Citing Wylie et al (1996)
80 The Australian regulations similarly do not differentiate between day and night driving. See sections 2.2.2 of this RIS.
81 The Transport Canada report went on to acknowledge the possible safety implications of shifting heavy vehicle traffic movements to the daytime hours when background traffic volumes are higher. This issue is addressed in section 3.2.2 of this RIS.
82 See Buxton et al (2001) pp 4 and 14
studies, referred also to the paradox that while truck drivers’ fatigue risk may be elevated at night, the risk to other road users is reduced because of lower background traffic volumes\(^83\).

**Other fatigue factors**

A range of other factors also affect fatigue and driving performance including rest breaks, sleep breaks, duty periods, motivation and mental state\(^84\).

**Fatigue recovery periods**

The Transport Canada review devoted considerable attention to this issue noting that:

‘There is an emerging scientific consensus that ...two full nights of sleep may be required to allow near full recovery following protracted periods of sleep loss or sleep restriction... and that a daily irreducible period of sleep is necessary to maintain performance on an on-going basis.’ An additional night’s sleep may be needed to recover from extended periods (up to seven nights) of night work.’ And

‘More shift workers...reported needing at least two days (with normal sleep episodes) to recover after a period of night work involving three shifts in a row, and the need for recovery increased by one day when the period of night work increased to seven nights in a row.’\(^85\)

The NTC’s Fatigue Review Discussion Paper\(^86\) summarised the ‘core elements’ of the fatigue research as follows:

- fatigue is psychophysiological: it affects the physical capacity to perform work and the cognitive and other mental processes in performing work;
- work produces fatigue, but the amount or duration of that work is less important than the time of day in which it takes place;
- fatigue is influenced by the length of time awake as well as the length of time at work;
- the human body is governed by inbuilt biological rhythms attuned closely if not precisely to the cycles of day and night. People work best during the day when (all things being equal) their bodies are awake and alert; the best sleep is obtained at night when there is a strong propensity to sleep;
- there are two ‘low’ points in circadian rhythms: from about midnight to 6 am; and a lesser one in the early to mid afternoon around 2 pm to 4 pm (different beginning and end points are put on these periods but there is unanimity about the general proposition);
- sleep at times of day other than when there is greatest propensity to sleep is less ‘efficient’: it is often shortened because of disturbances and interruptions and is less restorative;

\(^83\) See Buxton et al (2001) p 13  
\(^84\) Transport Canada (1998)  
\(^85\) Transport Canada (1998) p 6  
\(^86\) NTC (2001b) p 50
• sleep ‘debt’ arising from loss of effective sleep accumulates and must eventually be ‘repaid’. It must be eventually repaid involuntarily if the person does not stop to rest;

• work performed during circadian rhythm low points may be more prone to error;

• fatigue can only be relieved by sleep. The effects of fatigue may be mitigated temporarily by stimulants such as caffeine;

• when the need for sleep becomes acute a person may fall asleep with little warning. This can take the form of ‘micro sleeps’ of a few seconds duration, or for longer periods of time. It is also possible to drive in an ‘unaroused’ state during which actions are performed automatically with little awareness of surroundings; and

• fatigue induced impairment can be measured. Two Australian studies\(^{87}\) have benchmarked it against impairment arising from alcohol use. Levels of impairment equivalent to the Australian legal blood alcohol limit (0.05/100 ml of blood) were found after 17-19 hours without sleep, and equivalent to the impairment from a blood alcohol limit of 0.1% after 24 to 27 hours.

**Fatigue and industry characteristics**

The NTC’s Fatigue Discussion Paper\(^{88}\) identified several characteristics of the road transport industry that put it at high risk of fatigue, including:

• long distances between centres of population give rise to long hours of driving (relevant to perhaps a third of the industry);

• road transport is highly competitive because there entry costs are low\(^{89}\) and there are no regulatory restrictions on entry to the market. Strong competition, allied with payment systems such as trip money, hourly rates and bonuses, and the pressures on operators to service capital debt contribute to a climate of completing as many trips as possible in as short a time as possible;

• ‘just in time’ production processes are associated with tight schedules with pressures on drivers and operators being exacerbated by the critical importance of transport to the production chain;

• consumers of transport services impose requirements that loads be delivered early in the morning at the end of long delivery runs encouraging practices that are known contributors to fatigue, including continual night driving; and

• night driving is encouraged by consumer requirements. However driver preferences and comfort, less congestion, and lower running costs (perhaps due to less braking and gear changing at night when traffic volumes are lower, and to lower engine temperatures) are other reasons why night driving is such a prominent feature of long distance road transport.

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\(^{88}\) NTC (2001b)

\(^{89}\) While operators incur capital costs to enter the market, the existence of a liquid market for those assets, particularly trucks, should an operator decide to exit the industry means that entry costs are low.
Night versus day driving

Buxton et al (2001) in their review of the relative impacts of night and day driving reported research into heavy vehicle driver behaviour, mainly from overseas, which indicated lower performance in driving at night, as well as studies in which drivers report a stronger tendency for sleepiness and poor performance in the early morning. They also reported empirical research of traffic accident data that demonstrates accident risk to be higher in the early morning although in a number of studies the excess risk relative to day driving is several times higher for car drivers than for truck drivers. In their conclusions the authors note that:

‘...the greatest [fatigue crash risk] occurs during the early morning hours and is strongly related to the effects of circadian rhythms, which are also at a low point during this period. The literature reviewed here...shows that truck drivers are vulnerable to this increased risk from night driving although the risk level appears to be considerably lower than for light vehicle drivers. Statistical studies have also shown a clearly increased crash risk due to fatigue while driving at night. Physiological studies, although more limited, have supported both of these findings, showing that drivers show more physiological signs of fatigue during the night and their driving performance is degraded during the night.’

In their report Buxton et al note the complexity of factors that influence fatigue at night including time of day, duration of wakefulness, inadequate sleep, sleep disorders and prolonged work hours. They make the point however that the difference in fatigue propensity at night of 3 to 1 between car and truck drivers in fatigue-related crashes suggests that ‘long distance heavy vehicle drivers [may] have a higher tolerance for fatigue due to conditioning or self selection for example.’

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### APPENDIX B: Good practice taxonomy for fatigue management based on currently observed poor practice (from Transport Canada 1998)

<table>
<thead>
<tr>
<th>Poor practice</th>
<th>Physiological/psychological concern</th>
<th>Consequences</th>
<th>Recommended good practice (from Transport Canada Expert Panel)</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving overnight (midnight - 0600)</td>
<td>Working at a time of day when the body is prepared for sleep</td>
<td>Drowsiness during driving</td>
<td>Limit driving during vulnerable midnight-0600 period</td>
<td>Bureau of Motor Carrier Safety (1974); Mackie and Miller (1978); Javanese and Kaneko (1991); NTSB (1995); Spaceman, Short reed and Yu (1995); Wylie et al (1996)</td>
</tr>
<tr>
<td>Long shifts into the night</td>
<td>Long hours that are fatiguing combined with a circadian low point</td>
<td>Interaction between long hours and low point in the day leads to poorer performance, especially in the midnight-0600 period</td>
<td>Do extend day/evening shifts into the night (without a rest period) Provide 2 hour sleep opportunity during the night driving period (midnight to 0600), depending on prior breaks and rest periods</td>
<td>Mackie and Miller (1978); Angus et al (1987); Dings (1989); Wylie et al (1996)</td>
</tr>
<tr>
<td>Driving many night shifts in a sequence</td>
<td>Sleep debt accumulates with each successive night</td>
<td>Interaction between accumulated sleep debt and low point in the day leads to poorer performance and increased crash risk</td>
<td>Limit the number of consecutive night shifts to 3 or 4 in a row.</td>
<td>Vivace et al (1986); Javanese and Kaneko (1991)</td>
</tr>
<tr>
<td>Driving than maximum hours of service limits</td>
<td>Driving abilities decline after 8 hours on regular schedules; sooner on irregular schedules</td>
<td>Degraded performance</td>
<td>If driving exceeds 8 hours, manage fatigue by starting in well rested state and avoid finishing the run in the midnight to 0600 time period If not possible to avoid midnight to 0600, then take a 2 hour nap during this period</td>
<td>Mackie and Miller (1987); Harris and Mackie (1978); Jones and Stein (1987); Williamson et al (1994)</td>
</tr>
<tr>
<td>Early shift starts</td>
<td>Starting the shift before 0600 usually results on a shortened sleep period, and includes a portion of the time when the circadian rhythms are at their lowest</td>
<td>Degraded performance (sleep loss) and increased sleep debt</td>
<td>Start day shifts after 0600</td>
<td>Foulard (1996)</td>
</tr>
</tbody>
</table>

