National Transport Commission

Electronic systems for heavy vehicle driver fatigue and speed compliance – Policy paper

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# Report outline

**Title:** Electronic systems for heavy vehicle driver fatigue and speed compliance  
**Type of report:** Policy paper  
**Purpose:** For information  
**Abstract:** Final policy paper as approved by the Australian Transport Council in May 2011. This paper reflects stakeholder comments from the consultation undertaken between October and December 2010. This paper proposes some final positions in key policy issues and identifies others which need to be addressed after the upcoming electronic work diary pilot managed by the New South Wales Road and Traffic Authority.  
**Key milestones:** Final policy paper as approved by the Australian Transport Council, May 2011.  
**Key words:** Electronic work diaries, fatigue, speed, compliance.  
**Contact:** Jeff Potter, Project Director on 03 9236 5000
Foreword

The National Transport Commission (NTC) is an independent body established under Commonwealth legislation and an intergovernmental agreement, and is funded jointly by the Commonwealth and state/territory governments.

The NTC develops and submits reform recommendations to the Australian Transport Council (ATC), as well as playing a role in planning, monitoring and evaluating the implementation of approved reforms to ensure outcomes are realised ‘on the ground’. The NTC’s reforms are developed to meet our organisational objectives of improving productivity, providing a safe transport system and protecting the environment.

The NTC released a draft of the National In-Vehicle Telematics Strategy: The Road Freight Sector in June 2010. This strategy aims to encourage the use of in-vehicle telematics to support better safety, productivity and environmental outcomes through a partnership between industry and government. The Electronic Systems for Heavy Vehicle Driver Fatigue and Speed Compliance: Policy Paper acts as one policy position under this strategic direction.

The Australian transport and logistics industry is already using technology to improve its efficiency and business processes. Harnessing its potential to improve road safety compliance and reduce unnecessary red tape is a terrific opportunity.

I would like to thank all those individuals and organisations involved in the consultation to date and especially those who have made written submissions. I would also like to acknowledge the work of NTC staff in developing this report, particularly Rob de Maid, Neil Wong, Tim Eaton, Chris Jones, Ray Hassall, Karen Dowling, Jeff Potter, Shaun Talko and Lisa Kazalac.

Greg Martin
Chairman
Executive summary

In its most recent discussions on fatigue management, the Australian Transport Council (ATC) requested that the National Transport Commission ‘develop a possible regulatory framework for electronic devices to monitor heavy vehicle speed and fatigue’ (ATC 2008a).

Electronic devices offer the potential to record and use information in ways not possible with the current paper-based system. For example, electronic devices can assist drivers to comply with the law and plan their work and rest times. The information they collect can also be fed back to operators to assist them in responding proactively to on-road events (such as loading delays) by changing trip schedules, rosters and planned rest breaks.

The current paper-based system is a key barrier to improving the voluntary uptake of electronic systems and harnessing their potential to manage fatigue and speed risks, as recommended by the National In-vehicle Telematics Strategy: The Road Freight Sector (NTC 2010a).

Many operators are operating electronic systems for commercial purposes and retaining the paper-based work diary for regulatory requirements. Being able to combine these instruments into a single system can significantly reduce unnecessary red tape—an important policy goal for all governments.

National fatigue laws already allow for the use of an electronic work diary as an alternative to the written work diary, and have established a process for approval. However, the legal requirements do not specify the level of performance the electronic devices need to meet. For example, when using a paper-based diary the driver’s signature is prescribed as the form of authentication, but there are no specifications for authenticating an electronic record.

Regulators have also been reluctant to consider applications for using electronic work diaries without further guidance on how an assessment should be undertaken. Some regulators would like an electronic work diary to eliminate the shortcomings of the paper-based diary, and therefore improve road safety compliance. Industry believe a higher standard of record keeping would simply result in the continued use of written work diaries.

Regulators and some industry stakeholders argue that a robust performance specification for in-vehicle telematics devices is needed to monitor persistent speed and fatigue offenders. Courts could then apply these requirements through a supervisory intervention order1 if additional guidance material is developed.

This policy paper argues that electronic work diaries can be made available to industry by finalising the approval process, developing guidance material and making some minor legislative changes. The report also recommends an operational pilot of electronic work diaries to test the institutional and operational environment described in the guidance material.

The NTC believes that the development of guidance material consistent with the current legislation will provide certainty to industry and governments about the requirements of electronic work diaries. When the NTC developed this paper, it aimed to provide the minimum requirements to meet regulatory needs without explicitly identifying a particular type of technology wherever possible. The NTC believes that this approach gives industry the policy certainty they need, while still allowing the broadest scope for the uptake of this technology and minimising cost to operators. The proposed approach also allows courts to impose additional conditions—such as automatic data capture, or speed monitoring—which prevents recidivist drivers from dishonest recording.

This policy paper addresses other key policy issues, such as ensuring that sanction policies for speed and fatigue laws do not unfairly penalise breaches of very low consequence. In-vehicle telematics devices can identify work or rest hours breaches of 1 second and very minor speed breaches, potentially resulting in the accumulation of many penalties over a short period of time. Given the likely safety benefit of building in-vehicle telematics monitoring into management systems, more detailed consideration of sanctions policy in an in-vehicle telematics environment is warranted.

1 Supervisory intervention orders are similar to enforceable undertaking and are a serious course of action for those operators and drivers persistently breaching speed and fatigue laws.
Roadside enforcement also presents challenges when using in-vehicle technology. Road authorities and police would need technology to view electronic records, or require the ability for electronic or paper records to be produced at the roadside. As well as the cost imposition to the overall system, this requirement has ramifications on the reliability and robustness of the solution and may affect adoption rates.

Many of the policy issues presented in this paper will be tested within the New South Wales RTA pilot in order to resolve some of the outstanding issues. The pilot is expected to provide practical experience of the institutional, operational and business processes required when using these technologies and provide information on the solutions to these issues. Results from the New South Wales pilot will inform the finalisation of this policy paper and the associated regulatory impact statement.
Appendix A: National Transport Policy Framework’s vision, policy objectives and policy principles

Appendix C: Information that driver must record in work diary – Section 57 of Heavy Vehicle Driver Fatigue National Model Legislation

Appendix D: Correspondence between provisions of National Heavy Vehicle Driver Fatigue Model Legislation and exposure draft of proposed National Heavy Vehicle Law

Appendix E: Draft Guidelines for Electronic Work Diaries

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**GLOSSARY OF TERMS**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Approving authority</td>
<td>The authority that grants approval for the use of a proposed type of electronic work diary system to be used in the market in accordance with section 74 of the model fatigue legislation.</td>
</tr>
<tr>
<td>Circadian</td>
<td>Physiological activity which occurs every 24 hours.</td>
</tr>
<tr>
<td>Digital tachograph</td>
<td>A digital tachograph is the digital version of the conventional tachograph system. Tachographs record time, vehicle speed and driver identity information and are used to determine the compliance of drivers to hour-of-service regulations.</td>
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<tr>
<td>DRD</td>
<td>Driver recording device</td>
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<tr>
<td>Driver</td>
<td>The driver of a regulated heavy vehicle who uses an electronic work diary system to maintain his or her work diary.</td>
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<tr>
<td>Electronic work diary</td>
<td>A system for recording information defined by the model fatigue legislation, labelled and approved by an authority.</td>
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<tr>
<td>Enforcement officer</td>
<td>A person authorised under the model fatigue legislation, or the associated compliance and enforcement regulations, to access and review the records of work and rest for one or more drivers in order to assess the compliance of drivers, record-keepers and/or other parties in the chain of responsibility comply with the legislation.</td>
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<tr>
<td>EWD</td>
<td>See Electronic work diary</td>
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<tr>
<td>Interoperability</td>
<td>The ability of a system or a product to work with other systems or products.</td>
</tr>
<tr>
<td>Non-approved electronic work diary</td>
<td>An electronic work diary not approved by an approving authority for use in complying with fatigue or speed regulations.</td>
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<tr>
<td>Record-keeper</td>
<td>The person responsible for maintaining records of work and rest for a driver as defined under section 62 of the model fatigue legislation (or any person engaged in accordance with this section to carry out some or all of the record-keeper’s functions).</td>
</tr>
<tr>
<td>Rest time</td>
<td>As per section 38 of the model fatigue legislation, the time that is not the driver’s work time.</td>
</tr>
</tbody>
</table>
| Work time | As per section 37 of the model fatigue legislation, the time that the driver of a regulated heavy vehicle spends:  
- driving on the road  
- loading or unloading  
- inspecting, servicing or repairing the vehicle  
- inspecting or attending to the load on the vehicle  
- attending to the passengers of a bus  
- cleaning or refuelling the vehicle  
- performing marketing tasks in relation to the operation of the vehicle  
- helping with, or supervising, an activity mentioned in subparagraphs (i) to (vi) of section 37 of the model fatigue legislation  
- recording information or completing a document. |
| Written work diary | Written work diary or paper work diary issued by an approving authority (currently state and territory road authorities). |
1. Introduction

The Commonwealth’s Heavy Vehicle Driver Fatigue National Model Legislation 2008 (‘model fatigue legislation’), which was approved by the Australian Transport Council (ATC) in February 2007, allows for either electronic or paper-based recording of work and rest by drivers of regulated heavy vehicles. In preparing for the implementation of this reform, the NTC began work in 2006 to develop a specification and policy for the approval of electronic work diaries by states and territories for the purpose of recording work and rest required by the legislation.

Since the introduction of the model fatigue legislation, the focus of the ATC policy request has changed a number of times, as illustrated within the timeline shown in Figure 1.

In 2007 an existing NTC project to develop a specification for an electronic work diary was re-directed at the request of Australian transport ministers. The new request was to investigate, with Austroads, the feasibility of using the European digital tachograph\(^2\) as an operational in-vehicle telematics tool to manage fatigue and speed compliance. A project to pilot the technology in Australia was commenced, but it became clear, in preparation for the pilot, that the technology would not be appropriate to meet the compliance requirements of fatigue and speed management in Australia. As a result, the focus of Australian governments returned to electronic work diaries as the primary tool.

At a November 2008 ATC meeting, transport ministers requested that the NTC bring forward the development of a possible regulatory framework for heavy vehicle driver speed and fatigue (ATC 2008a). In addition, ATC requested that the NTC continue preparing a national policy framework and regulatory impact statement for heavy vehicle driver systems. This work was to address electronic systems that could manage heavy vehicle driver fatigue and speed compliance. Under this directive Austroads embarked on preparing a performance-based specification for electronic work diaries and heavy vehicle speed monitoring. This specification sits alongside the national policy framework prepared by the NTC. The specification developed by Austroads is a working draft and was released simultaneously with the draft policy paper.

October 2010 saw the release for public comment of a draft position paper titled Electronic Systems for Heavy Vehicle Driver Fatigue and Speed Compliance: Draft paper (NTC 2010b). The responses to this paper have been taken into consideration in preparing this report and are specifically addressed in Section 4. Complementing this report, the NTC released a Draft National In-vehicle Telematics Strategy: The Road Freight Sector (NTC 2010a) and a supporting discussion paper titled In-vehicle Telematics: Informing a National Strategy (NTC 2010c). These documents set out a national framework for the use of in-vehicle telematics in the road freight sector. The papers aim to increase the awareness of in-vehicle telematics and policy certainty to the transport and logistics industry, allowing an informed adoption of this technology.

The ATC has, on a number of occasions, indicated that it supports the use of in-vehicle telematics to promote safety, productivity and environmental improvements in the transport and logistics industry (refer to Appendix A for ATC’s vision, objectives and principles for transport).

This policy paper deals with issues relating to the use of electronic systems to manage hours of work and rest and speed compliance for heavy vehicle drivers. The paper examines the use of electronic systems for drivers, entities within the chain of responsibility and for use by courts to manage fatigue and speed.

Some transport operators are already using in-vehicle telematics to monitor work and rest hours and vehicle speeds. This helps them meet their responsibilities to manage speed and fatigue under the chain-of-responsibility obligations and to manage their fleet more efficiently. These systems have also been used to manage staff rostering and to provide operators with data to help make strategic business decisions. Despite this, drivers are required to carry a complete written record of their work and rest which, in many cases, duplicates information that their employer already captures electronically. However, before states and territories can approve the use of an electronic rather than written means of capturing this information, guidance is required as to the performance

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\(^2\) The digital tachograph is the digital version of the conventional tachograph system. Tachographs record time, vehicle speed and driver identity information, and are used to determine the compliance of drivers to hour-of-service regulations.
specification of systems needed to at least meet the regulatory requirements of the written work diary.

Drivers have a duty not to exceed speed limits, exceed maximum work limits or breach minimum rest requirements. Complementing this, entities within the chain of responsibility must take reasonable steps to prevent driver fatigue or situations that lead to drivers breaching speed limits. Finally, if the duty on the driver or obligations on the entities within the chain of responsibility fail in managing heavy vehicle driver speed or fatigue compliance, courts have sufficient tools to impose sanctions that continually monitor heavy vehicle driver fatigue and speed

Supervisory intervention orders are available for use by courts under compliance and enforcement legislation. These orders can impose monitoring via in-vehicle telematics solutions for repeat offenders to ensure transport operators or truck drivers comply with fatigue and speed legislation. However, it is difficult for courts to know which systems can ensure the monitoring is carried out with sufficient integrity such that the information is an accurate representation of the driver’s actions.

A thorough analysis of the issues associated with the use of electronic systems for fatigue and speed monitoring is presented within this report. These issues are discussed and recommendations are made with the purpose to resolve the issues with a minimum level of government intervention.
Figure 1: History of the electronic systems for heavy vehicle driver fatigue and speed compliance project

2006

- NTC requested to investigate electronic work diaries

2007

- Austroads investigates digital tachographs
- Digital tachograph demonstrated to Transport Ministers

2008

- Regulatory impact statement developed for digital tachographs
- ATC endorsed Standing Committee of Transport to undertake a feasibility study on digital tachographs
- Decision made that digital tachograph is not a suitable technology to manage fatigue compliance

2009

- ATC requires NTC to develop a national policy framework and Regulatory Impact Statement. Austroads to develop performance-based specification
- Draft discussion paper for Electronic systems for heavy vehicle driver fatigue and speed compliance released in July 2009 by the NTC

2010

- Draft National In-vehicle Telematics Strategy released in June 2010 by the NTC
- Draft policy paper for Electronic systems for heavy vehicle driver fatigue and speed management released August 2010 by the NTC
2. Background

The development of this policy paper has been one part of the work being undertaken in relation to the application of electronic systems for managing heavy vehicle driver fatigue and speed compliance. Most recently, with the release of the National In-vehicle Telematics Strategy: The Road Freight Sector (NTC 2011), much interest has arisen as to the role and use of these types of technologies in making the transport network and freight supply chains safer, more productive and more sustainable. In part, this interest has included ways in which in-vehicle telematics may be a suitable replacement for traditional forms of record keeping such as the written work diary.

Before in-vehicle telematics can be approved as a regulatory tool, authorities must be confident that they meet the requirements of the associated legislation and produce information of evidentiary quality.

To achieve this Austroads commissioned Transport Certification Australia to develop a performance-based specification for electronic work diaries and heavy vehicle speed monitoring. In particular, the specification contains the functional and technical requirements for an electronic work diary to be approved by authorities.

These specifications complement this policy paper and guidance material to provide assurance to regulatory authorities on how electronic systems can be used as an alternative to written work diary systems.

The NTC released a draft paper Electronic Systems for Heavy Vehicle Driver Fatigue and Speed Compliance: Draft position paper (NTC 2010a) in October 2010 and received 14 submissions including those from transport agencies, road authorities, technology system suppliers, transport operators and industry bodies. An analysis of the issues raised by stakeholders is contained in Section 4 of this report.

2.1 Background to fatigue and speed compliance legislative context

The ATC has asked the NTC to develop a policy framework and regulatory impact statement for heavy vehicle driver systems. Complementing this, Austroads has developed a performance-based specifications for electronic work diaries and heavy vehicle speed monitoring. To understand how these tasks fit together and what outcomes they aim to achieve a discussion of the relevant fatigue and speed legislative environments is presented below.

2.2 Fatigue

It is widely recognised that fatigue is a serious and common contributing factor to heavy vehicle crashes in Australia and around the world (NTC 2006). In September 2008 the Model Act on Heavy Vehicle Speeding Compliance Regulations 2008 (NTC 2008b) came into force in Queensland, New South Wales, Victoria and South Australia. This new fatigue reform makes parties in the supply chain legally responsible for preventing driver fatigue. The model fatigue legislation applies to trucks with a gross vehicle mass (GVM) of over 12 tonnes and buses with more than 12 seats including the driver’s seat.

The model fatigue legislation is consistent with current obligations under occupational health and safety laws. This law imposes a general duty on: the employer of a heavy vehicle; the prime contractor of the driver; the operator of the heavy vehicle; the scheduler of goods or passengers for transport by the vehicle; the scheduler of its driver; the consignor of goods for transport by the heavy vehicle; the consignee of goods for transport by the heavy vehicle; the loading manager of goods for transport by the heavy vehicle; the loader of goods on to the heavy vehicle; and the unloader of goods from the heavy vehicle. All must take reasonable steps to manage driver fatigue (not merely to comply with driving hours).

The reform changes the focus from regulating work hours to managing fatigue. Long hours of work and work at circadian low points are widely recognised as high risk for fatigue-induced errors (NTC 2006). Proper management of fatigue includes planning trips and rest breaks, managing work and rest records, and training staff to understand the causes of driver fatigue.

In most developed countries, drivers of large heavy vehicles are subject to some form of regulation relating to driving or working time. These rules limit continuous driving time and may also require...
drivers to take minimum breaks or rest periods. This helps to reduce the risk of drivers becoming involved in fatigue-related incidents and improves road safety.

In order to monitor driver compliance with the legislation governing work and rest, most countries require drivers to make and keep records of work and/or driving. These records show what hours the driver has worked, when they have rested and what trips they have undertaken. In Australia, the model fatigue legislation requires drivers of heavy vehicles to use a work diary in the following circumstances:

- when they are engaged in work 100 km or more from their home base within a 28-day period
- when driving for an operator in a fatigue accreditation scheme (either basic or advanced fatigue management).

The model fatigue legislation provides guidance about fatigue management to parties in the transport supply chain and increases compliance through more effective enforcement, offences, sanctions and record-keeping requirements.

To achieve the desired outcome of improving safety while enabling maximum productivity, the model fatigue legislation was developed using the following key principles:

- Encourage effective management of the key determinants of fatigue. Collecting electronic information allows for ‘real time’ information to be used to feed fatigue-management decision making.
- Address commercial actions from parties in the supply chain that increase risks of fatigue and resultant effects on road safety.
- Ensure accountability of all those with responsibility for, or control over, practices that result in unsafe outcomes. Electronic information allows effective distribution to those within the chain of responsibility.
- 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.
- Do not impose excessive compliance costs on transport operators.
- Enable cost-effective enforcement.

While the core function of a work diary is for drivers to record their work and rest for compliance assessment, this information is also needed on a practical level to assist entities within the chain of responsibility to meet their obligations to manage driver fatigue.

The legislation allows for records of driver work and rest to be kept either in a written work diary or in an approved electronic work diary. Currently there are no electronic work diaries approved for use in Australia for regulatory purposes. However, many companies and their drivers are already using technology that electronically records information on drivers’ work, driving and rest times in addition to the written work diary.

The current collection of information within the operators’ commercial record keeping for other business and operational needs creates two significant issues. First, the recording of work and rest in both an electronic system and a written work diary is cumbersome and in-efficient. Second, as all information recorded by the operator is discoverable, conflicts between the information contained within the commercial electronic record-keeping system that contradicts the written records of the driver could be incriminating for the driver and operator.

These issues may act as a barrier to many operators who might otherwise opt for a streamlined and efficient electronic record-keeping system.

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1 These provisions are implemented through state-based legislation and may vary slightly in some states and territories.

4 Basic Fatigue Management (BFM) allows operators more flexible work and rest hours linked to accreditation (i.e. National Heavy Vehicle Accreditation Scheme). Advanced Fatigue Management allows operators to create their own safety management system and work hours linked to accreditation (i.e. National Heavy Vehicle Accreditation Scheme) (NTC 2008c, 2008d).
2.3 Speed

Research shows that excessive speed is the other major contributing factor to heavy vehicle crashes in Australia and internationally (NTC 2007). The problem of speeding in heavy vehicle road transport is characterised by a range of factors:

- Speeding is relatively common among heavy vehicles (Robbins 2010).
- Analysis shows that speeding is a significant factor in heavy vehicle crashes, and is likely to pose a greater risk to these vehicles than for lighter vehicles (NTC 2007b).
- There is a high cost to the community from deaths and injuries from heavy vehicle crashes where speeding is a factor. The NTC estimated this to be $343 million per annum (NTC 2007b).
- Although vehicles above 12-tonne GVM are required to be limited to not more than 100 km/h, this device has no effect in reducing speeding on roads where the speed limit is below 100 km/h; instances of tampering with speed limiters are regularly reported.
- It is not unusual for heavy vehicle drivers to be put under external pressure to meet deadlines, which can influence on-road speeding.
- Speeding heavy vehicles attract higher operating and maintenance costs but also achieve a competitive advantage over operators who do not speed.
- Speeding results in higher fuel consumption and greenhouse gas emissions.
- In certain areas of Australia there are community concerns about the safety of sharing the roads with speeding heavy vehicles. This problem is likely to be compounded by the projected doubling of the freight task by 2020 (NTC 2007b, p. 13).

These factors have the potential to hold back future productivity reforms for the road transport industry unless addressed.

The issue of speeding heavy vehicles has been a concern for some time in Australia. There are many policy and legislative responses that attempt to address this problem. These responses include education, industry initiatives and enforcement (e.g. the use of speed cameras, radar devices, point-to-point cameras). The 'safe systems' approach to road safety, as set out in the National Road Safety Strategy Action Plan 2009–2010 (ATC 2008b), recognises that drivers will make errors and that roads, vehicles and travel speeds should accommodate the consequences of human error. As a result, the system should be designed and managed to reduce the risk of crashes, and to prevent serious injury or death if a crash does occur.

In 2007 the ATC approved the Commonwealth’s Model Act on Heavy Vehicle Speeding Compliance Regulations 2008 (NTC 2008b). This national regulation introduced general and specific duties for transport parties for speed. These duties are for transport parties to take reasonable steps to ensure their activities do not cause the driver to exceed speed limits.

The issue of speed management presents quite differently to that of fatigue. That is, fatigue management is done through a number of tools. First, through the model fatigue legislation, this requires the driver not only to abide by work and rest limits, but to record their work and rest within a work diary. This work diary acts as a record for interested parties to review the driver’s compliance and implement corrective actions to modify noncompliant behaviour. Second, through chain-of-responsibility legislation that explicitly requires entities to take reasonable steps to manage driver fatigue. This, combined with the driver recording requirements, removes the ability for entities to claim that they ‘do not know’ what the driver has worked.

Speed on the other hand is only captured in the chain-of-responsibility requirements. The model Act on heavy vehicle speeding compliance does not require records to be collected, or for electronic equipment to be used in that collection. As there are no current record-keeping requirements of the driver in relation to speed, speed management is difficult for off-road parties. Unless a noncompliant driver is detected by on-road enforcement or automatic detection devices, offences cannot be prosecuted.

2.4 Supervisory intervention orders

There are a number of sanctions available that can be used by courts to manage persistent and systematic offenders (both transport operators and truck drivers) under compliance and enforcement legislation. Figure 2 demonstrates the hierarchy of sanctions available to courts (NTC 2004). Within this hierarchy, supervisory intervention orders (SIOS) may make use of an in-vehicle telematics speed- or fatigue-management system. SIOS are similar to enforceable undertakings and are a serious course of action for those operators and drivers persistently breaching speed and fatigue laws.
However, without a recognised standard for telematics devices to impose upon an operator or driver, the effectiveness of this sanction is uncertain.

![Hierarchy of sanctions](image)

**Figure 2: The hierarchy of sanctions under the national Compliance and Enforcement Bill**

### 2.5 Scope of this policy paper

The scope of this policy paper is limited to the immediate issues associated with enabling an electronic alternative to the written work diary and determining the appropriate policy recommendations for speed management. This paper does not intend to review the existing written work diary or its operational environment.

This paper reflects the position of the model fatigue legislation allowing for an electronic work diary as an alternative to the written work diary, namely that, at a minimum, any electronic work diary must be able to collect the same information, and provide at least the same security, protection, usability and durability, as the written work diary. For example, the information in an electronic work diary must be able to follow the driver across vehicles and transport operators.

It is important to note there are possibilities that the electronic work diary presents that the existing written work diary does not (e.g. assisting drivers with information for declarations of work and rest). There are also instances where an electronic work diary will not be able to easily replicate what the written work diary does. For example, a written work diary is always operational and never ‘breaks down’. However, a written work diary cannot provide records to an operator or entities within the chain of responsibility in real time, or alert operators or drivers of impending breaches of the work and rest regulations.

Consideration needs to be given to the different audiences for which the electronic work diary will be used. The electronic work diary can be used by transport operators, truck drivers, regulators and enforcement officers, to name a few. The operational needs of these stakeholders needs to be carefully considered if electronic work diaries are to reflect the existing written work diary and be used as a tool to manage fatigue or speed compliance.
3. Speed and fatigue monitoring: a case for action

The current legislative environment under section 74(4) of the model fatigue legislation states:

*In approving a type of electronic work diary, the Authority must have regard to any guidelines in relation to electronic diaries approved by the Australian Transport Council by notice published in the Commonwealth Government Gazette.*

At this stage there are no guidelines available to assist authorities in approving electronic work diaries for use in meeting fatigue and speed compliance requirements. This section provides a discussion of the identified problems and presents the case for guidance material. Section 4 identifies the issues associated with the approval of electronic work diaries. Section 4 also provides the policy options and stakeholder feedback on those issues.

3.1 What is needed to allow electronic work diaries and speed monitoring to be used?

Two problems were identified in the *Electronic Systems for Heavy Vehicle Driver Fatigue and Speed Compliance: Draft position paper* (NTC 2009) released by the NTC in July 2009:

**Problem 1:** While the regulations for the use of electronic work diaries currently exist, approvals are being impeded by the absence of agreed national processes or guidance for their use in managing compliance.

**Problem 2:** There is an absence of guidance material on the available sanctions that may be imposed by courts for failing to comply with fatigue and speed regulations. This lack of guidance material limits the effectiveness of supervisory intervention orders as a sanctioning mechanism.

While the speed chain-of-responsibility legislation does not contain record-keeping obligations, it does require the entities within the chain to take reasonable steps to manage a driver’s speed compliance. However, entities within the chain have had little at their disposal to actively manage the driver’s speed until they have been caught by roadside enforcement.

There is a need for guidance material to be developed to provide minimum specifications and procedures to allow for the approval of electronic work diaries to be used for compliance purposes. Companies are already using electronic systems for a variety of reasons, including monitoring drivers’ driving time for commercial purposes. The current model fatigue legislation provides for the use of electronic work diaries, but there have not been any approvals issued for their use. A consequence of the absence of guidance material is that industry is not using technology to its fullest capabilities. The potential benefits of such technologies are widely acknowledged and are the key driver to the recently released *National In-vehicle Telematics Strategy: The Road Freight Sector* (NTC 2011).

There are two key matters that must be considered when developing guidance material:

- guidance material that deals with applications for approval of electronic work diaries by companies that only operate trucks in one state or territory (for example, material which describes the specific requirements of one states roadside enforcement officers to review electronic work diary records)
- guidance material that deals with applications for approval of electronic work diaries by companies that operate trucks in more than one state or territory (for example, material which describes the requirements for multiple states roadside enforcement officers to review electronic work diary records).

This paper focuses primarily on dealing with applications for multi-state/territory approvals and makes the assumption that procedures for resolving such applications should be applicable to single state/territory approvals.

The fatigue model legislation provides powers for a road or transport regulator (‘the authority’) to approve the use of an electronic work diary. If the electronic work diary is for use in multiple states and territories and is approved, the agency needs to notify the agencies in other states and territories of its decision.⁴

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⁴ Refer to section 116 and 118 in the heavy vehicle driver fatigue national model legislation (NTC 2008d)
3.2 Why is guidance material needed?

Guidance material is needed to ensure that decision making by regulators is informed by knowledge of the technical requirements that a device must meet in order to satisfactorily fulfil the function of regulatory record keeping. Understandably, regulators are reluctant to approve the use of electronic work diaries without the necessary guidance material as stipulated in section 74(4) of the model fatigue legislation.

Guidance material also has an important role to play in ensuring consistency between jurisdictions when approving applications and providing potential designers, providers and users of electronic work diaries with certainty - they can understand the requirements for their device to be acceptable as an alternative to the written work diary.

Without adequate guidance material, there are likely to be delays in the approval process and a range of issues will arise:

- industry will experience an unnecessary cost burden from operating electronic systems for business purposes but continuing to use written work diaries for fatigue regulatory compliance purposes
- the potential for conflicting information being recorded in two separate recording systems requiring operators to audit and rectify the conflict
- it acts as a barrier to innovation and safety improvements by restricting the use of advanced systems to manage driver fatigue
- potential costs for government and industry of continuing to rely exclusively on current enforcement practices.

The absence of guidance material for the approval process has existed since 1999. The problem is likely to be of growing significance, as electronic systems and devices in vehicles and transport operations are becoming much more common.
4. Policy options for electronic record keeping

The NTC identified two problems in the *Electronic Systems for Heavy Vehicle Driver Fatigue and Speed Compliance: Draft position paper released in July 2009*:

**Problem 1**: While the regulations for the use of electronic work diaries currently exist, approvals are being impeded by the absence of agreed national processes or guidance for their use in managing compliance.

**Problem 2**: There is an absence of guidance material on the available sanctions that may be imposed by courts for failing to comply with fatigue and speed regulations. This lack of guidance material limits the effectiveness of supervisory intervention orders as a sanctioning mechanism.

While the speed chain-of-responsibility legislation does not contain record-keeping obligations, it does require the entities within the chain to take reasonable steps to manage a driver’s speed compliance. However, entities within the chain have had little at their disposal to actively manage the driver’s speed until they have been caught by roadside enforcement.

NTC proposed three options to address problem 1:
- Option A1: Do nothing (that is, keep the status quo).
- Option A2: Develop guidelines consistent with Section 74(4) of the model fatigue legislation.
- Option A3: Develop an approval process and an alternative compliance framework for electronic work diaries.

NTC proposed two options to address problem 2:
- Option B1: Do nothing (that is, keep the status quo).
- Option B2: Develop guidance material on the sanctions available to courts that could be used for fatigue and speed compliance.

The options are discussed in more detail below.

### 4.1 Problem 1: Options discussion

Respondents to the consultation process following the release of the draft position paper released in July 2009 did not support options A1 or A3.

Option A1 (do nothing) does not address the problem and would not result in approvals of electronic work diaries. As such, the NTC believes this option is not viable.

Option A3 (developing an approval process and alternative compliance framework) would, from a regulatory perspective, address the problem but may not be supported by industry.

Option A3 proposed a continuous monitoring regime and either electronic audit or electronic compliance reporting to the Authority. This option has the potential to remove work diary review from roadside enforcement and provide a time saving to both operators and Authorities. However, as roadside enforcement incorporates a number of compliance checks including vehicle inspection for roadworthiness, until these checks can also be removed from roadside enforcement the actual time saving may not be significant.

Further, the leap from a paper-based environment to the alternative fully electronic compliance framework may be too large for many operators and drivers. Concerns were expressed from industry on how electronic records may be reviewed at the roadside and what the policing policy may be for small breaches of the law during roadside inspection. In an alternative compliance policy framework, this concern becomes even more significant because all breaches could be reported.

Respondents to the position paper did support option A2. Option A2 consisted of developing guidelines consistent with Section 74(4) of the model fatigue legislation. The guidelines would encompass the necessary steps for an Authority to approve an electronic work diary application. For
example, the guidelines would make reference to any applicable application forms, processes, submission requirements and technical specifications. This concept is shown in Figure 3.

![Diagram showing the relationship between legislation, guidelines, and specification](image)

**Figure 3: Relationship between legislation, guidelines and specification**

A discussion of the content of the guidelines is provided below.

### 4.2 Option A2: Develop guidelines consistent with section 74(4) of the model fatigue legislation

The guidelines consistent with section 74(4) of the model fatigue legislation describes the application and approval process for an electronic work diary.

The approval process is designed to provide approving authorities with the necessary steps to be able to approve an electronic work diary solution. To do this, authorities will require the confidence that the electronic work diary system can meet the requirements contained within the model fatigue legislation and the operational environment of the written work diary.