References:

- Bureau of Motor Carrier Safety (1974)
- Mackie and Miller (1978)
- Javanese and Kaneko (1991)
- NTSB (1995)
- Spaceman, Short reed and Yu (1995)
- Mackie and Miller (1978)
- Angus et al (1987)
- Dings (1989)
- Vivace et al (1986)
- Javanese and Kaneko (1991)
- Mackie and Miller (1987)
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- Jones and Stein (1987)
- Williamson et al (1994)
- Foulard (1996)
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<tr>
<th>Poor practice</th>
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<th>Consequences</th>
<th>Recommended good practice (from Transport Canada Expert Panel)</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiating main sleep between 1100 and 1700</td>
<td>The most sleep is obtained between 1900 and 0900</td>
<td>Poor quality sleep and significant sleep loss</td>
<td>Begin afternoon sleep before 1400 if afternoon sleep is all that can be obtained – better to not plan late afternoon/early evening sleeping periods</td>
<td>Koki (1985)</td>
</tr>
<tr>
<td>Starting a day sleep period to late in the morning</td>
<td>The body begins its ascent in its circadian rhythm at about 0600, when daylight levels are increasing – both of these factors influence the body to be more awake.</td>
<td>Body becomes more resistant to sleep Sleep loss and degraded quality of sleep.</td>
<td>If working overnight, get to bed before 0900 and avoid bright light (ear dark glasses or newly developed sunglasses designed to filter out alerting components of the light spectrum; keep home dark during the sleep period</td>
<td>Koki (1985)</td>
</tr>
<tr>
<td>Sleeping less than the required daily maximum</td>
<td>An accumulated sleep debt will occur if adequate levels of sleep are not obtained, resulting in significant declines in mental and physical performance – the average requirement for sleep is 7.5 hours.</td>
<td>Sleep loss and a building sleep debt if continued throughout the shift cycle Increased drowsiness Poor cognitive performance</td>
<td>Determine usual amount of sleep required (daily sleep obtained towards the end of a vacation period can be a useful guide</td>
<td>Dement (1992)</td>
</tr>
<tr>
<td>Splitting the main sleep period into two or more sleep periods</td>
<td>The normal sleep pattern is that three to four normal cycles of non-REM and REM sleep occur</td>
<td>Splitting the sleep will usually result in reduced REM sleep, and disruption of the normal sleep cycles. Split sleep leads to increased crash risk</td>
<td>Try to obtain all main sleep during a single sleep period</td>
<td>Mackie and Miller (1978); Hertz (1988); NTSB (1995).</td>
</tr>
<tr>
<td>Driving without a rest break</td>
<td>Maximum length of time that an individual can sustain monitoring behaviour effectively is 2 hours or less. When driving long hours monitoring ability degrades over time, rapidly falling off near the eighth hour</td>
<td>Degraded vigilance and monitoring abilities- alertness declines rapidly after prolonged hours of driving (8 hours or more)</td>
<td>Take scheduled rest/food breaks (30 minutes very five hours)</td>
<td>Hazelgrove and Angus (1985); Paras Raman (1986)</td>
</tr>
<tr>
<td>Limiting off duty time to less than 8 hours</td>
<td>The required amount of recovery sleep may not be possible due to too little available opportunity for sleep</td>
<td>Sleep loss may result</td>
<td>Provide 10 hours between shifts for recovery time, commuting, eating hygiene, chores etc</td>
<td>Dings (1989); Wylie et al (996)</td>
</tr>
<tr>
<td>Poor practice</td>
<td>Physiological/psychological concern</td>
<td>Consequences</td>
<td>Recommended good practice (from Transport Canada Expert Panel)</td>
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<td>--------------------------------</td>
</tr>
<tr>
<td>Driving while very sleepy</td>
<td>Humans are poor judges of their level of sleepiness, usually underestimating it</td>
<td>Micro sleeps and falling asleep (while driving) without realising it, when fatigued</td>
<td>Take a nap – scheduled or opportunistic</td>
<td>Dings (1989); Wylie et al (1996)</td>
</tr>
<tr>
<td>Working a day shift 8 hours after completing a series of night shifts</td>
<td>Consecutive night shifts, shifts that extend into the night will disrupt the circadian rhythm enough to cause dysrhythmia</td>
<td>Sleep loss and poor cognitive performance on the day shift as a result of dysrhythmia</td>
<td>Provide at least two nights and a day for rest/recovery time after all work cycles</td>
<td>Smiley and Hazelgrove (1997)</td>
</tr>
<tr>
<td>Coming to work in a fatigued state</td>
<td>Fatigue that is already present at the start of the shift will increase fatigue experienced during the shift</td>
<td>Any performance deficits due to hours worked or time of day will be exacerbated</td>
<td>Obtain adequate sleep (7-8 hours) before starting work</td>
<td>Williamson et al (1994)</td>
</tr>
</tbody>
</table>

Source: Transport Canada (1998)
APPENDIX C: Other Fatigue Reviews

NSW Quinlan review of safety in the long haul trucking industry

The Quinlan report\(^92\) identified similar considerations as being of concern to safety more generally in long distance trucking. The report was prepared in response to a brief requiring investigation *inter alia* of ‘client/consignor requirements as to delivery times’ and the ‘extent of enforcement in the industry of driving hours, speeding and drug use’ in long haul trucking. The report found that the industry’s highly competitive structure, methods of payment, imbalances of commercial power between road transport operators and their customers, poor regulation and low levels of enforcement were all inter-related causes of its safety problem, including its fatigue problem. The report summarised the influence of these factors, noting that ‘...commercial/industrial practices affecting road transport play a direct and significant role in fomenting hazardous practices. Until such time as these issues are addressed, there is unlikely to be any significant improvement in safety performance across the industry.’\(^93\)

The principal recommendation of the Inquiry was the establishment of a code of practice for the long haul road transport industry. Elements of the code pertinent to fatigue regulation were as follows\(^94\):

- implementation of a compulsory licensing scheme covering operators (including owner drivers) freight forwarders, consignors and brokers/agents;
- abolition of the existing logbook system and its replacement by a Safe Driving Plan or Safe Driving Method Statement to be carried by all trucks undertaking one way trips of more than 100 km in or through NSW\(^95\) (see Appendix F of this RIS). Failure to comply with this requirement would be a breach of regulation as well as a prima facie breach of the general duty provisions of the NSW Occupational Health and Safety Act;
- implementation of legally enforceable ‘safety rates’ of payment for owner/drivers;
- prohibition of bonus/penalty payments in relation to delivery time or scheduling;
- clarification of the NSW Occupational Health and Safety Act in respect of the truck as a place of work;
- formulation of an action plan for upgrading of parking bays and rest areas; and,
- implementation of measures to enhance truck driver competencies.

New Zealand

The main features of the New Zealand *Driving Hours and Logbooks Review: LTSA Preferred Policy Proposal*\(^96\) are the elimination of the distinction between work and driving, a reduction in allowed work of one hour per day and four hours per week, additional flexibility in intra-day rest period requirements, an increase in the inter-day continuous rest period of one hour and the provision for ‘counting forward’ of work and driving hours. In addition, drivers

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\(^{93}\) Quinlan (2001) p 22

\(^{94}\) See Quinlan (2001) pp 31-32

\(^{95}\) See Appendix B

\(^{96}\) LTSA (2000)
operating within 50 km of the vehicle’s depot would generally not be required to maintain a logbook.

The LTSA policy proposal recommended that:

- drivers to have a half hour rest after every six hours of work (compared with a half hour of rest after 5 ½ hours of driving as at present);
- drivers not to exceed 13 hours work in any 24 hour period measured forward from the end of a minimum continuous ten hour rest period (compared with limits at present of 11 hours driving or 14 hours work in any 24 hour period);
- drivers to have a minimum continuous off duty period of at least 10 hours in a 24 hour period (compared with 9 hours in any 24 hour period as at present);
- drivers to have a minimum continuous off duty period of 24 hours after having totalled 66 hours of work, the accumulated total to be counted from the last minimum 24 hour off duty period), compared with limits at present of 66 hours driving or 70 hours work before a 24 hour continuous rest period must be taken, with the accumulated total being counted from the last minimum 24 hour off duty period);
- logbooks to be kept by drivers of vehicles over 4.5 tonnes other than within 50 km of depot (compared with a general requirement for logbooks to be kept at present);
- an increase in the threshold vehicle mass over which the regulations will apply, from 3.5 tonnes at present to 4.5 tonnes; and,
- a wider range of penalties for logbook and record keeping offences including a lightening of penalties for minor offences and strengthening of penalties for serious offences.

**UK/Europe**

The EU *Working Time Regulations*\(^97\) came into force on 1 October 1997 and provide for:

- a limit of an average of 48 hours a week which a worker can be required to work (though workers can choose to work more if they want to);
- a limit of an average of eight hours work in 24 which night workers can be required to work;
- a right for night workers to receive free health assessments;
- a right to 11 hours rest a day;
- a right to a day off each week;
- a right to an in-work rest break if the working day is longer than six hours; and
- a right to four weeks paid leave per year.

The EU on 17 December 2001 agreed the *Working Time Directive for Mobile Workers*\(^98\) which is an extension of the basic rights to mobile workers including drivers. Currently UK

\(^{97}\) See [www.dti.gov.uk/er/work_time_regs/index.htm](http://www.dti.gov.uk/er/work_time_regs/index.htm)

\(^{98}\) See [www.waleseic.org.uk/euronews/0302c_main.htm](http://www.waleseic.org.uk/euronews/0302c_main.htm)
road drivers are exempt but it is understood that the British Government is in consultations on the adoption of the directive. The Mobile Workers Directive is to apply from early 2005. It provides for:

- average working week of 48 hours;
- 60 hours work per week cannot be exceeded on any occasion;
- the total number of hours is the total for all employers for whom a worker works;
- there is no individual opt out available for drivers;
- the weekly average is calculated over four months (six months in some circumstances);
- night work is to be restricted to 10 hours in any 24 hour period; and
- in the UK, nighttime is any period to be agreed by the UK Government of at least four hours between midnight and 7 am.

**Canada**

Transport Canada reviewed its driver work and rest regulations in 1998 but the 1994 regulations remain on the Transport Canada web-site suggesting that the Review’s recommendations have not as yet progressed.

The Transport Canada review made the following recommendations:

**For daily work/rest cycles**

**Core options**

- establish a 24 hour period as the basic daily cycle;
- decrease the maximum total on-duty time allowed in any consecutive 24 hour periods from 16 to 14 hours;
- increase the minimum total off-duty time required in any consecutive 24 hours from 8 to 10 hours;
- require a minimum continuous off-duty period of 8 hours within any 24 consecutive hours;
- require a two hour off-duty period between midnight and 6 am;
- eliminate the split-rest provision in the hours of service (HOS) regulations, which accepts two short sleep periods as equally refreshing as one long period; and
- do not distinguish between driving and non-driving work periods.

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99 See www.waleseic.org.uk/euronews/0302c_main.htm


101 Transport Canada (1998)
Options to enhance the core recommendations

- increase by one hour (from 8 to 9 hours) the minimum duration of the continuous off-duty period within any 24 consecutive hours;

- decrease by one hour (from 14 hours to 13 hours) the maximum total on-duty time allowed within any consecutive 24 hours that includes more than one hour on duty between midnight and 6 am; and

- require 30 minutes of rest from driving for every five hours on duty.

Options relevant to special circumstances

- for two-up (team) drivers in sleeper cab operations:
  - allow two periods of four continuous hours off duty to substitute for the minimum continuous off-duty period of eight hours required within any 24 hours; and
  - require a minimum continuous off-duty period of four hours after no more than eight continuous hours on duty.

- for drivers who run out of available working hours close to their destination:
  - allow a 2 hour off-duty period as a sufficient condition for a subsequent 2 hour on-duty period.

Options for work/rest cycles over cumulative days

Core options

- promote work rest cycle regularity;

- maintain the existing on duty maximums at 60 hours in seven days, 70 hours in 8 days and 120 hours in 14 days;

- treat off-duty recovery periods in terms of number of night sleeps (including the period between midnight and 6 am);

- require a 2-night off-duty period (including the intervening day) within any consecutive seven day period having over 42 hours on duty; and

- require a two night off-duty period (including the intervening day) after four consecutive nights on duty.

Options to enhance the core recommendations

- modify the current 120 hour/14 day cycle to include the two night off-duty period (proposed under core options) and eliminate the 60 hour/seven day and 70 hour/8 day cycles.

Options relevant to special circumstances

- for drivers who run out of available working hours close to their destination:
  - allow an eight hour off-duty period as a sufficient condition for a subsequent eight hour on-duty period.
United States

The Federal Motor Carrier Safety Carrier Administration\(^{102}\) (FMCSA) is proposing to amend relevant regulations to provide for:

- an increase in the 18 hour on duty/off duty work cycle to a normal 24 hour work cycle;
- no more than 12 hours on duty time in any 24 hour period (currently a maximum of 15 hours for some drivers);
- eliminate split rest periods for two-up or ‘team’ drivers (currently eight hours in two periods, the shorter period being a minimum of two hours);
- increased time off to allow sufficient time for seven to 8 hours sleep (currently a minimum of eight hours off duty);
- provision for mandatory ‘weekend’ recovery periods of at least two nights of recovery sleep to resume baseline levels of sleep structure and waking performance and alertness;
- addressing the effects of operations between midnight and 6 am by requiring off-duty periods that enable restorative sleep by including two consecutive periods spanning midnight to 6 am;
- allow ‘weekends’ of sufficient length to ensure safety and provide adequate protection for driver health and safety (that is provision for specific off duty time of 56 hours or 32 hours in every seven days);
- increase operational flexibility by offering a menu of hours of service options customised to meet different major or distinct operational segments while still maintaining an appropriate level of safety;
- mandate electronic on-board recording for long haul, regional and two-up driving; and
- improved record keeping for local drivers.