Unlike the written work diary, it will be difficult for Authorities to have confidence in a system that has not been tested. Authorities must have the capability to rely on the information provided by the electronic work diary to the extent that the information can be used as evidence within a prosecution.

As such, the guidelines must contain the necessary testing of an electronic work diary and the process of providing the confidence to authorities in readiness for their approval. The testing of electronic work diaries is discussed further in the following section.

#### 4.2.1 Testing of the electronic work diary

Unlike the single-format written work diary, it is expected that many different electronic work diary solutions will be presented to authorities. While the output of each system must meet legislative and operational requirements, the way in which each system achieves this output will be dependent on the hardware and software design.

Before Authorities approve electronic work diary systems, they will require the confidence that the hardware and software design is capable of providing information suitable for regulatory use as an alternative to the written work diary. Authorities cannot afford to trust a system on face value only to find out it is not capable of providing the necessary information during a prosecution. Specifically, authorities will need to be confident that systems can:

- operate reliably in accordance with the regulatory and operational requirements
- interoperate with other suppliers or enforcement systems
- adequately protect the integrity of the information
- adequately protect the information once stored
- continue to meet the regulatory and operational requirements as threats to the system evolve.
It is expected that this cannot be achieved without each system being tested to demonstrate its ability to meet the Authority’s requirements and that it is likely that this testing will be beyond the ability of the Authority.

Australian Standards (AS 17000 series and the related HB 68 series of handbooks) defines this type of testing as conformity assessment. These standards identify three broad strategies for assessing conformity. In the context of an electronic work diary system, these strategies are:

- First-party conformity assessment – in which assessment is performed by the supplier of the electronic work diary. This strategy is generally applicable in cases where the supplier already has established trust within the market and the risks associated with incorrectly assessing a non-conformant system as being conforming are minor or are capable of satisfactory mitigation by other means.
- Second-party conformity assessment – in which assessment is performed by a person/organisation with a user interest in the electronic work diary (e.g. a buyer of a product). For example, if a system is purchased from a supplier then the buyer would test the system for conformance. This strategy is generally applicable in cases where the risks of non-conformance are significant for the assessor and the supplier but are minor for any other stakeholders.
- Third-party conformity assessment – in which assessment is performed by a person/organisation that is independent of both the supplier and the user interests. This strategy is applicable in situations where the risks of non-conformance are significant for multiple stakeholders other than a single acquirer and seller. For example, when there are external regulators and/or multiple suppliers whose components need to interoperate reliably.

An electronic work diary system is expected to be a complex, distributed information system linking drivers, record keepers, enforcement officers and other parties within the chain of responsibility. For example, an electronic work diary system will have:

- multiple users interacting with each other in complex ways – for example, one driver may perform work for multiple operators; one record keeper may manage records for multiple drivers
- multiple interacting system components, including driver recording devices, in-vehicle telematic equipment, systems operated by enforcement officers and back-office systems involved in driver registration and records maintenance
- multiple external stakeholders with critical risks being managed through the system, including regulators, and government
- potentially different service delivery models such as systems provided and operated by transport operators and/or by independent third-party service providers.

Based the broad range of designs and implementations of electronic work diary systems, the range of stakeholder interests, the potential for multiple suppliers with requirements for interoperable components, and the critical risks that impact on regulators and the general public (especially those relating to compliance and evidence), it is unlikely that authorities would be confident with approving systems that had not been assessed by an independent third party. This is consistent with practice in other comparable complex distributed information systems with significant regulatory implications including the IAP, digital tachographs and telecommunications systems.

A third-party conformance assessment model can be implemented in many different ways. For example, the third party may conduct all testing themselves or use a combination of testing and audit of the supplier’s testing to make their assessment. Whichever avenue is chosen, it is likely that the conformance assessment will be part of a certification process where the system is certified as meeting the requirements of the guideline ready for approval by the Authority.

It is interesting to note that part of this requirement for third-party assessment comes from the freedom provided by a performance-based specification approach. Under this approach, designers of systems are given the greatest choice in hardware, software and architecture. This flexibility produces uncertainty for the authority because they have little knowledge of how the particular implementation will meet the regulatory or operational requirements.

The performance-based approach is significantly different from the current written work diary implementation. The written work diary is a closed, single-use, prescriptive device. While there may be multiple printing facilities producing the diary, there is only one design for all drivers. Testing this one design provides authorities with the confidence to know that the diary can deliver the necessary information to support a prosecution if required.
4.2.2 Guideline and application process

The guideline is designed to describe the application process and makes reference to all the necessary requirements of the applicant including the performance-based specification.

Broadly, the application process requires the applicant to have had their submission certified by an approved certification body. Authorities will hold lists of approved certification bodies. It is anticipated that the approval process could be managed by a National Heavy Vehicle Regulator.

Each certification body will maintain a current version of the functional and technical specification that contains the requirements of an electronic work diary system. Applicants will be required to acquire a copy of the specification from the Authority they intend to seek approval from.

Each certification body will have a process by which the applicant applies to have their electronic work diary certified. The applicant will follow the process detailed by the certification body to provide sufficient information for the diary to be assessed. For example, upon application to the certification body, the applicant may be provided with the specification and a checklist that must be filled out. The certification body would use the populated checklist and any associated documentation in conjunction with an example of the electronic work diary system to assess whether it meets the functional and technical requirements with the specification.

The applicant will be provided with a certificate from the certification body upon successfully meeting the requirements. The applicant then provides this certificate and applies to the authority for approval of their electronic work diary system.

Once satisfied with the evidence provided by the applicant, the Authority shall grant approval of the electronic work diary system.

An applicant whose application is not approved may appeal this decision with the Authority. Each authority will have processes to appeal rejected applications.

Appendix E provides the draft guidelines for approval of electronic work diaries.

The recommendations for the functional and technical requirements of the electronic work diary are discussed below.

4.3 Problem 2: Options discussion

Traditionally, the main penalty for road transport breaches has been a fine imposed by a court. Maximum fines were quite low compared with fines for other offences and this, combined with the fact that they tended only to be imposed on drivers and operators, meant that road transport monetary penalties alone have not operated effectively as deterrents.

The national Road Transport Reform (Compliance and Enforcement) Bill was approved by the ATC in 2003. The Bill introduced the chain-of-responsibility concept. This means that all parties with responsibility for activities that affect compliance with the road transport laws should be held legally accountable. In addition, the Bill contains a hierarchy of sanctions and penalties for parties that are not complying with transport laws (see Figure 2). These sanctions and penalties can be used to address noncompliance with fatigue or speed-related laws.

The compliance and enforcement reform contains five general objectives. These are:

- to improve road transport safety
- to minimise adverse impacts of road transport on roads, bridges and road infrastructure
- to minimise adverse impacts of road transport on the environment
- to minimise adverse impacts of road transport on the community
- to promote effective and efficient observance of requirements of road transport law.

These general objectives are supplemented by a range of particular objectives. These are:

- to provide a system that encourages effective and efficient compliance with requirements of road transport law
to provide a system that promotes improved outcomes for road safety, the environment, road infrastructure, traffic management and competitive equity through improved compliance with and accountability for requirements of road transport law

to provide an effective, efficient and equitable scheme for the enforcement of requirements of road transport law

to recognise a chain of responsibility of parties who have a role in the transport of goods or passengers by road and to make the parties accountable for their acts and omissions

to confer powers to promote safety in the use of vehicles in road transport.

The administrative-based and court-imposed sanctions and penalties proposed in the Bill are intended to be effective deterrents. They have been tailored to address specific types of offenders (e.g. first-time offenders, those who might benefit from compliance supervision, ‘systematic or persistent’ offenders) and specific consequences (e.g. offences involving a risk to safety or the reaping of large commercial profits from the wrong-doing).

Used separately or, where appropriate, in combination, these new sanctions and penalties will enable the most effective sanctions strategy or strategies to be applied to the particular offender and the particular circumstances.

In describing the regulatory problem below, the discussion focuses on the supervisory intervention order sanction. A supervisory intervention order is described in Box 1. It can be called a ‘flexible’ sanction as the order can direct the offender to undertake a range of actions. These include changing management and operation practices through to reporting information on their compliance with the law.

**Box 1: Supervisory intervention order**

A supervisory intervention order (SIO) may be made by a court only upon application of the prosecutor or a road authority and only against a person who is found by the court to be a systematic or persistent offender. This order is intended to improve the person’s compliance performance and the court must consider the likelihood of the order achieving this aim when deciding upon whether to make the order.

An SIO may direct the offender to:

- undertake acts to improve compliance, such as retraining or re-assigning staff, appointing a compliance auditor, obtaining expert advice, implementing operational changes and publishing compliance reports
- report or disclose information on compliance
- conduct specific operations subject to the direction of the authority.

The order cannot extend beyond one year. Any costs associated with implementing the order will be the responsibility of the person against whom the order is made. The order may be made either instead of any other penalty or in addition to any other penalty, other than a prohibition order.

Respondents to the consultation process of the draft position paper released in July 2009 did not provide much commentary on the need to introduce guidance material on the tools available for courts to manage fatigue and speed compliance. However, the NTC believes that for a court to be able to impose an effective sanction, the contents of the sanction must achieve the desired result. This requirement for an effective tool to manage fatigue and speed is shared by the greater transport industry.

It may be argued that under the current fatigue and speed chain-of-responsibility legislation, operators are currently obligated to look to ways to manage driver fatigue and speed compliance. An electronic work diary, once approved, becomes a tool available to courts and industry to manage fatigue compliance. Courts may, however, impose conditions above that required by the minimum specification as prescribed by the fatigue legislation. For example, a court may require an operator to operate an electronic work diary that contains assisted information of location and time recording, offering a record-keeping system with integrity gains greater than that of a written work diary.
However, because there is no current regulatory speed record-keeping system, it may be argued that the tools necessary for speed compliance for either industry or courts are lacking. In the July position paper, the NTC proposed two options to address the identified problem.

Option B1 involved maintaining the status quo and doing nothing. This is a viable option because it may be argued that courts and industry may cater for themselves in selecting the appropriate tools for fatigue and speed management. Further, with the specification for electronic work diaries, it may be argued that an operator has half of their fatigue and speed record-keeping solution. However, this process involves both the courts and industry potentially learning through trial and error and creating a costly learning curve.

Option B2 involved developing guidance material on the tools available that courts may use for fatigue and speed compliance. This option provides an option for selection by courts or industry that provides the minimum elements for a system assuring a high degree of data integrity. Both courts and industry are not obligated to use this guidance material or may modify the material to suit their requirements. As such, the NTC recommends that option B2 most appropriately addresses problem 2.

4.4 Option B2: Develop guidance on tools available for courts for fatigue and speed management

A court can impose an SIO upon application of the prosecutor or a road authority and against a person who is found by the court to be a systematic or persistent offender. An SIO may direct the offender to undertake acts to improve compliance including imposing electronic on-road compliance monitoring. However, such a sanction will only be an effective measure if the electronic on-road compliance monitoring is effective in collecting and providing the information to the operator.

Using electronic on-road telematics equipment does not in itself prevent a driver from becoming noncompliant, but rather provides the information of the noncompliance explicitly to all parties within the chain of responsibility.

To achieve this for fatigue compliance, the electronic work diary specification may need some modifications to prevent traditional false declarations from being made by the persistent offender.

To achieve this for speed compliance, a speed-monitoring specification is needed. The development of the specification then allows industry and courts to be aware of the currently unrecorded information of the driver.
5. Policy issues and stakeholder feedback

A number of issues arise when shifting from a regulatory paper record-keeping environment to a regulatory electronic record-keeping environment and introducing a speed-management system based on continuous monitoring. These issues can be broadly described as issues concerning either the system integrity of an electronic work diary, users of the electronic work diary and speed management.

This section will present comments raised by stakeholders in relation to the issues of moving from a paper record-keeping environment to an electronic record-keeping environment. The draft policy paper was released for public consultation in November and December 2010. Accompanying the NTC draft policy paper was the Austroads Performance-based specification for electronic work diary and heavy vehicle speed monitoring (Draft) (Austroads 2010). Fourteen submissions were received from the public consultation period which addressed outstanding policy issues and technical aspects of the performance-based specification. In addition there were a number of other issues raised during the consultation and these have been incorporated in this final policy paper. A summary of the responses is provided in Appendix A.

5.1 Electronic work diary policy issues and stakeholder feedback

5.1.1 Entry of data

As required by the model fatigue legislation, the electronic work diary must record the driver’s declarations of work and rest, as well as such other information as the driver’s name, driver’s license details and base of operation. At a minimum, the driver needs to enter in the information required under Section 57 of the model fatigue legislation (refer to Appendix C).

Electronic work diary systems are not required to, but may, assist drivers in making their declaration. For example, an electronic work diary system may use a GPS to populate time and location information within the driver’s declaration.

Consistent with Section 74(3e) of the model fatigue legislation, where the diary assists the driver in making their declaration, the electronic work diary will require the driver to confirm the details as being correct. If the details are not correct, the driver will be able to alter the details.

A significant motivation for operators to shift to an electronic work diary is the increased integrity it offers. If operators choose systems that assist drivers in making their declarations by populating information, then these systems will allow a driver to change the information but also record the details of any change. While the ability for the driver to confirm and change records in the electronic work diary is a legal requirement, doing this without an auditable trail diminishes the potential integrity gains sought by the operator. As such, in systems that offer driver declaration assistance, details of the declaration that the driver changes will be recorded such that the original information populated for the driver’s acceptance is still available for audit.

In electronic work diary systems that provide assistance in the driver’s declaration, the information must be recorded in a format suitable for the driver to confirm its accuracy. For example, presenting a latitude and longitude to a driver to confirm would not be suitable without a corresponding English description of the location.

Providing this flexibility of data entry allows varying technology and designs to be submitted for approval and allows operators to choose the solution that is right for them. This is consistent with the consultation feedback of ensuring that a range of technologies may be used and that solutions are available to both large and small operators.

Stakeholder feedback: Entry of data

Some respondents commented on the entry of data requirements of an electronic work diary. These included:

- RoadTech Systems,
- FleetEffect,
- Australian Trucking Association (ATA)
- New South Wales Roads and Traffic Authority (RTA)
As discussed above, entry of data is the way in which data is captured by the electronic work diary. The ATA agreed with the NTC position that data should be able to be entered manually as is currently required by the model fatigue legislation. The RTA, FleetEffect and RoadTech Systems argued that the electronic work diary should provide assisted automatic capture of data (for example, if the vehicle is moving the diary should record this movement and location with the use of GPS technology). These respondents agreed that the driver must be able to verify the automatically populated entry, for example the verification could be completed by a signature on a glass display. They also agreed that the driver must have the ability to change their work and rest activities, with a record of any changes being kept in the back office and available for internal audit. The RTA posited that without the ability to of the in-vehicle unit to generate data, the electronic work diary would not reflect the progress over the current written work diary. TMR noted the need for enforcement officers to add comments to a work diary concerning compliance activities carried out on the roadside. ARTI proposed that GPS technology was mandated in all electronic work diaries, including in the national pilot.

The NTC position is outlined below. The use of GPS as an automatic data capture tool is discussed further in Section 5.1.3. The upcoming RTA pilot of electronic work diaries will test an electronic system with and without automatic data capture.

### Position summary
Electronic work diaries must allow the manual entering of information within a driver’s declaration.

Electronic work diaries may provide assisted entering of information (but this is not required) within the driver’s declaration, so long as the following conditions are met:

- the information is in a format suitable for the driver to understand
- the driver must confirm the information (i.e. make a declaration)
- drivers can alter information they believe is incorrect
- details of any alterations are recorded.

### 5.1.2 Driver identification and authentication

Since it is critical that the driver makes the declaration, an electronic work diary will require a method of identification and authentication. The method of identification and authentication will automatically populate the appropriate identification details described under Section 57 of the model fatigue legislation.

Consistent with the performance-based directive from the ATC, the method of identification or authentication should not be prescribed, but rather meet a standard that is equivalent to the driver’s signature as used with the written work diary.

The method of identification and authentication will be used for each and every declaration that the driver makes. This measure ensures each declaration is authentic.

### Stakeholder feedback: driver identification and authentication

A few stakeholders provided feedback on the way in which a driver is identified and their entry authenticated. These stakeholders included:

- RoadTech Systems,
- FleetEffect,
- Australian Trucking Association (ATA)
- New South Wales Roads and Traffic Authority (RTA).