Review of information on the FMCSA website (as at 30 August 2002) suggests that the policy proposal may be still under review.

Comparison of Australian and international practice

Hours of service are regulated in most developed countries including the US, Canada, New Zealand and the European Union. Relative to practice elsewhere, the Australian Regulations entail:

- higher weekly and fortnightly limits than Europe and North America;
- higher daily limits than Europe (but lower than North America);
- short break requirements which are not imposed in Europe or North America; and,
- shorter minimum daily continuous rest breaks than North America.

\(^{102}\) See www.fmcsa.dot.gov/hos/background.htm
The US and Canadian regulations set shift limits of 10 and 13 hours respectively, with shifts separated by at least 8 hours. Both permit rotating driving cycles (where the driving hours regulations in Australia require a 24 hour cycle). Both systems could theoretically permit 15 hours driving in a 24 hour period, which would not be permitted in Australia under the base prescribed or TFMS regimes.
APPENDIX D: Prevalence and cost of fatigue

Truck driver fatigue generally

According to one commentator:\(^{103}\):

‘Transportation workers are usually in safety-sensitive positions, are required to work in 24-hr day/7 day week operations, and are becoming older as a workforce, making them particularly vulnerable to the effects of fatigue. Fatigue affects job performance, health, and the social and domestic aspects of workers’ lives. In addition, fatigue has both direct and indirect economic consequences.’

The report of the recent Neville Committee inquiry into fatigue in transport\(^{104}\) noted that:

‘Fatigue is not just an industrial issue to be negotiated between employers and employees. It is also an occupational health and safety issue, a commercial issue, a public safety issue and, at times, an environmental issue. Individuals and organisations that fail to manage human fatigue sensibly, risk having or creating accidents with a broad range of damaging and enduring consequences.’

In the transport industry generally, the combination of factors such as shift work, long periods of consecutive shifts without a day off and work in unfavourable conditions provide the preconditions for a fatigue problem. The impacts of the problem extend beyond the immediately affected transport workers to the public more generally when fatigue interferes with the effective conduct of vigilance related tasks such as driving, flying, navigation and maintenance\(^{105}\). DOTARS cited examples to the Inquiry of very long and sometimes continuous shifts being worked by airline cabin crew and maintenance staff and air traffic controllers; in sea transport the Department reported findings of some tendency for ship groundings to occur between midnight and 4 am, a time period when the human body is in a circadian low point.

In road transport, the fatigue problem occurs against a background of high occupational health and safety risk more generally, with the sector having a work-related fatality rate per 100,000 workers of nearly eight times the average for all industries. Riskier occupations identified by the National Occupational Health and Safety Commission from a 1992-93 survey were commercial pilot, fishermen/women, forestry, drilling plant operators, mining labourers, and ships’ pilots and deckhands.\(^{106}\)

The fatigue problem in road transport is thought to be large but because of the characteristics of fatigue, it is difficult to define with precision. (Kipling and Shelton in a 1999 paper estimated that police under-report fatigue as a crash factor by between 1.4 and 3.1 times.\(^{107}\)) In addition, once an accident has occurred, police personnel responsible for reporting and classifying the event and its causes are constrained by the pressures of the site such as the need to provide traffic control and support to the survivors, they may not be trained to identify

\(^{103}\) Heslegrave (1998)

\(^{104}\) HRSCCTA (2000)

\(^{105}\) See NTC (2001b) and DOTARS (1999)

\(^{106}\) See NTC (2001b) and NOHSC (1999)

\(^{107}\) Kipling and Shelton (1999)
fatigue, and when interviewing survivors, any fatigue symptoms may have been worn off by the adrenalin surges that follow the stress of an accident. ‘Survivor bias’ is a further potentially confounding factor. Finally the role of fatigue in any particular crash may be subtle, through its effects on driver attention to the driving task. Consequently, the Fatigue Expert Group noted that ‘Estimates of fatigue involvement in crashes are generally considered to be conservative’. It is not surprising therefore that estimates of fatigue as a causal factor in heavy vehicle crashes vary widely. Studies and surveys reviewed by the Neville Committee reported the incidence of fatigue as a factor in all serious and fatal road crashes as being between 9% and 33% depending on whether the base was hospitalisations, serious and fatal crashes or fatal crashes only. In determining the appropriate factor for inclusion in the RIS it was considered that the Knipling and Shelton (1999) ratio is more relevant in that it provided a direct comparison between figures based on police attribution, and figures based on in-depth crash investigations. There is still an argument that even an in-depth investigation would fail to identify some instances where fatigue had been relevant -simply because fatigue leaves no traces, and the effects can be subtle. This provides justification for selecting the Knipling and Shelton high-end estimate.

This justification is reinforced by the fact the the figures relate only to those cases where the heavy vehicle was at fault. However even where the other driver was at fault fatigue on the part of the heavy vehicle driver may contribute to the occurrence or severity of the crash (eg, marginally longer reaction time before braking). Again this suggests that a factor of 3 is appropriate. If however a a factor of 2.4 was adopted total benefits would fall from $254 million per annum to $205 million per annum and net benefits would fall from $54 million per annum to $5 million per annum. If the factor was 2.75 net benefits would fall to $34 million per annum.

**Fatigue crash incidence and cost**

The fatal crash database of the Australian Transport Safety Bureau ATSB) is compiled from coroners’ reports, a source which enables crash characteristics and causes to be identified. Analysis of the database in Table 22 shows that fatal crashes in which the heavy vehicle driver was fatigued represent:

- 0.4% of all crashes; and,
- 4.3% of all heavy vehicle fatal crashes.

Allowing for under-reporting to be at the upper end of the range estimated by Kipling and Shelton, fatal crashes in which the heavy vehicle driver was fatigued would represent approximately 13% of all heavy vehicle fatal crashes.

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108 See NTC (2001b) and FMCSA (2000)
109 Fatigue Expert Group (2001)
110 Data reported by the Neville Committee is summarised in NTC (2001b).
111 ATSB, pers comm.

<table>
<thead>
<tr>
<th>Data</th>
<th>Number of crashes</th>
<th>Fatigue involvement</th>
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<tbody>
<tr>
<td>All fatal crashes</td>
<td>7147</td>
<td>-</td>
</tr>
<tr>
<td>Crashes involving artic and coaches *</td>
<td>706</td>
<td>10.12% of all fatal crashes</td>
</tr>
<tr>
<td>Crashes involving driver fatigue</td>
<td>497</td>
<td>6.95% of all crashes</td>
</tr>
<tr>
<td>Crashes involving driver fatigue not involving artic or coaches</td>
<td>426</td>
<td>5.96% of all crashes 6.6% of crashes involving light vehicles 85.7% of fatigue involved crashes</td>
</tr>
<tr>
<td>Artic and coach crashes involving driver fatigue</td>
<td>71</td>
<td>10.06% of artic and coach involved crashes 14.3% of driver fatigue involved crashes</td>
</tr>
<tr>
<td>Artic or coach driver fatigued</td>
<td>30</td>
<td>42.25% of artic and coach fatigue crashes 6% of all fatigue crashes 4.3% of all artic and coach crashes 0.4% of all fatal crashes</td>
</tr>
<tr>
<td>Artic or coach involved crashes, light vehicle driver fatigued</td>
<td>41</td>
<td>57.75% of artic and coach fatigue crashes 8.2% of all fatigue crashes 0.6% of all fatal crashes</td>
</tr>
</tbody>
</table>

Source: Australian Transport Safety Bureau database

In reviewing the range of available evidence, DOTARS concluded on fatigue involvement that ‘Most experts believe that a figure [for fatigue involvement of all drivers] of the order of 20 to 30% is plausible for fatal road crashes, with lower figures for less severe crashes’. In costing that proportion of fatigue crashes in which a heavy vehicle driver was fatigued, the Department adopted the assumptions that:

- heavy vehicle driver fatigue is a factor in 15% of fatal crashes involving heavy vehicles (trucks over 4.5 tonnes GVM and buses with more than 23 seats);

- heavy vehicle driver fatigue is a factor in 10% of all serious crashes and 7% of all less severe crashes involving heavy vehicles; and,

- the proportion of crashes involving a heavy vehicle varies with crash severity, from 14% for fatal crashes to 8% for property damage only crashes (this report in Table 23 below uses 10% for serious and minor crashes).