RoadTech Systems asserted that the presence of the driver recording device should be sufficient for the identification and authentication of the driver. The RTA argued that the method for identification and authentication should be prescribed within the performance-based specification to facilitate interoperability across electronic systems. The ATA supported a multi-tiered approach to driver
identification, whilst FleetEffect agreed with the NTC position that the process needs to be equivalent to the current system under the written work diary. The NTC position has not changed from the draft policy paper and is outlined below.

### Position summary

Electronic work diaries should contain a method of identification and authentication consistent with the standard of the driver’s signature used within the written work diary. The method of identification and authentication should be used for each driver declaration and automatically enter the driver’s personal details required under Section 57 of the Heavy Vehicle Driver Fatigue National Model Legislation.

#### 5.1.3 GPS for electronic work diaries

A key theme from the submissions was highlighting the benefits that would be achieved by the inclusion of GPS as a component of the electronic work diary. In Section 4.1.1 Entry of data, a discussion is presented on the merits of automatic data population for the electronic work diary. It is clear that the use of GPS is a technological extension of the existing requirements of the written work diary. It is also clear that the legislation does not require the use of GPS. Privacy issues arise with the inclusion of GPS tracking in what is essentially a device to record hours of work and rest.

The NTC recognises that linking the driver’s declaration of the time and location at which they change from work to rest with GPS-generated time and location information would greatly enhance the confidence of both operators and regulators in the accuracy of the driver’s declaration. However under the current legislation, where a driver has a choice of recording their hours of work and rest in either a paper written work diary or an electronic work diary, and where both forms of record-keeping have the same status in demonstrating compliance with the provisions of the applicable law, NTC does not believe that continuous monitoring of a driver’s location can be justified as essential to achieve the purpose of the legislation. Consequently, NTC does not propose to require GPS as part of an electronic work diary. This does not prevent the use of devices which both meet the requirements for an electronic work diary and are also equipped for with GPS capability. As part of the national pilot of electronic work diaries to be led by NSW, systems with and without GPS will be included.

The NTC maintains the position that the use of GPS to automatically populate data in the electronic work diary is not essential to meet the requirements of the model fatigue legislation and as such should not be required.

#### 5.1.4 Interoperability

As presented in the Austroads performance-based specification, the issue of interoperability is paramount in an electronic environment. The specification (Austroads 2010) indicates that ‘there is currently no interoperability across different commercially available electronic systems (p 38)’. The specification stresses the need for interoperability in order to use the EWD for a regulatory purpose (p 38). The driver recording device was included in the specification as a means of enabling interoperability across different electronic work diary systems (p 38). It is imperative that in an electronic environment, drivers are able to transfer between operators as they currently do when using a written work diary. Interoperability will be tested in the upcoming national pilot of electronic work diaries to be led by NSW RTA.

**Stakeholder feedback: Interoperability**

Three submissions were received from:
- RoadTech Systems
- Spatial Industries Business Association (SIBA)
- South Australia Department of Transport, Energy and Infrastructure (DTEI).
that address interoperability.

All three submissions argued that electronic work diary systems need to be interoperable. SIBA suggested that interoperability be standards based. DTEI proposed that the system have multi-application in addition to interoperability. RoadTech Systems argued that all EWDs should record the same data in the same way to the same format of driver recording device.

### Position summary

EWD systems need to record information in a standardised format to ensure interoperability.

#### 5.1.5 Data integrity

The integrity of the information within an electronic work diary may be conceptualised as the integrity of the data capture and the integrity of the data storage.

Feedback from the first round of consultation on the draft position paper (July 2009) presented two main themes. One theme stated that the electronic work diary should have a high level of data integrity but should not be more onerous than the written work diary. The second theme stated that an electronic work diary should have a high level of data integrity that should be at least equal to the written work diary.

From this feedback, it may be surmised that an electronic work diary should, at a minimum, protect the integrity of the data to at least the same standard as the written work diary.

The integrity of the written work diary, by its design, can only offer controls to protect the integrity of the data once it has been entered. There is little in the written work diary that makes a driver enter the ‘correct’ information.

In an electronic work diary, for work involving driving, the integrity of the captured data can be increased by using automatic data-capture techniques. While increasing the integrity of the data within the electronic work diary, this shifts the functionality further than that of the written work diary.

In some cases automatic data-capture will be a logical function to include in an operator’s electronic work diary. Operators that currently have a ‘track and trace’ solution already collect data that may be akin to that required, at least in part, under an electronic work diary. For these operators, the necessary equipment may already be installed and the ability to utilise the automatically captured information of their ‘track and trace’ solution removes the dilemma of having two potentially contradictory sources of information at their disposal (i.e. information from a track and trace solution and information from the driver’s manual entry).

In some cases operators may want to maintain the ability to enter information manually. This may be due to a perceived saving in the capital investment of the system or they may only want to utilise the electronic work diary to fulfil their legal obligation and are confident of the integrity of their manual data entry.

The NTC believes that operators should be able to choose if the data contained in a driver declaration is captured by automatic or manual means. As long as the minimum requirements demanded by the legislation are met, and that data at least equivalent to that in a written work diary is recorded, then the operator can choose whatever extra measures are offered by their system to ensure data integrity.

Operators that choose to run a multiple information system should be able to consider the ramifications and the risks of conflicting information available to authorities. For example, an operator using a fleet tracking system and a manual driver declaration electronic work diary must ensure the information recorded by both systems does not conflict. Operators should make this decision in the recognition that while an electronic work diary shall assure the integrity of the information post capture, only systems that utilise automatic methods of data acquisition may be considered as providing integrity gains greater than that of the written work diary.

Post capture, electronic work diaries shall assure the data quality to at least the level offered by the written work diary. To achieve this, designers of electronic work diaries should consider the ways in which the system can be designed to electronically protect information and maximise its ability to be used as credible evidence.
Part of the strength of the written work diary is its simplicity and its continual operation. To maintain equivalence, the electronic work diary shall provide a highly reliable and robust environment for driver record keeping. In achieving these requirements, designers of systems will need to consider the evolving threats associated with the electronic environment and the necessary technical competency required to rectify faults.

**Stakeholder feedback: Data integrity**

The South Australian Department of Transport, Energy and Infrastructure (DTEI), the Australian Trucking Association (ATA), the New South Wales Roads and Traffic Authority (RTA), Queensland Department of Transport and Main Roads (TMR), FleetEffect and Australian Regulatory Telematics Industry (ARTI) all responded to the discussion of data integrity. The ATA and FleetEffect both indicated their preference for data integrity to be equivalent to the current integrity of the written work diary, with FleetEffect citing the use of a signature on a glass screen. The RTA highlighted that data integrity as defined by the Australian Records Management Standard refers to the record being ‘complete and unaltered’. This view is different to the one presented in the draft policy paper of the record being an accurate representation of the driver’s work and rest activities, and NTC agrees that any approved system should ensure that any record is ‘complete and unaltered’.

The South Australian Department of Transport, Energy and Infrastructure contend that to ensure the integrity of the system and data, the electronic work diary needs to have: GPS, continuous capture of data, be tethered to the vehicle and include tamper monitoring. ARTI proposed a similar position to DTEI. ARTI suggested that the integrity measure contained in the specification be accepted to deliver the appropriate level of integrity to the system to ensure the record can be relied upon as credible evidence. TMR is concerned that tethering the device to a vehicle will hinder the accurate collection of and access to a driver’s records.

The issue of GPS integration with the electronic work diary and continuous capture of location data is discussed in Section 5.1.3 below. Tethering an electronic work diary to a vehicle – whether physically or electronically, increases the level of confidence in the recording of driving hours in that it can incorporate information on the movement of the vehicle. Australian legislation does not, however, regulate driving hours – it regulates working hours. This requires capture of work done away from the vehicle, as well as work done driving the vehicle. Furthermore, not every movement of a heavy vehicle is undertaken by a driver who is required to record their activities in a work diary.

Requiring an electronic work diary to be tethered – particularly physically tethered – to a vehicle greatly limits the ability of the electronic work diary to record non-driving work, and may lead to the unnecessary and undesirable failure to properly record non-driving activity. This would significantly undermine the intent of the national heavy vehicle fatigue law.

Requiring tamper monitoring – as is part of the IAP specification – would require a flow of information to be verified. This would preclude systems which do not provide a live stream of data either back to base or to a third party for monitoring, and potentially raise the cost barrier to adopting an electronic work diary beyond the means of small operators. The need for the system to detect tampering, and to protect the integrity of data so that the record is ‘complete and unaltered’ is the essential performance requirement. Tamper monitoring is one means of meeting that requirement, but we do not propose to exclude alternative solutions that can deliver the same essential outcome.

The NTC position remains as expressed in the draft policy paper, recognising the definition of data integrity from the Australian Records Management Standard. This position will be tested in the upcoming national pilot of electronic work diaries led by the NSW RTA.

**Position summary**

Electronic work diaries should assure the integrity of driver declarations to at least that as is offered by the written work diary.

Electronic work diaries should be designed to maximise the ability for driver declarations to be used as credible evidence.

The use of electronic work diaries should provide a highly reliable and robust environment for driver record keeping.
5.1.6 Electronic threats

The written work diary’s simplicity gives it robustness and reliability.

In comparison, the electronic work diary is more complex and provides more opportunities for failure. As with any electronic device, it is susceptible to component failure, software ‘bugs’ and depending on its internet connectivity, may be open to viruses or other electronic threats.

It is envisaged that most electronic work diaries will utilise hardware that is common to other applications. For example, a single in-vehicle electronic device might be used as an electronic work diary, an Intelligent Access Program In-Vehicle Unit (telematics unit within the vehicle) and a personal navigation device. In this environment, the hardware and software of the electronic device is shared among applications, increasing the complexity of the environment housing the electronic work diary.

In the case of evolving electronic threats, such as computer viruses, the electronic protection contained within the electronic work diary must also evolve. This concept is not new and would be familiar to many personal computer users. Computer users often receive notices of software updates released through the internet (e.g. by Microsoft) or by the supplier of their internet security software. These companies continually monitor the performance of their software and, if appropriate, release a new version.

5.1.7 Certification of electronic work diaries

The draft guideline consistent with section 74(4) of the model fatigue legislation describes the application and approval process for an electronic work diary.

Broadly, the application process requires the applicant to have had their submission certified by an approved certification body. Authorities will hold lists of approved certification bodies.

Each certification body shall maintain a current version of the functional and technical specification which contains the requirements of an electronic work diary. Applicants will be required to acquire a copy of the specification from the Authority they intend to seek approval from.

Each certification body shall have a process by which the applicant applies to have their electronic work diary certified. The applicant shall follow the process detailed by the certification body to provide sufficient information for the diary to be assessed. For example, upon application to the certification body, the applicant may be provided with the specification and a checklist that must be filled out. The certification body would use the populated checklist and any associated documentation in conjunction with an example of the electronic work diary system to assess whether it meets the functional and technical requirements with the specification.

The applicant will be provided with a certificate from the certification body upon successfully meeting the requirements. The applicant then provides this certificate and applies to the Authority for approval of their electronic work diary system.

Once satisfied with the evidence provided by the applicant, the Authority shall grant approval of the electronic work diary system. A further discussion of the approval process follows in Section 5.1.8.

Currently Transport Certification Australia (TCA) performs this certification function for the Intelligent Access Program (IAP).

Stakeholder feedback: Certification of electronic work diaries

Some of the submissions received (i.e. New South Wales RTA and South Australia DTEI) both suggest that it is appropriate that TCA is the body to be used to assess system conformity to the performance-based specification. The Australian Regulatory Telematics Industry proposed that government commit to a ‘bundled’ application capability, without existing Intelligent Access Program service providers entering into additional certification or audit relationships or incur any new fees.
5.1.8 Approval of electronic work diaries

The model fatigue legislation places the responsibility of approving an electronic work diary with the Authority that has received the application. The Authority must ensure that the electronic work diary meets the legislative requirements as well as any guideline in relation to electronic work diaries approved by the ATC.

To ensure consistency of the approval process and to share information on system approvals, the NTC are proposing to amend the Fatigue Authorities Panel’s business rules such that if the Authority’s decision of approval affects another Authority, the Authority making the decision must inform the Fatigue Authorities Panel of the decision and any Authority that the decision affects.

Work is currently underway to achieve the COAG request for a national heavy vehicle regulator to be established by 1 January 2013. It is envisaged that this regulator will be the sole authority for vehicles over 4.5 t and will be responsible for the approval of electronic work diaries.

This change to the business rules would allow the Authority (be it state based or the national heavy vehicle regulator) to take on advice from the Fatigue Authorities Panel. It is expected that neither the Authority nor Fatigue Authorities Panel will have the technical knowledge or resources to assess an electronic work diary application and therefore will either take on technical advice from a certification body or testing institution that the device in question meets the minimum requirements for approval. It is also possible that an Authority may delegate it’s powers of approval to another body that does possess the necessary technical skills.

The model fatigue legislation requires that any variation of an electronic work diary is approved by an approving authority. It is expected that many of the electronic devices supporting an electronic work diary will house other regulatory or commercial telematics applications. Any variation to either the electronic work diary, hardware of the device or software environment shall require notification to and approval from an authority. Authorities will need to consider the administrative impact of this as it is expected that the number of approvals and re-approvals required will be significant.

The technical assessment of an electronic work diary is not expected to be a simple task. As required by the ATC, the specification for an electronic work diary is to be performance-based.

Stakeholder feedback: Approval of electronic work diaries

A few submissions responded to the issue of approval of electronic work diaries, these included:

- FleetEffect
- New South Wales Roads and Traffic Authority (RTA)
- Australian Trucking Association (ATA)

FleetEffect’s main concern was around the transitional arrangements to approve electronic work diaries. They argued that it is insufficient to wait until the National Heavy Vehicle Regulator was established to start approving EWDs in 2013. They suggested that the Fatigue Authorities Panel could undertake the approval process until the hand over to the National Regulator occurs in 2013. This view concurs with the proposed process presented by the NTC in the draft policy paper. The New South Wales RTA highlighted that referral of electronic work diaries to the FAP would require more than a change to the FAP business rules, it would in fact require a legislative amendment. This amendment would be to change the approving organisation from the Authority to the Fatigue Authorities Panel. The ATA argued quite strongly that there is no need for a certification process that leads to the approval of an EWD.

The draft policy paper was drafted to reflect the legislative and institutional arrangements that currently exist. This led to the proposal that any application extending across multiple states and territories should be approved by the Fatigue Authorities Panel. However, as the process of establishing a National Heavy Vehicle Regulator (NHVR) that is anticipated to have responsibility including approval of EWD applications is well advanced, it would be more efficient to allow individual authorities to approve devices, rather than undertake modifications to the Fatigue Authorities Panel’s rules and procedures.
The NTC position is summarised below.

### Position summary

The Authority (at the time) will approve electronic work diaries until the National Heavy Vehicle Regulator is established in 2013. Once established, the National Heavy Vehicle Regulator will be the authority responsible for approving electronic work diaries.

#### 5.1.9 Information for multiple entities

By maintaining a standard format and form, and prescribing the way in which data is entered, the written work diary allows information to be used by many entities. In simplistic terms, drivers know what and how declarations should be recorded, enforcement officers know how to read the diary and look for breaches of the relevant regulations, and entities within the chain of responsibility know what important information to review to fulfil their responsibilities.

In a similar manner, consideration will need to be given to how the information within the electronic work diary can be readily used by many entities. One of the simplest approaches will be to prescribe and standardise the format in which the information required by the model fatigue legislation is stored and provided.

While this level of prescription prevents designers from altering the way information is stored, it allows all users to design tools to view, interrogate and take information as required. It should be noted that this technique is common within the information communication and technology (ICT) sector. For example, the information on a mobile phone’s Subscriber Identity Module card (SIM card) is stored in a prescribed standard format such that it may work with any modern mobile phone.

#### 5.1.10 Information at the roadside

Driver declarations are required to be used by:

- enforcement officers in multiple agencies in multiple jurisdictions
- multiple entities in the chain of responsibility
- multiple systems (when transferring across different electronic work diary solutions).

In examining the requirements of the entities further, it is evident that declarations also must be available:

- independent of where they are viewed
- independent to the time that they are viewed
- outside the vehicle
- for capture by the enforcement officer as evidence.

The added complexity of having the driver declarations available at any time and location means that an electronic work diary cannot solely rely upon a cellular communication system to provide declarations to the roadside. Instead, a local copy of at least the last 28 days of driver declarations shall need to be kept with the driver.

To meet these user requirements, electronic work diary records shall be stored in a standard format and on a portable standard medium. While it is recognised that this shall need to be prescribed within the specification, it is seen as a necessity to ensure interoperability (i.e. systems can operate with each other). For example, records could be stored on a smartcard or universal serial bus mass storage device (USB memory stick). Whatever memory device is specified, it must be cost effective and contain suitable protection of the information.