Although a simplistic approach to estimation such as this may be open to criticism, the Fatigue Expert Group declined to provide an estimate, saying instead that ‘Whatever the true figure, it is higher than the public is willing to accept, higher than drivers and responsible operators want it to be, and (almost certainly) higher than it could be, if better preventive measures were in place’ (emphasis in original).

Only those crashes attributable to heavy vehicles with gross mass of at least 12 tonnes are relevant to the regulatory proposal. Of the 14% of all fatal crashes, ATSB\(^{112}\) estimates that about 89% (that is 12.5% out of 14%) would relate to vehicles of 12 tonnes or heavier. If crash propensities for other crash types reported in the preceding discussion were factored down by the same proportion to separate out those vehicles above the 12 tonne breakpoint, the

\(^{112}\) pers comm
total fatigue-related crashes attributable to vehicles weighing 12 tonnes or more would be 3,403 in 1996 (in Table 23).

### Table 24. Estimated heavy vehicle fatigue crashes 1996 (heavy vehicle driver is fatigued)

<table>
<thead>
<tr>
<th>Crash severity</th>
<th>Total crashes involving all vehicles (No/yr)</th>
<th>% heavy vehicle fatigue involvement</th>
<th>Heavy vehicle fatigue-related crashes (No/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>1,768</td>
<td>1.9</td>
<td>33</td>
</tr>
<tr>
<td>Serious</td>
<td>17,512</td>
<td>0.9</td>
<td>156</td>
</tr>
<tr>
<td>Minor</td>
<td>179,297</td>
<td>0.5</td>
<td>960</td>
</tr>
<tr>
<td>Property damage only (PDO)</td>
<td>420,799</td>
<td>0.5</td>
<td>2,254</td>
</tr>
<tr>
<td>Total</td>
<td>619,376</td>
<td></td>
<td>3,403</td>
</tr>
</tbody>
</table>

Note: Excludes buses
Source: DOTARS (1999); BTE (2000)

BTE’s recent report *Road Crash Costs in Australia*\(^{113}\), the authoritative source on the subject provides average unit costs for crashes, including value of life, loss of household income, medical and hospital costs, vehicle repair costs and the like. Those estimates are used in Table 6 to estimate total crash costs attributable to vehicles weighing 12 tonnes or more. Following DOTARS (1999), a severity multiplier of 1.5 is applied to the average crash costs in each severity class to reflect the likelihood that fatigue crashes are more relatively more damaging.

### Table 25. Estimated costs of fatigue crashes involving heavy vehicles 1996 (heavy vehicle driver is fatigued)

<table>
<thead>
<tr>
<th>Crash severity</th>
<th>Heavy vehicle fatigue-related crashes (No/yr)</th>
<th>Cost per crash ($)</th>
<th>Total costs/yr ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>33</td>
<td>2,479,491</td>
<td>81.823</td>
</tr>
<tr>
<td>Serious</td>
<td>156</td>
<td>611,985</td>
<td>95.470</td>
</tr>
<tr>
<td>Minor</td>
<td>960</td>
<td>20,664</td>
<td>19.837</td>
</tr>
<tr>
<td>Property damage only (PDO)</td>
<td>2,254</td>
<td>8,172</td>
<td>19.636</td>
</tr>
<tr>
<td>Total</td>
<td>3,404</td>
<td></td>
<td>216.766</td>
</tr>
</tbody>
</table>

Note: Following DOTARS (1999?), average costs in each severity class are 50% higher than those reported in BTE (2000) for all crashes in each severity class
Source: Table 23; and BTE (2000); NTI and ATSB Data

The estimate of 1996 crash costs attributable to vehicles heavier than 12 tonnes is $218 million. To arrive at a 2000 estimate for consistency with estimates of the costs of the regulatory proposal in section 6, the 1996 estimate is factored up by 1.18 to reflect transport task and risk exposure growth, and inflation.\(^{114}\) The resulting crash cost estimate for 2000 is

\(^{113}\) BTE (2000)

\(^{114}\) Transport task growth has been assumed to be 2.5% per annum. The ‘Transportation (all capitals)’ component of the consumer price index rose by 6.7% between June 1996 and June 2000 (see ABS *Consumer Price Index*, catalogue no 6401.0).
$256 million\textsuperscript{115}. Allowing for say 5\% of those costs to be attributable to crashes in WA and NT, which the impact analysis in section 6 assumes will not adopt the regulatory proposal, the total costs in 2000 would have been $243 million\textsuperscript{116}. Again excluding WA and NT, a further $31 million in crash costs would be attributable to vehicles below the 12 tonne threshold in the regulatory proposal.

**Truck driver fatigue at night**

The industry expressed considerable opposition to the proposed limitation on night work contained in the NTC’s interim option paper\textsuperscript{117}. The Fatigue Expert Group\textsuperscript{118} had proposed limitations on night driving, noting that ‘The issue of night work is illustrative of how [the various] fatigue critical factors are interrelated. Working at night produces an elevated risk of fatigue-related impairment, because it combines the daily low point in performance capacity with the greatest likelihood of inadequate sleep.’ The Fatigue Expert Group then noted how ‘human errors on the night shift’ had contributed to a number of high profile incidents internationally including Chernobyl, Three Mile Island, Exxon Valdez and the Challenger space shuttle. Expert groups in both Canada and the United States raised similar concerns.

This proposition is examined for Australia in the three sets of data in Tables 24, 25 and 26. These Tables contain the following data:

- in Table 25, all fatal crashes involving at least one heavy vehicle;
- in Table 26, fatal crashes involving at least one heavy vehicle in which the heavy vehicle driver was fatigued or asleep. (the data in Table 26 is a subset of that in Table 25); and
- in Table 27, a set of insurance claims data from supplied by NTI and analysed by ATSB in a project supported by NTI and the Australian Trucking Association (ATA).\textsuperscript{119} The data describes claims over $10,000 in value and occurring within 200 km of the claimant truck’s base. Both of these assumptions were applied to sift a large number of minor bump and scratch claims from the data set.

Looking firstly at Tables 25 and 26, and taking the average of the period 1990 to 1998, the proportion of fatigue-related fatal heavy vehicle crashes occurring in the early morning (36\%) is higher than the proportion of all fatal heavy vehicle crashes (16\%) in the same time period. In the most recent data year, 1998, 26\% of fatigue-related crashes occurred in the early morning.

\textsuperscript{115} The total crash cost estimate attributable to all heavy vehicles weighing 4.5 tonnes or over (but excluding buses) would be $288 million annually (equal to $256 million/0.89). Of that $288 million, $32 million would be attributable to vehicles under the 12 tonne breakpoint in the regulatory proposal.

\textsuperscript{116} ATSB (2002) reported that approximately 9\% of all articulated vehicle fatal crashes occurred in WA and NT in 2000. The allowance of 5\% in the text recognises that some of those crashes might have involved vehicles from jurisdictions that will be covered by the regulatory proposal. The proportion of crashes occurring in the ACT (assumed on account of its geographical size not to take up the regulatory proposal) is negligible.

\textsuperscript{117} NTC (2001)

\textsuperscript{118} Fatigue Expert Group (2001)

\textsuperscript{119} NTI is a major transport insurer in Australia whose business is the over five tonnes hire and reward goods carrying sector of the road freight market. NTI operates a national office network and estimates that it has a 30\% to 35\% share of its market segment.
morning. The fatigue-related crashes are relatively less prevalent than all crashes in all other time periods\textsuperscript{120}.

The data in Table 27 describes insurance claims rather than crashes. It has been broken down into accident types that are or could be fatigue-related (‘driver fatigue’, ‘head on collision’, ‘ran off road’ and ‘rolled due to driver error’). Interpretation of this data is subject to a number of important cautions including its reliance on the claimant to identify the type of accident or claim, and the possibility that some crash types (head on collision for example) might not have been the fault of the truck driver. Recognising this data as being only indicative, it shows that 33.9\% of ‘possible fatigue-related’ claims related to early morning crashes but only 19.1\% of all other claims related to crashes that occurred at this time. Of the ‘possible fatigue-related’ claims, ran off road was the most prevalent (39 claims), and 38.5\% of these related to early morning crashes.\textsuperscript{121}

Taking these three Tables together it could be said that around 30\% to perhaps 40\%, say 33\% to be conservative, of fatigue-related heavy vehicle crashes occur in the early morning compared with 20\% to 25\% of all crashes in the same time period.

Table 26. Distribution of fatal crashes involving at least one heavy vehicle, by time of day\textsuperscript{122}

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>1990</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Early morning</td>
<td>59</td>
<td>17</td>
<td>44</td>
<td>16</td>
<td>41</td>
<td>15</td>
<td>48</td>
</tr>
<tr>
<td>Morning</td>
<td>96</td>
<td>28</td>
<td>93</td>
<td>35</td>
<td>90</td>
<td>34</td>
<td>70</td>
</tr>
<tr>
<td>Afternoon</td>
<td>119</td>
<td>35</td>
<td>89</td>
<td>33</td>
<td>91</td>
<td>34</td>
<td>80</td>
</tr>
<tr>
<td>Evening</td>
<td>68</td>
<td>20</td>
<td>42</td>
<td>16</td>
<td>43</td>
<td>16</td>
<td>47</td>
</tr>
<tr>
<td>Total</td>
<td>342</td>
<td>100</td>
<td>268</td>
<td>100</td>
<td>265</td>
<td>100</td>
<td>245</td>
</tr>
</tbody>
</table>

Early morning: midnight to 6 am; Morning: 6 am to noon; Afternoon: noon to 6 pm; Evening: 6 pm to midnight
Source: ATSB Fatal Crashes database

\textsuperscript{120} With respect to Table 26, it cannot be established whether a reduction in the prevalence of early morning crashes over the period shown is due to improving fatigue management practices, changes in coding or simply statistical aberration due to the relatively small number of crashes involved.

\textsuperscript{121} Arguably, all claim types in which the heavy vehicle driver was at fault, and not just those identified in this discussion could to some extent be fatigue-related or at least fatigue associated. The intention here is to identify those claim types for which heavy vehicle driver fatigue is more likely to be a necessary and sufficient condition for the crash to occur.

\textsuperscript{122} At the time of drafting, data from the 1999 fatalities file was not available. However taking the years 1996, 19898 and 2000, the number of articulated heavy vehicle crashes (all causes) has remained fairly constant as follows: 1996 (161 fatal crashes); 1998 (151 fatal crashes); and 2000 (165 fatal crashes).
Table 27. Distribution of fatigue-related fatal crashes involving at least one heavy vehicle and the heavy vehicle driver was fatigued or asleep, by time of day

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>Early morning</td>
<td>12</td>
<td>46</td>
<td>8</td>
<td>35</td>
<td>11</td>
<td>44</td>
<td>25</td>
</tr>
<tr>
<td>Morning</td>
<td>7</td>
<td>27</td>
<td>5</td>
<td>22</td>
<td>4</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Afternoon</td>
<td>5</td>
<td>19</td>
<td>9</td>
<td>39</td>
<td>5</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Evening</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100</td>
<td>20</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>25</td>
</tr>
</tbody>
</table>

Early morning: midnight to 6 am; Morning: 6am to noon; Afternoon: noon to 6pm; Evening: 6pm to midnight
Source: ATSB Fatal Crashes database

Table 28. Insurance claims data for heavy vehicles (claims $10,000+) for one recent year

<table>
<thead>
<tr>
<th>Type of claim</th>
<th>Number of claims for accidents occurring in time periods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Early morning</td>
</tr>
<tr>
<td>Driver fatigue</td>
<td>(No)</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Head on collision</td>
<td>2</td>
</tr>
<tr>
<td>Ran off road</td>
<td>15</td>
</tr>
<tr>
<td>Rolled due to driver error</td>
<td>2</td>
</tr>
<tr>
<td>Sub total possible fatigue-related claims</td>
<td>20</td>
</tr>
<tr>
<td>All other claims</td>
<td>13</td>
</tr>
<tr>
<td>Total claims</td>
<td>33</td>
</tr>
</tbody>
</table>

For example: 100% of driver fatigue claims (one claim) occurred between 0001 and 0600. That claim represents 1.7% of possible fatigue-related claims. Fatigue-related claims represented 46.5% of claims involving heavy vehicles on the outward leg and for which the claim value was $10,000 or more.

Early morning: midnight to 6 am; Morning: 6am to noon; Afternoon: noon to 6pm; Evening: 6pm to midnight
Source: ATSB analysis of NTI claims data.

Early morning crashes will be over represented if less than say 33% of truck movements occur at that time, that is between midnight and 6 am. To test this proposition, Culway counts have been collated for this RIS (in Table 28) as a measure of exposure to crash risk. Of that data set, Victoria was examined because it has a reasonably large number of sites in total and a large number situated away from urban areas, allowing some conclusions to be drawn about longer distance truck travel at night. Data from these sites is less likely to be dominated by those short distance local movements that would typically be daytime based. The data describes semi-trailer and B-double movements. In the context in which the data is

123 Culway is a form of weigh in motion technology, which classifies and weighs vehicles as they pass over a measuring device, attached for example to a bridge. In an Austroads project being managed by the NTC, ARRB Transport Research Ltd prepared site specific summaries and analyses of Culway readings throughout Australia. The data is unreported.

124 The NSW data set also has these features but it is not analysed here because of doubt about the accuracy of some of the Culway recordings.
used here, it is indicative in that it portrays movements rather than vehicle kilometres, the latter being the better (but much more difficult to obtain) measure of exposure.