Storing records on a removable memory device allows driver declarations to easily provide records to enforcement officers, operators or entities within the chain of responsibility and keeps a copy of the driver declarations with the driver without cellular communications.
The ability for electronic records to be reviewed at the roadside has the potential to reduce the review time for an officer and allow a driver to continue with their task sooner. Unfortunately the entire enforcement community does not currently possess the ability to review electronic information. This produces a significant challenge to the requirements of an electronic work diary.

The ability for any enforcement officer, to be able to review driver declarations at the roadside is important in providing a strong deterrence against driver noncompliance. Since not all enforcement officers who review work diaries will be suitably equipped to deal with electronic data, it will be necessary for the electronic work diary to display the driver records to an enforcement officer without the need for the officer to have any technology. This can be achieved in many different ways but requires a greater amount of technology to be available within the driver’s vehicle. Further, to ensure simplicity and parity with the written work diary, the method to review the driver declarations should be standardised such that reviewers do not need to learn how to review the information for each different system.

The most widely accepted way for this to be met is for the electronic work diary to have a printing facility as part of the electronic work diary solution. From a technical point of view, requiring a printing facility is not ideal. That is, it is recognised that mandating a printing facility as part of an electronic work diary solution will increase the cost and complexity of the solution. It is also noted that many operators believe a heavy vehicle is not a suitable environment for the reliable continued operation of a printer.

Both the transport and telematics industries have provided clear feedback that requiring a printer inside the vehicle is not the preferred approach. Both industries have suggested that either a viewable screen in the cabin of the truck or a back-office solution where the records are sent to the officer or agency at a later date would be preferable. However, these options do not meet our understanding of the enforcement community’s current needs. A screen inside a truck is not ideal for enforcement officers who would prefer to respect the privacy of the driver and avoid an OH&S issue by not entering the cabin. Having a removable screen that can be passed to an officer outside the cabin allows officers to review the information but not collect the information as evidence without equipping officers with the necessary camera. A back-office solution that relies on cellular communications coverage limits the places where officers may conduct their roadside intercepts.

Thus, until the enforcement community has suitable equipment and procedures to review electronic records, NTC has not found an alternative that meets all these requirements. The planned pilot of electronic record-keeping devices by the New South Wales Roads and Traffic Authority does, however, provide an opportunity to provide clear practical direction on both the practicality of in-vehicle printers, and the feasibility of meeting enforcement requirements by an entirely paper free solution.

The heavy vehicle driver fatigue national model legislation requires information to be electronically transferred to the record keeper. This means the electronic records can be physically transferred to the record keeper’s system or they can be transferred by wireless connection (i.e with telematics). Where the record keeper is the driver (i.e. self-employed), the records do not technically need ‘transfer’ as they are contained on the driver’s standardised storage medium.

**Stakeholder feedback: Information at the roadside**

Only two comments were received on the issue of information. The RTA and TMR agreed with the NTC position that information needs be presented in a standardised format and on a standardised medium. These records must be protected. FleetEffect supported the use of a standard USB memory device for the storage and update of a driver’s records. TMR noted that for enforcement purposes it will be necessary to establish what is the primary source of evidence – the EWD or the DRD.

A number of responses were received on the issue of a printer in the truck, these included:

- Transport Consultancy Solutions (TCS)
- RoadTech Systems
- Australian Trucking Association (ATA)
- South Australia Department of Transport, Energy and Infrastructure (DTEI).

All of the respondents argued that the installation of a printer in the truck was out dated, unnecessary and unacceptable. Comments by enforcement agency representatives during public consultation sessions also recognised this difficulty, but indicated that without a printed copy that constituted an original record, prosecution of any detected offences under their jurisdictions current court practices and regulations would be difficult or even impossible.
The NTC position remains that the records need to be accessible at the roadside in all situations, and able to be used for the same purposes as a written work diary. Currently, that appears to require a printout of the record, but the feasibility of providing such a printout, as well as the feasibility of providing alternative means of accessing the data in a way that allows enforcement officers to take any necessary enforcement actions, needs to be demonstrated through an on-road pilot. In the future, that could be a diagnostic tool which enforcement officers could use to view and check a driver’s record. The upcoming RTA pilot of electronic work diaries will test systems with a printer function and systems with alternative means of making the record accessible at the roadside. The practicality of both roadside printing (whether in the truck or in the enforcement vehicle) and electronic display of records will be tested to identify not only what is possible, but also what is effective at meeting enforcement needs in all jurisdictions.

Position summary

Electronic work diaries should record information in a standardised format on a standardised medium.
Records stored in the standardised medium should be appropriately protected.
Electronic work diaries should be able to provide roadside access to records in a standardised format for unequipped roadside enforcement officers. The feasibility of doing so by generating a printout of records, as well as the feasibility of alternative means of providing the information should be established through an on-road pilot.
Electronic work diaries should be able to electronically transfer records to the record keeper.

5.1.11 Enforcement of electronic work diaries

The model fatigue legislation requires an electronic work diary to be capable of reproducing information that is readily accessible, able to be understood and can be used as evidence at the roadside by enforcement officers.

Roadside inspection is performed by both the road traffic authority authorised personnel and the police. Dependent on the route of the driver and state the driver is working within, inspection frequency may vary considerably. Most operators agree that roadside inspection is relatively infrequent.

While inspection is relatively infrequent, the ability to be pulled over and inspected by any police officer or authorised road traffic authority personnel provides a driver with the deterrence to being noncompliant.

This deterrence stems from the driver’s belief that there is an unpredictable and uncontrollable risk of detection and this combined with the consequences of being detected are greater than the benefit from being noncompliant.

The legislation has deliberately made reference to the availability of information at the roadside to enable the continued detection and deterrence of noncompliance.

While the terms within the legislation are subjective, it may be argued that due to the number of different enforcement agencies (at least two in each jurisdiction), this will necessitate not only a standardised format but also a medium in which agencies are able to capture the information.

The form of electronic information at the roadside presents a significant challenge.

Ideally, the electronic records stored within the electronic work diary could easily be provided to an enforcement officer. This requires the enforcement officer to have the necessary electronic equipment (i.e. computer, laptop or personal digital assistant) to view the electronic records and a direct or wireless connection to the in-vehicle equipment or for the records to be provided on a storage medium. In consultation with enforcement agencies, it is evident that while agencies are providing officers with greater levels of technology, not all officers currently have access to equipment suitable to view electronic records.

Alternatively, equipment within the driver’s vehicle could be prescribed to provide the information within a standardised form that does not require the enforcement officer to have any specific technology. For example, electronic work diaries could be required to contain a standardised screen or printers where driver declarations are printed out for the enforcement officer.
In shifting to an electronic environment, the ability for information to be available at the roadside is likely to bear a cost imposition to either the operator or the enforcement agency. In the case where only electronic records are provided to the roadside enforcement officer, the cost of equipment to view the records is borne by the enforcement agency. It may be argued that the review of electronic records would be faster because this may be completed by processing software, which would offset, to some degree, the level of investment required. In the case of providing a printing facility in the heavy vehicle, the cost is borne by the operator. The operator is unlikely to achieve any productivity gain by providing a printout at the roadside because the review of the paper records is likely to take the same time as reviewing the written work diary.

It should be noted that a printing facility is likely to increase the level of complexity and cost of the electronic work diary solution and is not commonplace with current telematics equipment.

**Stakeholder feedback: Enforcement of electronic work diaries**

Feedback received on the issue of enforcement falls into two categories: (a) enforcement of the work diary and (b) sanction policy. The four submissions to do with enforcement came from:

- FleetEffect
- Transport Consultancy Solutions
- South Australia Department of Transport, Energy and Infrastructure (DTEI)
- Australian Regulatory Telematics Industry (ARTI)

FleetEffect suggested that in terms of enforcement, it is up to the system provider to either provide a printer or a display device that can present the required information at the roadside. They also suggested that display of driver records outside of the vehicle would be a productive outcome for all parties. Transport Consultancy Solutions were very clear that if authorities want enforcement officers to be able to read the driver recording device on the roadside, then they would need to be equipped to do so. DTEI posited that it is envisaged that the enforcement officer will be suitably equipped with remote data terminals so they may retrieve the information electronically from the driver recording device. ARTI proposed that governments deliver special compliance policies for electronic work diary users and consider statutory backing to these policies as a means of providing confidence to the market. Comments received on the use of printers are contained in Section 5.1.10.

With regard to sanction policy, three submissions provided feedback, these were:

- New South Wales Roads and Traffic Authority (RTA)
- RoadTech Systems
- South Australia Department of Transport, Energy and Infrastructure (DTEI).

The RTA suggested that the prosecution of minor breaches needs to be considered as part of a wider examination of the extent of the breach, reoccurrence and frequency. This would require the sanction policy to clearly and publicly disclosed to ensure there is no room for individual interpretation either among enforcement officers or across states and territories. RoadTech Systems suggested that there should be reform of sanction policy for breaches as fatigue management moves to an electronic environment. They concluded that minor infringements should not be unfairly prosecuted. DTEI suggested that there needs to be a level of consistency in tolerances for compliance assessment in an electronic environment.

Comments from participants in public consultation sessions questioned the continued need for roadside interceptions in an environment where information was electronically collected and remotely accessible. Enforcement agency participants, however, pointed out that diary checking is only one aspect of a roadside stop, as compliance with other regulations — including, for example, vehicle standards and loading regulations — are also checked.

**5.1.12 Evidentiary standard**

A core regulatory requirement of the work diary is to provide information that may be used as evidence. Section 76C of the model fatigue legislation states a document produced by an electronic
work diary is evidence in the matters contained within the document. This statement can be a little misleading because some confuse the admissibility of a document with the integrity of the information contained within the document. This legislative requirement has been introduced to ensure that the evidence is admissible but makes no obligation on the court to believe the contents of the document.

In contrast, while information can be admitted as evidence, its ability to support or defend an allegation may be challenged. The credibility of the information contained within the document may then come down to the standard or specification used by the approving authorities to approve the system, the operational state of the system and how it was operated to generate the documented information.

Current commercial electronic record-keeping systems purport to be capable of meeting the legislated recording requirements of an electronic work diary. However, as commercial systems are not currently recognised as electronic work diaries, they may not be designed specifically to maximise the ability for their generated information to be considered credible evidence.

HB 171 – 2003 Guidelines for management of IT evidence (SAI 2003) is a document designed by the Australian Government to provide insight into the management of electronic records to maximise their ability to be used as credible evidence within a court proceeding. This document provides guidance on Information Communication Technology industry best practices to the creation, storage and protection of information such that negative assertions on the integrity of the data cannot be substantiated.

Electronic work diary designers and will need to design their systems in accordance with the principles discussed within the Guidelines for management of IT evidence.

5.1.13 Portability of records

The written work diary has a significant feature of being portable. This allows a driver to transfer the written work diary between vehicles or operators regardless of the equipment installed at any particular location. This must also be a function of the electronic work diary.

However, many existing commercial electronic record-keeping systems utilise equipment that is tethered either electrically or physically to the vehicle making it impractical to move the installed equipment.

An electronic work diary is a system for recording driver information as required by the model fatigue legislation. This system could be compared to the driver’s pen in the written work diary environment. Further, the records recorded by an electronic work diary may be considered to be comparable to the pen recordings within a written work diary.

Like the written work diary, the critical component for the driver is not which pen they use to fill out the diary, but rather the records within the diary itself. The same may be said for an electronic work diary. As long as the recording equipment is capable, it does not matter which recording equipment is used to record the drivers’ declarations of work and rest.

As such, an alternative approach to making the complete diary portable is to make the drivers’ records portable across vehicles and systems. For example, many personal computer users store files on memory sticks or CDs. The file can be easily transferred between computers.

While this technique is common within the ICT industry, it would require another level of prescription. That is, the format and medium that the electronic records are stored within would need to be prescribed to ensure all approved systems were capable of reading from and writing to the same medium.

5.1.14 Counting time in an electronic environment

The model fatigue legislation prescribes that a period of work shall be rounded up to the nearest 15-minute increment while a period of rest shall be rounded down to the nearest 15-minute decrement. This provision has been designed to simplify the recording requirements on drivers and to ease the compliance and assessment task of enforcement officers.

This provision creates a bias to safety by slightly overstating time at work and under recording rest time.
For example, if a driver starts work at 7 am and drives for three blocks of two hours and one minute, resting 15 minutes between driving blocks, the time on the driver’s watch will be 1:33 pm (i.e. 7 am + 2 hrs 1 min + 15 min + 2 hrs 1 min + 15 mins + 2 hrs 1 min = 1:33 pm).

However, examining the driver’s written work diary would suggest the time is actually 2:15 pm (i.e. 7 am + 2 hrs 15 mins + 15 mins + 2 hrs 15 mins = 2:45 pm) as shown in Figure 4.

Figure 4: Counting time

Figure 4 shows that the driver cannot record accurate information if abiding by the counting rules within the model fatigue legislation. Practically, many drivers would not follow the legislative requirement to round the two hours and one minute driving blocks to two hours and 15 minutes, meaning the declarations in their work diary, while illegal, would show the time as 1:30 pm (much closer to reality).

This increased visibility of the driver’s work practices also coincides with an increased visibility of driver’s breaches of the work and rest limits within the model fatigue legislation. Where drivers using the written work diary can, at a minimum, breach the work and rest limits by 15 minutes, drivers whose work and rest limits are recorded accurately can be in breach of the regulations by much smaller amounts (i.e. by one minute).

It could be argued that by having an electronic system, the driver may be better informed as the system could be made to indicate how long the driver has left before requiring a rest. This argument relies on the system having the capability to report to the driver the remaining working or resting time. While an attractive feature, this has been identified as being significantly above the capability of the written work diary and as such NTC has deliberately not mandated this as a policy position.

Industry has expressed considerable concern over this issue, highlighting the disparity between the electronic work diary and the written work diary. This inequality may have a significant effect on the adoption of electronic work diaries if left unaddressed.

Both regulators and industry have expressed views that an altered resolution of work and rest should produce an altered work and rest sanction regime. This regime could involve a number of changes to the legislation regarding driver work and rest.

One option is to allow drivers using an electronic work diary a different assessment model against the current regulated work and rest limits. For example, drivers may be compared over a 24-hour period and the accumulated work and rest be examined against the regulated limits rather than individual working blocks. This would potentially allow drivers to work slightly longer on some occasions in exchange for working slightly less on other occasions.

Another option may be the ability to apply an assessment tolerance to the work and rest recorded by the driver in an electronic work diary. This would allow a driver to legally breach the regulations up to a point without receiving a sanction. The ongoing behaviour of the driver can then be examined with repeat offenders being sanctioned.

Neither approving authorities nor industry claim to have a definitive solution to the issue. Both agree that whatever the approach, it must be enshrined within the policy or legislation so that it may be applied fairly by all enforcement. Allowing this to be left to the discretion of the enforcement officer was acknowledged as providing the ability for unfair treatment.

It is, however, important to recognise that moving the regulated working or resting hours is not a solution. The issue revolves around the ability of a driver to breach a limit by a small amount. Moving the limit does not change the ability for a driver to breach a limit by a small amount.
Considering these points, a review of the policing or sanction policy associated with driver breaches when using an electronic work diary is necessary to ensure that the potential benefits of accurate record keeping to improve scheduling and fatigue management are not sacrificed for the sake of prosecuting minor timing errors that pose negligible safety risks.

**Stakeholder feedback: Counting time in an electronic environment**

A variety of positions were received in relation to the counting of time in an electronic record keeping environment. Comments were received from:

- RoadTech Systems,
- FleetEffect,
- Australian Trucking Association (ATA)
- BusNSW,
- New South Wales Roads and Traffic Authority (RTA)
- Queensland Department of Transport and Main Roads (TMR)
- South Australian Department of Transport, Energy and Infrastructure (DTEI).

RoadTech Systems highlighted that the recording of time to one minute or one second intervals would require a change to the time rules in the model fatigue legislation. BusNSW also highlighted the need for rounding of time to be addressed in an electronic environment. FleetEffect agreed with the NTC position that time should be rounded to the minute in an electronic environment and that sanction policy should be reviewed to ensure a fair system for addressing small breaches. The ATA argued that technology solutions need to preserve the practical application of time but needed to do this in a fair approach and if this was not done then EWD’s would fail. South Australia asserted that time should be counted in increments of one second. The RTA and TMR agreed with the NTC position that time should be recorded accurately. TMR noted that time to the nearest minute was adequate, and should be applied to both work and rest times. The RTA indicated that a review of sanction policy may be problematic. They highlighted that sanction policy should address the objective of improving road safety. This topic was also widely commented on in public consultation sessions, with widespread support for the use of accurate time counting and a consistent sanction policy for addressing small breaches, while still providing improved safety outcomes.