Table 29. Culway recordings as a measure of exposure, Victoria 2000

<table>
<thead>
<tr>
<th>Culway location</th>
<th>Early morning % of heavy veh</th>
<th>Morning % of heavy veh</th>
<th>Afternoon % of heavy veh</th>
<th>Evening % of heavy veh</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Selected locations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sturt Hwy Mildura west</td>
<td>30.4</td>
<td>26.7</td>
<td>18.2</td>
<td>24.8</td>
</tr>
<tr>
<td>Sturt Hwy Mildura east</td>
<td>12.1</td>
<td>17.2</td>
<td>35.2</td>
<td>35.5</td>
</tr>
<tr>
<td>Goulburn Hwy, Wunghnu south</td>
<td>14.4</td>
<td>24.9</td>
<td>29.1</td>
<td>31.6</td>
</tr>
<tr>
<td>Goulburn Hwy, Wunghnu south</td>
<td>12.6</td>
<td>25.6</td>
<td>34.4</td>
<td>27.3</td>
</tr>
<tr>
<td>Western Hwy Beaufort west</td>
<td>11.0</td>
<td>14.4</td>
<td>32.9</td>
<td>41.7</td>
</tr>
<tr>
<td>Western Hwy Beaufort east</td>
<td>36.0</td>
<td>16.9</td>
<td>15.8</td>
<td>31.3</td>
</tr>
<tr>
<td>Princes Hwy, Heywood</td>
<td>11.3</td>
<td>44.0</td>
<td>31.8</td>
<td>12.8</td>
</tr>
<tr>
<td>Princes Hwy Longwarry</td>
<td>13.7</td>
<td>36.0</td>
<td>30.7</td>
<td>19.6</td>
</tr>
<tr>
<td>Princes Hwy Yarragon</td>
<td>23.7</td>
<td>31.2</td>
<td>26.7</td>
<td>18.4</td>
</tr>
<tr>
<td>Hume Fwy Wallan</td>
<td>2.9</td>
<td>22.4</td>
<td>40.7</td>
<td>34.0</td>
</tr>
<tr>
<td>Hume Fwy Wallan</td>
<td>7.9</td>
<td>21.5</td>
<td>38.4</td>
<td>32.2</td>
</tr>
<tr>
<td>Hume Fwy Wallan</td>
<td>34.3</td>
<td>29.7</td>
<td>14.8</td>
<td>21.3</td>
</tr>
<tr>
<td>Hume Fwy Springhurst</td>
<td>39.6</td>
<td>16.2</td>
<td>14.2</td>
<td>30.0</td>
</tr>
<tr>
<td>Calder Hwy Kyneton</td>
<td>26.8</td>
<td>23.5</td>
<td>21.5</td>
<td>28.2</td>
</tr>
<tr>
<td>Calder Hwy Gisborne</td>
<td>10.5</td>
<td>37.0</td>
<td>36.5</td>
<td>16.0</td>
</tr>
<tr>
<td>Calder Hwy Derby south</td>
<td>18.3</td>
<td>19.4</td>
<td>18.9</td>
<td>43.4</td>
</tr>
<tr>
<td>Calder Hwy Derby north</td>
<td>12.0</td>
<td>27.6</td>
<td>37.7</td>
<td>22.7</td>
</tr>
<tr>
<td>Total selected sites</td>
<td>22.8</td>
<td>24.1</td>
<td>25.5</td>
<td>27.8</td>
</tr>
<tr>
<td>Total all Victorian sites</td>
<td>20.5</td>
<td>29.0</td>
<td>26.9</td>
<td>23.6</td>
</tr>
</tbody>
</table>

Early morning: midnight to 6 am; Morning: 6am to noon; Afternoon: noon to 6pm; Evening: 6pm to midnight
Data relates to prime mover semi trailers and B-doubles.
Source: ARRB Transport Research Ltd, unpub

Across all Victorian Culway sites, early morning movements account for 21% of total all day movements. On several major corridors however – the Hume, Sturt and Western Highways – there is evidence that early morning movements are in the vicinity of 30% to 40% of all day movements. Comparison of the crash data in Tables 25, 26 and 27 with the (limited) exposure data in Table 28 suggests that:

- heavy vehicle crashes that have been identified as being fatigue-related are more likely to occur in the early morning than are all heavy vehicle fatal crashes;
- heavy vehicle crashes that could be fatigue-related are more likely to occur in the early morning than all crashes on average; and
overall, heavy vehicle fatigue-related crashes are over-represented in the early morning in that 33% of these crashes occur at that time relative to only 21% of heavy vehicle movements occurring at the same time. The fact that, on major corridors, heavy vehicle fatigue crashes may not be over-represented in the early morning (say 33% of crashes compared with 30% to 40% of movements) suggests that the over-representation of these crashes in the early morning is attributable to activity on the major corridors.

These data sets are not sufficiently robust to support examination of propositions that shifting of night time and early morning traffic to the daytime would increase or reduce overall crash rates. Two perhaps countervailing factors would be at play: perhaps lower fatigue crash risk because drivers are not working at fatigue vulnerable times (night and early morning); possibly offset or even outweighed by higher daytime traffic volumes and hence greater exposure to crashes that are traffic interference related.

In summary these data sets point to or are suggestive of a proposition that fatigue crash risk is higher in the early morning, but they do not necessarily prove the proposition.

The Buxton et al review referred to in Appendix A suggests other factors such as conditioning and self selection among heavy vehicle drivers may be controlling risk at night and in the early morning but there is no evidence of this, other than comment from industry stakeholders that drivers become accustomed to working in the night hours, they enjoy the cooler conditions and benefit from lower traffic volumes.

A recent US study \(^{125}\) examines the potential impact of shifting night heavy vehicle traffic to daylight hours in order to reduce fatigue risk. Hendrix found that for semi-trailers on dual carriageway highways, fatal crash rates per mile are similar for night and day periods; and further that the data ‘appear to indicate that shifts in long haul tractor-trailer travel from night to day (or vice versa) would, in themselves, have little effect on crash rates’. \(^{126}\) Hendrix’s conclusions might not directly translate to Australia where lengths of dual carriageway road are smaller. Traffic shifts from night to daylight hours could have the effect of increasing volume capacity ratios (volume capacity ratio being a measure of road capacity utilisation), queuing and daytime crash rates. On the other hand Hendrix’s finding could suggest that in corridors which have high proportions of dual carriageway a traffic shift to daylight hours might have little effect on crash rates.

A recent Australian study \(^{127}\) reached two (albeit tentative) conclusions from their examination of Victorian and South Australian crash data: firstly that for all vehicles and for heavy vehicles, there is no statistically significant difference in crash rates between the periods 6 am to 6 pm, and 6pm to 6 am; and secondly that crash rates would remain unchanged were 10% of night traffic switch to daytime travel. Higher daytime traffic congestion would however worsen the impact of any shift (to a degree unspecified in the report). The overall outcome of the shift according to Mabbott and Newman would be a marginal reduction of 1.5 crashes over a five year period in both Victoria and South Australia.

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125 Hendrix (2000)
126 Hendrix (2000) p2
## APPENDIX E: Proposed fatigue management chain of responsibility