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<th>Position summary</th>
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<tr>
<td>Electronic work diaries should record time accurately at least to 1 minute intervals.</td>
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<tr>
<td>Policing and sanction policies should be reviewed for drivers using an electronic work diary.</td>
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### 5.1.15 Compliance

The alternative counting time rules described within Section 5.1.14 create an alternative problem for the determination of driver compliance.

Under the current counting time rules, drivers cannot record information in any time period smaller than 15-minute blocks. This means that the smallest breach of a driving regulation is 15 minutes. Further, as many drivers using a written work diary will not always round up work time and round down rest time, their exposure to breach detection is significantly reduced.

Accurate driver recording allows much smaller breaches of the limits of work and rest prescribed within the model fatigue legislation as compared with the written work diary. For example, a driver may drive for five hours and 16 minutes before being able to take a rest. This driver, under the standard hours’ provisions of the legislation has breached the allowable work limit by one minute. Under the current sanctions within the heavy vehicle driver fatigue national model legislation, this driver may be treated the same as a driver who has breached the regulated work time by 15 minutes.

Given that the sanction policy within the model fatigue legislation has been framed around 15-minute breaches, it appears to be unreasonable that breaches of one minute be enforced. Enforcement officers are able to apply their discretion when determining the appropriate action following non-compliance detection. This is similar to the discretion applied to speed compliance and assessment with passenger vehicles.
Further, the model fatigue legislation allows drivers, as a defence, to annotate if insufficient or unsafe rest areas were available at the time of the required rest break. While this will be assessed and again relies on the discretion of the enforcement officer, it would be difficult to believe a driver with a legitimate defence would be sanctioned for an insignificant breach. This allowance has not been adopted by all participating jurisdictions. However, this jurisdictional inequality is expected to be resolved by the introduction of the National Heavy Vehicle Regulator.

5.1.16 Other uses of information

A significant motivation for the electronic work diary is the ability to use the information recorded within the diary for new and innovative management of driver fatigue. For example, unlike the written work diary an operator is able to receive real-time information on a driver’s work and rest.

The NTC see no reason in restricting the ability for information to be used in new and innovative ways as long as the core requirements of the work diary under the model fatigue legislation are met. The NTC also do not see a need to mandate a different use of this information. For example, while operators are able to view information in real time with the use of in-vehicle telematics, it is not a mandatory requirement to do so. These are options for an operator to employ as they represent reasonable steps under their general duty to manage fatigue.

In allowing further use of the information generated from an electronic work diary (for fatigue management purposes), the NTC recognises that the environment supporting the diary is now multipurpose and will potentially change over time as new uses of the data are explored. As such, this changing environment necessitates new roles that must be filled by entities.

Stakeholder feedback: Other uses of information

Two submissions were received that addressed other uses of information. The RTA highlighted that the issue of voluntarily sharing information was not addressed by the draft policy paper. The RTA suggested that a code of practice or guidance material be produced to assist the voluntary sharing of information. National privacy principles require that information can only be used for the purpose for which it was collected. The purpose for which records of drivers work and rest are collected is to provide for the safe management of the fatigue of drivers of regulated heavy vehicles while they are driving on a road. The NTC regards the voluntary sharing of information to achieve that purpose as a choice of transport operators that need should not be prescribed by legislation or any other means.

The ATA raised the concern that users of electronic work diaries may find the reporting of information to regulators as an issue. The NTC does not suggest that under an electronic work diary environment that records be automatically transferred to the regulator. The ATA also agreed with the NTC position that other uses of EWD data should not be precluded by legislation.

The NTC acknowledges the concerns raised by the RTA TMR and the ATA, however the NTC position remains unchanged. The position is detailed below.

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<th>Position summary</th>
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<tr>
<td>Information generated by the electronic work diary may be used for other purposes as long as the core requirements of the work diary are maintained.</td>
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5.1.17 System malfunction

The model fatigue legislation requires an electronic work diary to indicate to the driver if it is malfunctioning. In the case of a malfunction, the driver is required to notify the record keeper within two days and the record keeper is responsible for returning a malfunctioning electronic work diary to working order.

An electronic work diary is not just a device, but rather a system for recording driver information required by the model fatigue legislation. The system may range in complexity and incorporate a device within a vehicle, a communication network and a back-office receiving system.
Recognising this, a malfunction may not be confined to just the device within the vehicle. A malfunction may occur within the communication network or the back-office system. It may therefore be difficult for a device within a vehicle to monitor all components of the system and report this to the driver.

To effectively monitor the functionality of an electronic work diary may require the combination of diagnostics within the in-vehicle equipment, diagnostics of the back-office system and some level of overall system monitoring by personnel well versed in the design and operation of the system. It is recognised that the competencies of the record keeper may not extend to the rectification of electronic devices and as such, there may need to be a relationship between the record keeper and a ‘caretaker’ that has the competency to monitor the operation of the electronic work diary and rectify the electronic work diary if necessary.

This model is not new to the ICT industry. Commonly referred to as ‘service providers’, these entities assure the continued provision of a service. Telephone companies, electricity suppliers and road traffic authorities are all examples of service providers. Telephone companies ensure the electronic communication channel remains operational and rectifies faults. Electricity companies ensure there is enough power for all users and repair lines or faults as required. Road traffic authorities manage the road network and rectify faults with the road and traffic signals associated infrastructure.

5.1.18 New roles and entities

New roles are required as part of the shift from the written to electronic work diary environment. These new roles are best explained by examining the current roles within the written work diary environment and the responsibilities under these roles.

In the case of the written work diary, the responsibility for all these tasks is shared among the roles of the approving authority, driver and record keeper.

The authority organises for the written work diary to be printed and assures its quality. It provides the premises and authorised staff to identify and authenticate the driver and the distribution channel for the driver to pay for and collect the diary. The authority manages the process for replacing the work diary and recording all necessary details linking the diary to the driver’s identity.

The driver manages the in-field operation of the diary. The driver must ensure they have the diary and a pen and record their work and rest in the standardised format. The driver also ensures the records are provided to the record keeper.

The record keeper stores the driver’s records and, if appropriate, reviews the records for compliance to the relevant regulations.

To enable the use by many different users, the records of the electronic work diary should be stored in a standard format on a standard medium. This standard medium may be considered comparable to the physical written work diary and acts as the driver’s personal driver recording device (DRD). As such, a role will be required to control how many driver recording devices a driver has at any one time, to record the details of the device and the driver, to ensure the device is functional and to issue the device to the driver after authentication of the driver’s identity. This role (the DRD issuer) is akin to the management of the written work diary by the authority. However, as this now incorporates the management of an electronic device, the question of who performs this role is pertinent. Existing road authorities would be the appropriate entity to undertake these functions (as they currently do for the written work diary). Once the National Heavy Vehicle Regulator is established in 2013, it would be expected appropriate for the NHVR to take on the role of DRD issuer.

An electronic work diary would not be infallible. That is, like any other electronic device it would be susceptible to faults, software ‘bugs’ and breakdown. It may be unreasonable to expect that a driver or record keeper is suitably skilled to maintain and rectify a malfunctioning electronic work diary. Similar to the driver looking after the operation of a written work diary, the electronic work diary would require a role of ‘caretaker’ (or system provider). This role requires intimate knowledge of the system and is akin to the manufacturer or provider of the electronic work diary. However, in contrast to a written work diary, the skills associated with maintaining an electronic work diary are also related to the skills required to be able to tamper with the records or information contained within the electronic work diary. As such, some may argue that if an operator does have the necessary skills to manage the ongoing operation of an electronic work diary, this represents a risk to the data integrity of the system. Others argue that it is not practical to manipulate the data of an electronic system or that the risk of manipulation can be mitigated through auditing the system and its data. While the role of an electronic
work diary provider is recognised, the question of who is allowed to perform this role is pertinent. The NTC believes that the role of system provider could either be undertaken by a transport operator with suitable in-house system capabilities or by a telematics developer or manufacturer.

While the approving authority owns the specification for electronic work diaries, it is likely that the authority will not possess the skills to be able to update the specification. The update of the specification will need to be performed by a body that has detailed knowledge in its creation, its operation and its objectives. As such, there is also a need for the role of caretaker of the specification. This ‘system manager’ is required to manage the process of updating or modifying the specification and may be called upon to assist in the certification process, perform the certification process or train the appropriate certification bodies. This role requires intimate knowledge of the specification and regulatory requirements. The NTC suggests that the role of system manager could be undertaken by Transport Certification Australia (TCA) or by another organisation or organisations with the necessary technical skills. TCA currently undertakes this role for the Intelligent Access Program.

Stakeholder feedback: New roles and entities

Feedback on new roles and entities was received from three stakeholders;
- FleetEffect
- New South Wales Roads and Traffic Authority (RTA)
- Queensland Department of Transport and Main Roads (TMR)
- South Australia Department of Transport, Energy and Infrastructure (DTEI).

FleetEffect suggested that the driver recording device issuer should be the same entity that currently issues the written work diary. That is, road authority agencies should issue the driver recording device for the electronic work diary. The RTA suggested that the NTC undertake further work to determine who should take on the new roles in an electronic environment. The South Australian Department of Transport, Energy and Infrastructure proposed that the National Heavy Vehicle Regulator must be the driver recording device issuer. They also suggested that the system provider and system manager need to be certified and auditable entities, which could be either a third party or in-house provider.

TMR acknowledged that the policy position represented a shift from the role TMR currently plays with respect to the paper work diary. It emphasised the need for robust control measures to ensure the accountability of all parties in the process.

The NTC has reviewed its position on roles and entities and recommends that the regulator should be the driver recording device issuer (as it is currently in each state and territory). When the National Heavy Vehicle Regulator is established in 2013, this entity would be expected to take over the issuing of driver recording devices. The NTC proposes the electronic work diary provider can be either the telematics device developer or the transport operator. The NTC also suggests that the system manager could be an entity such as Transport Certification Australia or any other organisation that wishes to undertake that role in the market place.

These roles will be tested in the upcoming RTA pilot of electronic work diaries.

<table>
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<th>Position summary</th>
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<tr>
<td>The electronic work diary should require a driver recording device issuer which is the regulator at the time. The electronic work diary provider can be either the device provider (i.e. a third party) or the transport operator (an in-house system). The system manager could be an organisation like Transport Certification Australia or a like organisation.</td>
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<tr>
<td>The driver recording device issuer should be responsible for the issuing process of the driver-recording device.</td>
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<tr>
<td>The electronic work diary provider should be responsible for the electronic work diary’s ongoing operation and rectification of malfunctions.</td>
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<tr>
<td>The system manager should be responsible for the management, update and modification of the specification and may play a role within the certification process.</td>
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5.1.19 Electronic work diary and broader regulatory telematics

The provision for an electronic work diary within the model fatigue legislation places obligations on users of systems that also form part of an intelligent transport system approved under the Intelligent Access Program Act.

In stating this, it should be noted that the model fatigue legislation does not require an electronic work diary to be part of the Intelligent Access Program (IAP), nor does it require any driver or operator who wishes to use an electronic work diary to participate in the IAP.

The IAP is a voluntary program that provides heavy vehicles with access, or improved access, to the Australian road network in return for the monitoring of compliance with specific access conditions by in-vehicle telematics solutions.

The IAP has been designed to maximise the ability for information generated from the in-vehicle telematics equipment to be used as credible evidence within a court prosecution.

As such, some parallels between the IAP and an electronic work diary system may be drawn. Many of the IAP service providers may have in-vehicle telematics equipment that already meets the requirements for data security and tamper evidence required of an electronic work diary system.

The IAP contains many business rules for assessing a vehicle’s compliance to access conditions that are not required as part of an electronic work diary system. The electronic work diary is principally a record-keeping system with compliance being determined at the roadside by enforcement officers or by back-office audit. As such, the IAP and electronic work diary applications are unique applications.

The specification for the electronic work diary provides the minimum requirements for an electronic work diary but not necessarily other regulatory telematics applications. For example, the electronic work diary does not require a GPS for data collection, whereas the IAP requires accurate GPS information to ascertain the location of the vehicle for compliance purposes. By setting the minimum requirements, flexibility is afforded to the operator to decide which system may best suit their needs now and in the future and allows operators to make informed choices.

Stakeholder feedback: EWD and broader regulatory telematics

The Australian Trucking Association argued that the electronic work diary and the IAP are separate regulatory telematics functions. TCA approved IAP devices may be electronic work diaries if they meet the standards for the electronic work diary, however, electronic work diaries do not necessarily other regulatory telematics applications.

Queensland Department of Transport and Main Roads (TMR) noted that although the EWD and IAP are separate, the core elements that both have in common should be specified in the same way, so as to maximise interoperability. TMR also highlighted the need for devices to not only meet the minimum requirement of equivalence to the paper work diary, but also to be able to accommodate any future regulatory needs.

The NTC reaffirms its position that electronic word diaries can be IAP devices, but they do not have to be. IAP devices can be electronic work diaries.

Position summary

The electronic work diary and Intelligent Access Program are separate regulatory telematics applications.

The Intelligent Access Program may have technology that meets requirements of the electronic work diary data protection and security components.

Setting the minimum requirements provides operators with the flexibility to decide the functionality they require now and in the future from their in-vehicle telematics.

5.2 Speed monitoring policy issues positions and stakeholder feedback

5.2.1 Speed-monitoring specification

As with the principles presented for an EWD, the speed-monitoring system should deliver appropriate data integrity and protect the data so that it can be used as credible evidence for the prosecution or defence of an offence. However, unlike work diary requirements, driver speed compliance is linked solely to vehicle speed compliance and hence a speed-monitoring application is simpler to envisage.
The following sections detail the NTC position on the features of a speed-monitoring telematics application suitable to be used as a tool for either courts or industry to manage speed compliance.

5.2.2 Data capture
Speed information stored in a speed-monitoring system must make use of some sort of automatic data capture. While there are many ways that vehicle speed can be captured, the most practical and tamper-evident way is the use of a GPS.

GPSs allow speed capture to occur without any integration with the vehicle. Many systems that are integrated with the vehicle as part of speed-limiting systems have been found to be ineffective against malicious tampering. However, GPSs are relatively tamper evident. Due to their ‘closed’ nature, attempts to tamper quickly cause the system to show unexpectedly low self-reported data quality.

GPSs are also capable of supplying speed measurements on configurable intervals (with a minimum interval of one second). This flexibility allows an accurate representation of the vehicle’s movement and speed while also providing the ability to balance communication costs. Further, GPSs allow the position of the speed measurement to be easily determined. This will be necessary for operators to determine compliance of a driver’s speed in speed zones below the state maximum.

### Position summary
The speed-monitoring system should use a global positioning system for the generation of speed and be accurate.

The speed-monitoring system should generate information regularly.

5.2.3 Driver identification and authentication
Core to a driver speed-monitoring system is the identification of the driver. Similar to the requirements under Section 5.1.2, the identification and authentication method should meet a minimum standard that is akin to a driver’s signature.

Driver’s identification must incorporate enough information to uniquely identify the driver of the vehicle. This will require the driver’s name, licence number and licence-issuing state or territory.

To ensure that the correct driver is driving the vehicle, drivers should be required to identify themselves each time the vehicle is started.

### Position summary
Speed-monitoring systems should contain a method of identification and authentication consistent with the standard of the driver’s signature used within the written work diary.

The method of identification and authentication should identify the driver by name, licence number and licence-issuing state or territory.

Drivers should be required to identify themselves each time the vehicle is started.

5.2.4 Data integrity
Since information in a speed-management system may be required to act as evidence of a driver’s actions, it is critical that the system provides a high level of data integrity.

The integrity of the data capture is discussed in Section 4.3. However, the system must offer protection of the data post capture. Hence, designers of the system should maximise the ability for the speed information to be used as credible evidence.

Unlike the electronic work diary, speed monitoring incorporates monitoring the driver and the vehicle. It is therefore important that the in-vehicle equipment is not able to be removed from the vehicle, preventing the vehicle from being ‘monitored’.

Last, like any monitoring device, for it to be effective it will need to be reliable and suitable for its environment.
5.2.5 Roles and responsibilities

Like the electronic work diary system, responsibility for the operation of the system is shared among several roles. In a speed-monitoring system, the driver will need to identify and authenticate themselves to the system and an operator must receive the information of the driver’s actions.

However, beyond this the roles of speed-monitoring system provider (akin to the electronic work diary provider) and system manager are applicable. These are explained in detail in Section 4.7.

Position summary

Speed-monitoring systems should assure the integrity of data post capture.
The speed-monitoring system should be mechanically tethered to the vehicle such that attempted removal is at least evident.
Speed-monitoring systems should be designed to maximise the ability for speed information to be used as credible evidence.
Speed-monitoring systems should provide a highly reliable and robust environment for driver record keeping.

5.2.6 Approval

Similar to the electronic work diary, to ensure that the requirements of the specification have been met, speed-monitoring systems for use under a supervised intervention order should be certified.

While this is not strictly required of systems selected voluntarily by industry to fulfil their obligations under the chain-of-responsibility legislation, having their systems certified allows them to demonstrate the quality of the system they have employed.

Position summary

A speed-monitoring system for use under a supervised intervention order should be certified as complying with the Austroads performance standard.
6. Implementation of electronic work diaries

On 29 March 2010 the New South Wales Government announced the Road Toll Response Package which includes an operational pilot of electronic work diaries and speed monitoring systems.

The New South Wales Roads and Traffic Authority will be leading a national pilot of electronic work diaries. The pilot is governed by a steering committee and a project management committee with representatives from South Australia, Victoria, New South Wales, Queensland, Western Australia and the Commonwealth. The National Transport Commission and Transport Certification Australia are also participants in the pilot.

The aim of the pilot is to explore the required institutional, operational and business processes and associated commercial and safety benefits for the national implementation of electronic work diaries and to test that the speed monitoring specification meets the needs of jurisdictions and industry groups.

The pilot will be conducted in two stages. The aim of Stage 1, which will commence in 2011, is to fine tune the procedures before commencing the full-scale pilot. Stage 1 will be conducted over a six month period and participants will be invited from all industry groups. Stage 2, the full-scale pilot, will commence in January 2012.

A thorough analysis and evaluation will follow the pilot stages with the findings informing the outstanding policy issues and the development of a regulatory impact statement.
7. Conclusion

This paper presents the NTC policy framework for approving electronic work diaries, as allowed for within the model fatigue legislation. It provides guidance on two tools that may be used by courts for supervisory intervention orders involving speed and fatigue compliance.

In developing the policy framework, the NTC have attempted to provide a set of minimum requirements that allow approving authorities to approve electronic work diaries that meet the model fatigue legislation and provide operational equivalence to the written work diary.

In providing guidance on the tools that may be used for speed and fatigue monitoring, the NTC have attempted to recognise that courts will determine the appropriate sanctions but have attempted to provide advice for prosecutors to seek orders that reap the desired effect.

The NTC acknowledge that this policy framework provides only the policy and associated guideline for approval. These are complemented by the functional and technical specification developed by Transport Certification Australia on behalf of Austroads.

The result of this work will be a consistent and aligned package incorporating policy, guidance and specification elements that will meet the ATC directive and provide the basis for informed public consultation with all relevant parties. This will include obtaining a realistic estimate from the telematics industry of the costs of providing devices that meet the requirements set out in the consultation documents. This will then inform any subsequent regulatory impact statement.

The Austroads specification is a working draft for the purposes of consultation alongside this policy paper. The NTC draft policy paper was finalised and approved for release in August in time for the Standing Committee on Transport meeting in August 2010. A joint consultative process was undertaken between Austroads, Transport Certification Australia and the NTC. As a result of this consultation, this final position will be presented and recommended to ministers at ATC.

The NTC also acknowledge that both industry and governments have strong views on what the requirements of the electronic work diary should be. This combined with the number of stakeholders and the related safety impact of ‘getting it wrong’ has led to the New South Wales Transport Minister announcing a pilot of electronic work diaries (NSW Transport 2010).

This pilot is expected to inform the policy, guideline and specifications by testing the institutional, business and operational process in recording, reviewing and enforcing an electronic work diary. The NTC expects that the working draft specification being prepared by Austroads will inform the basis for the use of devices within the pilot.

The NTC believes that, given the additional work being led by the NSW Government, a complete regulatory impact statement is premature. To be able to meaningfully provide a cost and benefit analysis the finalised institutional arrangements will need to be determined, and outstanding practical issues resolved.

The NTC will further finalise positions on outstanding policy issues at the completion of the NSW led national pilot for electronic work diaries.
8. Policy findings

It is recommended that the following policy positions are adopted subject to the outcomes of the national pilot program to be led by the New South Wales Roads and Traffic Authority. At the completion of the pilot the NTC will undertake a regulatory impact statement, using information gathered in the course of that pilot, for the use of electronic work diaries.

8.1 Electronic work diary policy findings

1 – Entry of data
Electronic work diaries must allow the manual entering of information within a driver’s declaration. Electronic work diaries may provide assisted entering of information (but this is not required) within the driver’s declaration, so long as the following conditions are met:
- the information is in a format suitable for the driver to understand
- the driver must confirm the information (i.e. make a declaration)
- drivers can alter information they believe is incorrect
- details of any alterations are recorded

2 – Driver identification and authentication
Electronic work diaries should contain a method of identification and authentication consistent with the standard of the driver’s signature used within the written work diary. The method of identification and authentication should be used for each driver declaration and automatically enter the driver’s personal details required under Section 57 of the Heavy Vehicle Driver Fatigue National Model Legislation.

3 – GPS for electronic work diaries
The use of GPS to automatically populate data in the EWD is not essential to meet the requirements of the model fatigue legislation and as such should not be required.

4 – Interoperability
EWD systems need to record information in a standardised format to ensure interoperability.

5 – Data integrity
Electronic work diaries should assure the integrity of driver declarations to at least that as is offered by the written work diary. Electronic work diaries should be designed to maximise the ability for driver declarations to be used as credible evidence. The use of electronic work diaries should provide a highly reliable and robust environment for driver record keeping.

6 – Certification of electronic work diaries
The application process requires the applicant to have had their submission certified by an approved certification body. Authorities will hold lists of approved certification bodies. An example of a certification body is Transport Certification Australia.

7 – Approval of electronic work diaries
The Authority (at the time) will approve electronic work diaries until the National Heavy Vehicle Regulator is established in 2013. After which the National Heavy Vehicle Regulator will be the authority responsible for approving electronic work diaries.

8 – Information at the roadside
Electronic work diaries should record information in a standardised format on a standardised medium. Records stored in the standardised medium should be appropriately protected. Electronic work diaries should be able to provide roadside access to records in a standardised format for unequipped roadside enforcement officers. The feasibility of doing so by generating a printout of records, as well as the feasibility of alternative means of providing the information should be established through an on-road pilot. Electronic work diaries should be able to electronically transfer records to the record keeper.

9 – Counting time in an electronic environment
Electronic work diaries should record time accurately at least to 1 minute intervals.
Policing and sanction policies should be reviewed for drivers using an electronic work diary.

10 – Other uses of information
Information generated by the electronic work diary may be used for other purposes as long as the core requirements of the work diary are maintained.

11 – New roles and entities
The electronic work diary should require a driver recording device issuer which is the regulator at the time. The, electronic work diary provider can be either the device provider (i.e. a third party) or the transport operator (an in-house system). The system manager could be an organisation like Transport Certification Australia or a like organisation.
The driver recording device issuer should be responsible for the issuing process of the driver-recording device.
The electronic work diary provider should be responsible for the electronic work diary’s ongoing operation and rectification of malfunctions.
The system manager should be responsible for the management, update and modification of the specification and may play a role within the certification process.

12 – Electronic work diary and broader regulatory telematics
The electronic work diary and Intelligent Access Program are separate regulatory telematics applications.
The Intelligent Access Program may have technology that meets requirements of the electronic work diary data protection and security components.
Setting the minimum requirements provides operators with the flexibility to decide the functionality they require now and in the future from their in-vehicle telematics.

8.2 Speed monitoring policy findings
13 – Data capture
The speed-monitoring system should use a global positioning system for the generation of speed and be accurate.
The speed-monitoring system should generate information regularly.

14 – Driver identification and authentication
Speed-monitoring systems should contain a method of identification and authentication consistent with the standard of the driver’s signature used within the written work diary.
The method of identification and authentication should identify the driver by name, licence number and license-issuing state or territory.
Drivers should be required to identify themselves each time the vehicle is started.

15 – Data integrity
Speed-monitoring systems should assure the integrity of data post capture.
The speed-monitoring system should be mechanically tethered to the vehicle such that attempted removal is at least evident.
Speed-monitoring systems should be designed to maximise the ability for speed information to be used as credible evidence.
Speed-monitoring systems should provide a highly reliable and robust environment for driver record keeping.

16 – Roles and responsibilities
The speed-monitoring system will require a speed-monitoring system provider and system manager.
The speed-monitoring system provider should be responsible for the speed-monitoring system’s ongoing operation and rectification of malfunctions.
The system manager should be responsible for the management, update and modification of the specification and may play a role within the certification process.

17 – Approval
A speed-monitoring system for use under a supervised intervention order should be certified as complying with the Austroads performance standard.
Appendix A: National Transport Policy Framework’s vision, policy objectives and policy principles

Vision for Australia’s transport future

Australia requires a safe, secure, efficient, reliable and integrated national transport system that supports and enhances our nation’s economic development and social and environmental wellbeing.

Transport policy objectives

To achieve this vision, Australia’s transport ministers commit to the following policy objectives:

Economic: To promote the efficient movement of people and goods in order to support sustainable economic development and prosperity.

Safety: To provide a safe transport system that meets Australia’s mobility, social and economic objectives with maximum safety for its user.

Social: To promote social inclusion by connecting remote and disadvantaged communities and increasing accessibility to the transport network for all Australians.

Environmental: Protect our environment and improve health by building and investing transport systems that minimise emissions and consumption of resources and energy.

Integration: Promote effective and efficient integration and linkage of Australia’s transport system with urban and regional planning at every level of government and with international transport systems.

Transparency: Transparency in funding and charging to provide equitable access to the transport system, through clearly identified means where full cost recovery is not applied.

Transport policy principles

Australia’s transport policy framework is underpinned by the following guiding principles.

Infrastructure pricing: sending the appropriate signals to influence supply and demand for infrastructure

Competitive markets: establishing competitive markets wherever possible to minimise the need for regulation

Private sector: involving the private sector, where it is efficient to do so, in delivering outcomes

National regulation: a national perspective should be adopted where regulation is required

National markets: encouraging national markets where possible

Customer: being customer focused – equitable access for all users
Appendix B: Review of submissions from the NTC draft policy paper August 2010

Background

The NTC’s *Electronic systems for heavy vehicle fatigue and speed compliance: Draft position paper* was released for public consultation in October 2010. Accompanying this paper was the Austroads *Performance-based specification for electronic work diary and heavy vehicle speed monitoring (Draft)*. The NTC draft policy paper presented options to address the absence of any approvals for electronic work diaries, as well as options to address a lack of guidance for the use of supervisory intervention orders for fatigue and speed compliance.

The paper presented a number of options to address key policy and operational issues such as (but not limited to); enforcement policy for electronic record keeping, time resolution of electronic work diaries, certification and approval of electronic record keeping systems and data entry.

The NTC paper and Austroads performance-based specification invited submissions from industry and the general public, of which 14 submissions were received. The full text version of these submission are available on the NTC website ([www.ntc.com.au](http://www.ntc.com.au)).

Review of submissions

Submissions in response to the draft policy paper were received from the following organisations:

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<td>Department of Infrastructure and Transport (Commonwealth)</td>
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<td>RTA</td>
<td>Roads and Traffic Authority (NSW)</td>
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<td>Main Roads*</td>
<td>Main Roads (WA)</td>
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<td>DTEI</td>
<td>Department of Transport, Energy and Infrastructure (SA)</td>
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<td>VR</td>
<td>Vicroads (VIC)</td>
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<td>TMR</td>
<td>Department of Transport and Main Roads (QLD)</td>
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<td>ALC</td>
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<td>SIBA</td>
<td>Spatial Industries Business Association</td>
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<td>ATA</td>
<td>Australian Trucking Association</td>
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<td>ARTI</td>
<td>Australian Regulatory Telematics Industry</td>
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<td>BBC</td>
<td>Black Box Control</td>
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<td>FEF</td>
<td>FleetEffect</td>
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* The submission from Main Roads WA included the views of the Department of Transport WA. This submission is not a public submission.

The comments received in submissions can be broken into two main categories: policy issues and technology or operational issues.
### Policy issues – electronic work diaries

1. **There should be a wider scope for the electronic work diary rather than just equivalence**

   Extending the technical functionality of the electronic work diary beyond the equivalence of the written work diary may provide the opportunity for safety improvements and productivity gains (DoIT).

2. **There needs to be flexibility in an EWD system**

   Any system would have to allow for differences between the States’ schemes. Drivers would need to be able to shift between standard hours, BFM and AFM (Main Roads WA).

3. **There needs to be transition arrangements for existing EWD systems**

   It is important to send the right signals to the transport operators in allowing a transitional arrangement for existing telematics based EWD (electronic work diary) systems, until the pilot outcomes are available for use in the refinement of the policy (FEF).

   The phasing of existing systems should involve a timeframe that the operator is given in which to make their telematics system compliant, not the degree to which the system is considered compliant (DTEI).

4. **GPS should be mandatory in an EWD system**

   The ARTI recommends that a GPS should be mandated for all EWDs including in the pilot (ARTI).

5. **Roadside enforcement**

   There should be no need for roadside interception if the captured data from the vehicle is held by the in-vehicle unit (IVU) provider and transferred to the owner of the heavy vehicle, with any major breaches sent to the authority in the state the vehicle is operating in (TCS).

   The use of EWD’s must be able to be enforced on the side of the road (Main Roads WA).

   The only requirement for the specification is to clearly specify “What is the information that an officer requires to undertake their roadside enforcement duties?” It is up to the system provider to either provide a printer or display device that can present the correct information to an officer (FEF).

   It is envisaged that officers will be suitably equipped with remote data terminals so that they may retrieve information electronically via the ejected DRD (DTEI).

   If authorities want officers to be able to read the DRD at the roadside, they will need to be equipped to do so (TCS).

   The ARTI recommends that an analysis of governments’ business strategies should include assessment of: a number of items (refer to submission p. 7) …; and an estimation of the full costs of the on-road enforcement model, to determine the business case for on-road enforcement strategies. (ARTI)

6. **Compliance reporting**

   Under no circumstances should driver driving hours/rest breaches be sent to regulators, road authorities or certification bodies as the current heavy vehicle driver fatigue legislation does not cover this (FEF).

   We do not feel there should be any automatic notification of non-compliance of driving regulations directly to the regulator (RTS).
7. **Review of sanction policy**

The prosecution of minor breaches needs to be considered but as part of a wider examination of the extent of the breach, reoccurrence, frequency and so on. Ultimately, such a sanction policy would need to be clearly and publicly disclosed so that there is no room for individual interpretation either among authorised officers or across jurisdictions (RTA).

Additionally, if any change or clarification of sanction policy is contemplated, it should also be in assisting jurisdictions develop guidelines on where a driver should be held responsible or where parties in the chain of responsibility may be contributors to work/rest time breaches (RTA).

We agree that there needs to be reform of the sanction policies for breaches as fatigue management moves to an electronic form. Minor infringements should not be unfairly prosecuted (RTS).

A level of consistency in tolerances for compliance assessment must be formalised (DTEI).

The ARTI recommends that government deliver special compliance policies for EWD users, and consider statutory backing to these policies as a means of providing confidence to market (ARTI).

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8. **Time resolution for an electronic system**

Recording time to 1 min or 1 sec intervals requires a change to the counting time rules in the current legislation (RTS).

Other concerns include problems associated with rounding time to 15 minutes increments. It is vital that if electronic work diaries are introduced this rounding problem needs to be addressed (BusNSW).

Change the counting time legislation to allow electronic diaries to record actual time, and not to round it up or down to the closest 15 minutes as currently required (Main Roads WA).

We agree with the NTC view that time should be rounded to the minute. Rounding up for work and rounding down for rest (FEF).

Technology solutions need to preserve a practical application of time but also adopt a fair approach. The aim has to be a fair and reasonable approach that does not disadvantage EWD adopters (ATA).

DTEI believes that work and rest time should be counted in increments of one second (DTEI).

The RTA agrees with the NTC position that the EWD should record time accurately (RTA).