<table>
<thead>
<tr>
<th>Activity</th>
<th>Driving and rest hours</th>
<th>Fatigue management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consigning</td>
<td>Duty to take reasonable steps to ensure that drivers of vehicles transporting consigned goods comply with:</td>
<td>Duty to take reasonable steps to ensure that drivers of vehicles transporting consigned goods do not drive if their ability or alertness to drive is so impaired through fatigue as to make it unsafe for them to do so.</td>
</tr>
</tbody>
</table>
|                   | • Driving & rest hours requirements;  
• Record keeping requirements; and  
• Speed limits. |  
Liability is absolute, but is subject to a reasonable steps defence.  
What constitutes reasonable steps will depend upon the circumstances of the case. |
| Consigning        | Liability is absolute, but is subject to a reasonable steps defence.  
What constitutes reasonable steps will vary according to the Option under which the driver is operating (see following Table below). | |
|                   | Subject to the “general duty” applying to any person engaging in an activity affecting the driving task. | |
| Carrying          | Duty to take reasonable steps to ensure that drivers of vehicles transporting goods or passengers for the carrier comply with: | Duty to take reasonable steps to ensure that drivers transporting goods or passengers for the carrier do not do drive if their ability or alertness to drive is so impaired through fatigue as to make it unsafe for them to do so. |
|                   | • Driving & rest hours requirements;  
• Record keeping requirements; and  
• Speed limits. | Liability is absolute, but is subject to a reasonable steps defence.  
What constitutes reasonable steps will vary according to the Option under which the driver is operating (see following Table below). |
| Carrying          | Liability is absolute, but is subject to a reasonable steps defence.  
What constitutes reasonable steps will depend upon the circumstances of the case. | |
| Driving           | Duty to comply with:                                                                  | Duty not to drive if ability or alertness to drive is so impaired through fatigue as to make it unsafe to do so. |
|                   | • Driving & rest hours requirements;  
• Record keeping requirements; and  
• Speed limits. | |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Driving and rest hours</th>
<th>Fatigue management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liability</strong></td>
<td>Liability is <em>absolute</em>, and is not subject to any defence.</td>
<td><strong>Duty</strong> to take reasonable steps to ensure that drivers of vehicles transporting goods to receiver do not drive if their ability or alertness to drive is so impaired through fatigue as to make it unsafe for them to do so.</td>
</tr>
</tbody>
</table>
| **Receiving**            | *Duty* to take reasonable steps to ensure that drivers of vehicles transporting goods to receiver comply with:  
  - Driving & rest hours requirements;  
  - Record keeping requirements; and  
  - Speed limits.  
  | *Liability* is *absolute*, but is subject to a *reasonable steps defence*.  
  What constitutes reasonable steps will depend upon the circumstances of the case.  
  | *Liability* is *absolute*, but is subject to a *reasonable steps defence*.  
  What constitutes reasonable steps will vary according to the Option under which the driver is operating (see following Table below).  |
| **Receiver has no control or influence over driving task** | **Subject to the “general duty” applying to any person engaging in an activity affecting the driving task.** |                                                                                     |
| **Scheduling/Rostering** | *Duty* to take reasonable steps to ensure that drivers scheduled or rostered to drive comply with:  
  - Driving & rest hours requirements;  
  - Record keeping requirements; and  
  - Speed limits.  
  | *Liability* is *absolute*, but is subject to a *reasonable steps defence*.  
  What constitutes reasonable steps will depend upon the circumstances of the case.  
  | *Liability* is *absolute*, but is subject to a *reasonable steps defence*.  
  What constitutes reasonable steps will vary according to the Option under which the driver is operating (see following Table below).  |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Duty</th>
<th>Driving and rest hours</th>
<th>Fatigue management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employing</td>
<td>Duty</td>
<td>Duty to take reasonable steps to ensure that employee drivers comply with:</td>
<td>Duty to take reasonable steps to ensure that employee drivers do not drive if their ability or alertness to drive is so impaired through fatigue as to make it unsafe for them to do so.</td>
</tr>
<tr>
<td></td>
<td>- Driving &amp; rest hours requirements;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Record keeping requirements; and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Speed limits.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liability</td>
<td>Liability is <em>absolute</em>, but is subject to a <em>reasonable steps defence</em>.</td>
<td>What constitutes reasonable steps will depend upon the circumstances of the case.</td>
<td>What constitutes reasonable steps will vary according to the Option under which the driver is operating (see following Table below).</td>
</tr>
<tr>
<td>Loading/unloading</td>
<td>Duty</td>
<td>To develop and maintain, a system of setting and allocating loading and unloading times which minimises the time drivers are required to spend queuing in order to load or unload, and taking reasonable steps to ensure that drivers are able to load or unload at those times.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liability</td>
<td>Liability to develop and maintain a system is <em>absolute</em> and is not subject to any defence.</td>
<td>Liability to ensure that drivers can load and unload at allocated times is <em>absolute</em>, but is subject to a <em>reasonable steps defence</em>.</td>
</tr>
<tr>
<td></td>
<td>- Liability to ensure that drivers can load and unload at allocated times is <em>absolute</em>, but is subject to a <em>reasonable steps defence</em>.</td>
<td>What constitutes reasonable steps will depend upon the circumstances of the case be influenced.</td>
<td></td>
</tr>
<tr>
<td>Any other activity affecting the driving task</td>
<td>Duty</td>
<td>General duty not to ask, direct or require, directly or indirectly, a driver to do something if the person knows, or reasonably ought to know, that by complying with the request, direction or requirement the driver will, or would be likely to, breach:</td>
<td>General duty not to ask, direct or require, directly or indirectly, a driver to do something if the person knows, or reasonably ought to know, that by complying with the request, the driver will, or would be likely to, be driving while his/her ability or alertness to drive is so impaired through fatigue as to make it unsafe for him/her to do so.</td>
</tr>
<tr>
<td></td>
<td>- Driving &amp; rest hours requirements;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Record keeping requirements; and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Speed limits.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liability</td>
<td>Liability for breach of duty requires proof of fault, ie knowledge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Fatigue Management: Actions Required

<table>
<thead>
<tr>
<th>Activity</th>
<th>Standard Hours Option</th>
<th>Basic Fatigue Management</th>
<th>Advanced Fatigue Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrying, driving, and employing</td>
<td>Fatigue management actions will need to be determined on a case by case basis, depending upon circumstances. The Fatigue Code will serve as a guide to the matters which should be considered and addressed (but will not prescribe actions to be taken).</td>
<td>Fatigue management actions will need to be determined on a case by case basis, depending upon circumstances. Mandatory Business Rules comprising: - Audit requirements - Standards - Risk assessments; and - Selected parts of the Fatigue Code will be prescribed. The balance of the Fatigue Code will serve as a guide to additional matters which should be considered and addressed (but will not prescribe actions to be taken).</td>
<td>Fatigue management actions will be specified by an approved Fatigue Management Plan. The Fatigue Code will serve as a guide to the matters which should be considered and addressed by the Fatigue Management Plan.</td>
</tr>
</tbody>
</table>
## APPENDIX F: Quinlan’s proposed Safe Driving Plan/Safe Driving Method Statement

<table>
<thead>
<tr>
<th>Driver/Operator details</th>
<th>Rates to be paid</th>
<th>Insurance Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of driver and address of driver</td>
<td>Provide details of rates paid</td>
<td>Provide insurance details of vehicle (include name of insurer, amount insured, policy number and policy expiration date)</td>
</tr>
<tr>
<td>Drivers licence number and class</td>
<td>Agreed rate to be paid within 14 days $ amount</td>
<td>amount insured</td>
</tr>
<tr>
<td>Operator’s licence details</td>
<td>Demurrage rate applies after waiting one hour after arrival Paid by the hour</td>
<td>Policy number</td>
</tr>
<tr>
<td>Name and contact details of owner of vehicle including operator licence</td>
<td></td>
<td>Policy expiry date</td>
</tr>
<tr>
<td>Name and contact details of owner of vehicle including operator licence</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Details of trip

<table>
<thead>
<tr>
<th>Trip From</th>
<th>Km on speedo at time of arrival</th>
<th>Details of local Trips completed in the last 24 hours (less than 100 kms) including loading and unloading times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trip To</td>
<td>Actual arrival time</td>
<td>Has the driver had 2 rest breaks in the last 12 hours including one 30 minute break outside the vehicle?</td>
</tr>
<tr>
<td>Route to be taken</td>
<td>Total time taken for rest breaks Receiver to sign</td>
<td></td>
</tr>
<tr>
<td>Km on Speedo at start of trip</td>
<td>Details of Trips completed over 100 km in the last 24 hours</td>
<td></td>
</tr>
<tr>
<td>Departure time</td>
<td>Has the driver had a 6 hour continuous break in the last 24 hours</td>
<td></td>
</tr>
<tr>
<td>Estimated arrival time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sender to sign</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Quinlan (2001), p 314