TMR agrees that time should be recorded accurately, however equity needs to be maintained. The paper work diary provides for time to be counted in 15 minutes blocks however the EWD can record actual time. The TMR position is that, recording at one minute intervals is sufficient and equivalent discretion be given when assessing work and rest hours. There are major risks associated with introducing two different sets of rules for the same required outcome. (TMR)

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9. **Driver entry of records**

We would have some reservations how much data the driver is able to modify manually. We feel that if the vehicle is moving it should automatically record that it is being driven, this would prevent a driver from forgetting to record his drive event. Other than this we feel that the driver should be free to add or amend his own records but be excluded from stating that he was on a break or doing other work during a period that the vehicle was in motion (RTS).

It is essential that any in-vehicle equipment which is part of EWD system allows the driver to enter previous work sessions in the detail expected in the work diary minimum data requirements (FEF).

The ATA agrees with the NTC that manual entry of the required data should be allowed in EWDs and that assisted data entry should also be allowed provided that the driver is able to verify any such entry before it becomes an official record (ATA).

We support the assisted entering of driver work/rest information with the drivers final daily declaration being a signature on glass approach to validate their work or rest activity. Driver should also have the ability to change their work/rest activities with a record of such changes being kept in the back office and available for internal audit (FEF).
The RTA agrees that EWDs should provide for manual entry and assisted entry and with the four conditions in the NTC position relating to information format, confirmation of information, ability of driver to alter information and recording of alterations. It is our view that without the ability of the IVU to automatically generate data, an EWD would not reflect progress over the current WWD (RTA).

Notwithstanding the issues surrounding the acceptance of GPS accuracy to evidentiary standard, auto population of required fields with manual intervention capability seems the most appropriate solution. (TMR)

### 10. Voluntary use of an EWD

BusNSW is pleased that the EWD will be voluntary and not mandatory.

### 11. Mandatory use of an EWD

The ALC reaffirms the view expressed in the Telematics Strategy submission that telematics use should be mandatory in heavy long haul vehicles with operators not regulators monitoring compliance (ALC).

### 12. Certification of EWD systems

In addition, we believe that the NTC should fix the costs of any certification process to eliminate escalation of costs to EWD service providers (FEF).

The RTA believes that Transport Certification Australia is currently the sole appropriate certification body (RTA).

Therefore a suitably equipped independent third party (such as TCA) should be used to assess system conformity with the finalised performance-based specification, as occurs for the IAP now (DTEI).

The ARTI recommends government commit to a "bundled" application capability without existing IAP service providers entering into additional certification or audit relationships or incur any new fees (ARTI).

### 13. Approval of EWD systems

The industry cannot wait till the NHVR is operational to approve EWD’s, so FAP will need to do this in the short term and then a transfer of authority can happen in 2013 (FEF).

Referral of EWD’s to FAP would require legislative amendment, not merely a change to the business rules. Moreover, the approval process (with the addition of referral to FAP) seems lengthy and it would be beneficial for the NTC to review this to result in a streamlined process (RTA).

The model provision make no references to a third party (such as a TCA like body) for regulatory approval of an EWD, but the Austroads report is premised on this basis (ATA).

In several places within the report it is evident that a desire exists by some for a TCA or like body to have a role in approving an EWD. We do not support such an approach, as it will be costly, add an unnecessary burden and diminish the range of EWDs approved (ATA).

We note the EWD legislation is based upon authorities approving an EWD. There is no sound reasons advanced why this cannot be based upon first party statements and undertakings, with appropriate penalties for making false claims (ATA).
14. Information

We support the use of a standard USB memory device for storage and update of a drivers 28 day work diary and that such a device would provide vehicle and transport operator interoperability (FEF).

Firstly, the RTA agrees strongly with the NTC position that a standardised format on a standardised medium is essential. Secondly, it goes without saying that the records should be protected. The national model legislation permits electronic transfer of records from driver to record keeper. It is concerning therefore that the Draft Specification requires transmission via telematics every 24 hours (RTA).

TMR agrees that all information should be recorded and stored in a standardised format on a standardised, appropriately protected medium. Data management needs to employ a ‘write once read many’ environment with a level to security to protect all data. It is necessary to establish what will be considered the primary source of evidence; the EWD or DRD. (TMR)

15. Evidentiary standard

All information obtained from existing GPS telematics and back-office systems on transport fleets and drivers are already of evidentiary quality (according to legal advice obtained) (FEF).

Data collected from telematics and sent to back office will always hold up in court as the data collection method is more sound than the current manual work diary (FEF).

It is a false belief that enforcement generated evidence is held in a higher regard by a court (ATA).

DTEI holds the position that the NTC recommended policy option (Option A2) in its current form does not go far enough in ensuring that EWD and speed compliance systems, and the data they manage can be trusted and therefore used as credible evidence in court (DTEI).

16. New roles and entities

A driver recording device issuer should be the same as existing manual work diary issuers. Critical that the system manager does not have a free hand at updating the specification without the specific approval of the NTC/NHVR or similar organisations (FEF).

The RTA believes that the NTC should do further work to explore options for these roles in order for the policy to provide efficiencies for industry and regulators as well as ensure the integrity of the process (RTA).

The DRD issuer must be the heavy vehicle regulator at the time. The EWD and speed compliance system provider and system manager must be a certified and auditable entity, could be third party or in-house provider (DTEI).

TMR acknowledges that this represents a shift in the role that TMR currently undertakes with the paper work diary (issuer, provider and system manager). While the creation of the separate roles identified in the draft policy paper is supported, there is an element of risk introduced for multiple stakeholders and robust control measures must be implemented to ensure accountability is maintained and continuity of evidence is not undermined. (TMR)

17. Business case

The ARTI recommends that governments commit to valid, compelling and transparent commercial business cases for service providers, transport operators and regulators to support the provision and use of EWDs (ARTI).

The ARTI recommends that governments should consult upon a business case for regulatory telematics and this should be a key element of a National Telematics Strategy to be considered by ATC (ARTI).
18. Multi-application of a specification

The ARTI recommends there should be a single performance-based specification not 3 (fatigue, speed and route assurance) to ensure an in-vehicle unit has latent capability to deliver each service (ARTI).

The ARTI recommends government deliver a single specification that enhances the IAP specification so that EWD and speed are bundled with the route assurance application (ARTI).

19. Other uses of information

The issue of encouraging the voluntary sharing of information is not covered in the draft policy paper. While it may not be necessary or desirable to legislate for this, guidance material such as a code of practice may be appropriate. (RTA)

The ATA agrees with the NTC that other uses of EWD data should not be precluded. (ATA)

TMR agrees in so far as "core requirements" are agreed and the data set is preserved. To ensure the chain of evidence is preserved, the authority to use needs to be pre-determined and well defined boundaries set if the data is to be used for any other purpose. (TMR)

Operational issues – electronic work diary

20. Printers

The need for in-vehicle printers seems to be last-century thinking when the technology is available for wireless transfer of data (TCS).

If a printer is properly incorporated within the EWD there should be no reliability concerns (RTS).

EWDs should not require in-vehicle printers. In-vehicle printers would be an unacceptable and outdated burden on the industry (ATA)

DTEI does not agree with the inclusion of a printer for the purpose of printing out a copy of the work diary at the roadside as it was found this will impose a further 40% cost to industry (DTEI).

21. Data integrity

DTEI considers that unless the following measures are taken to secure and ensure the integrity of both system and data, they will not be able to provide a sufficient level of security and tamper-proofing to enable a court to rely on resulting data as credible evidence:

- GPS
- Continuous capture
- IVU tethered to vehicle and
- Tamper monitoring. (DTEI)

Driver declarations with sign-on glass are the most effective and consistent method to at least achieve a similar process to manual work diaries (FEF).

The ATA agrees that EWDs should offer similar data integrity to paper work diaries noting the limitations of paper work diaries (ATA).

Data integrity is essential to the success or failure of EWDs. According to Australian Records Management Standard, the integrity of a record refers to its being ‘complete and unaltered’. This discussion appears to relate more to the reliability of the record as being a full and accurate representation of the transactions in the work diary (RTA).

The ARTI recommends that NTC amend is position and accept Austroads’ operational and technical advice on the five features that would deliver appropriate system integrity. Particularly inclusion of GPS (ARTI).

Enforcement activities must recognise the value of a credible evidence chain but not at the expense of operational functionality or at a cost that may deter take up. All driver declarations and comments must be permanently recorded and saved to provide the history and continuity of evidence should changes be made. (TMR)
## 22. Interoperability

Equipment should be interoperable, and all solutions should record the same data in the same way to the same format of DRD (RTS).

Interoperability must be standards based (SIBA).

Systems must be interoperable and capable of running in a multi-application environment (DTEI).

## 23. Authentication of records

The presence of the DRD - either USB or smartcard - should be sufficient to identify the driver making these entries and should be deemed as equivalent or beyond verification provided by a signature in the WWD (RTS).

It is agreed that all work data that is automatically generated by the EWD system be validated and agreed by the driver, with preference to sign on a glass signature by the driver to match the current work diary authentication (FEF).

The proposed authentication protocol exceeds that required for normal banking transactions. This appears to be excessive. We would expect a two-part process such as ID and PIN or a specifically issued device such a 'Dallas Key swipe card' or wireless recognition of a driver’s dongle (ATA).

The ATA agrees with the NTC that driver identification and authentication for EWDs should be consistent with the level of security provided by a signature on a paper work diary (ATA).

TMR agrees with the NTC position that driver identification and authentication should be automated. (TMR)
## Operational issues – speed monitoring

<table>
<thead>
<tr>
<th>1. Identification and authentication</th>
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<tbody>
<tr>
<td>The RTA reiterates its comments on driver id and authentication for EWDs … that is a method consistent with the standard of the driver's signature is suitable. (RTA)</td>
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<tr>
<td>TMR supports the NTC position. (TMR)</td>
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<tr>
<th>2. Data integrity</th>
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<tr>
<td>TMR agrees with the NTC position with the inclusion of robust control measures. (TMR)</td>
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## Policy issues – speed monitoring

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<tr>
<th>3. Data capture</th>
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<tr>
<td>The RTA concurs that the use of GPS for speed monitoring systems is probably better than other available technologies (such as speed limiters or tachographs) but it is not apparent that options other than GPS have been considered or their costs and benefits assessed. (RTA)</td>
</tr>
<tr>
<td>TMR acknowledges the limitations of speed monitoring systems. There is a need for careful consideration to the effect that regular monitoring (every second) may have on drivers. (TMR)</td>
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<th>4. Roles and responsibilities</th>
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<tr>
<td>Roles and responsibilities should be prescribed to ensure the integrity of the system: flexibility should be paramount for operators while ensuring the success of prosecutions by the regulator. (RTA)</td>
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<tr>
<td>TMR agrees that a responsible system manager and certification process is necessary. (TMR)</td>
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<th>5. Approval</th>
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<tr>
<td>The RTA believes that the TCA should certify speed monitoring devices based on third-party conformance assessment. (RTA)</td>
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<tr>
<td>TMR acknowledges that the level of certification imposed may have an impact on cost effectiveness of a system. The introduction of court-imposed sanctions has created a need for reliable evidence and robust security for systems. The evidentiary standard should be addressed in consultation with the legal fraternity. (TMR)</td>
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</table>
Appendix C: Information that driver must record in work diary – Section 57 of Heavy Vehicle Driver Fatigue National Model Legislation

57 Information that driver must record in work diary

(1) This section lists the information that a driver must record in his or her work diary on each day on which the driver:
   (a) engages in 100+ km work; or
   (b) is working under BFM, AFM hours or the hours specified in a work/rest hours exemption.
   
   Note Section 58 explains how the information must be recorded.

(2) The driver must continue to record the information until his or her next major rest break.

(3) Immediately after starting work on each of those days, the driver must record:
   (a) the day of the week and date; and
   (b) his or her name; and
   (c) his or her current driver licence number, and the jurisdiction where the licence was issued; and
   (d) whether he or she is working under standard hours (including whether the driver is working under standard hours for solo drivers of a bus), BFM hours, AFM hours or the hours specified in a work/rest hours exemption; and
   (e) if he or she is working under BFM or AFM hours or the hours specified in a work/rest hours exemption that was granted in combination with an operator’s BFM or AFM accreditation — his or her operator’s BFM or AFM accreditation number; and
   (f) details of his or her base, unless he or she has previously recorded those details in relation to the work and they are still current; and
   (g) details of the driver’s record location, unless the driver has previously recorded those details and they are still current; and
   (h) details of the time zone of the base.

   Court-imposed penalty: $2 000.
   Infringement notice penalty: $600.

(4) Immediately before or after each work/rest change on each of those days, the driver must record:
   (a) the nature of the work/rest change; and
   (b) the work time or rest time spent anywhere by the driver since the last work/rest change; and
   (c) the time and place of the work/rest change; and
   
   Note An abbreviation may be used by a driver to refer to a place provided that it is capable of being understood by a reasonable person and is not designed to confuse or be misleading.

   (d) the odometer reading at that time; and
(e) the registration number shown on the numberplate of each heavy motor vehicle that the driver drives; and

(f) if the driver is or becomes a two-up driver — the following information about the other driver in the two-up driving arrangement:

   (i) the other driver’s name; and

   (ii) the other driver’s driver licence number; and

   (iii) except in the case of a shared electronic work diary, the security or other identifying number of the other driver’s work diary and the name of the participating jurisdiction that issued that diary.

Court-imposed penalty: $2 000.
Infringement notice penalty: $600.

(4A) If the driver changes from one base or record location to another base or record location after starting work on one of those days, he or she must record the details of the other base or record location (as the case may be) immediately after the change occurs.

Court-imposed penalty: $2 000.
Infringement notice penalty: $600.

(5) Immediately before finishing work on each of those days, the driver must record the total of the work time and the total of the rest time that he or she has had that day.

Court-imposed penalty: $2 000.
Infringement notice penalty: $600.

(5A) A driver in a two-up driving arrangement must, at the request of the other driver to the arrangement, provide the other driver with any details the driver needs to be able to comply with subsection (4)(f).

Court-imposed penalty: $2 000.
Infringement notice penalty: $600.

(6) An offence against this section is an offence of strict liability.

   Note A spelling mistake made by a driver in completing a work diary may be considered an honest and reasonable mistake of fact (and therefore provide a strict liability defence) if it is capable of being understood by a reasonable person and is not deliberate or designed to confuse or be misleading.

(7) However, if this section requires a driver to record information before beginning to engage in 100+ km work on a day, it is a defence for the driver to prove that, at the time of the offence:

   (a) he or she was unaware that he or she would be engaging in 100+ km work on the day; and

   (b) he or she recorded the information in his or her work diary as soon as practicable after becoming aware that he or she would be engaging in 100+ km work on the day.
Appendix D: Correspondence between provisions of National Heavy Vehicle Driver Fatigue Model Legislation and exposure draft of proposed National Heavy Vehicle Law

This policy paper is written with reference to the existing national driver fatigue model legislation. At the 2 July 2009 Council of Australian Government’s meeting, a decision was made to establish a National Heavy Vehicle Regulator. In order to establish this national regulator, existing heavy vehicle legislation is being consolidated into a single body of National Heavy Vehicle Law. This appendix sets out the comparison of relevant provisions in the existing driver fatigue model legislation and the draft National Heavy Vehicle Law.

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<tr>
<td>Section 109</td>
<td>Duty on officers to annotate driver’s work diary</td>
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<tr>
<td>Division 7.2</td>
<td>Who may make a decision</td>
</tr>
<tr>
<td>Section 113</td>
<td>Authority may delegate powers</td>
</tr>
<tr>
<td>Division 7.3</td>
<td>Referral and mutual recognition of decisions</td>
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<tr>
<td>Section 115</td>
<td>Referral of matters to the Panel</td>
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Appendix E: Draft Guidelines for Electronic Work Diaries

Introduction

Electronic work diaries can be used by drivers of heavy vehicle as an alternative to the paper-based written work diary in Australia. Electronic work diaries need to be approved by government before they can be used. These guidelines describe this approval process and provide further details about what electronic work diaries are assessed against in this process.

These guidelines will be useful to those seeking to have an electronic work diary approved, technical experts making an assessment of an electronic work diary, and government staff assessing the application.

The key principles used in assessing an electronic work diary is it should, at a minimum, meet all legislative requirements and be operationally equivalent to the written work diary.

To be able to fairly assess applications, Austroads commissioned Transport Certification Australia to develop functional and technical specifications for an electronic work diary. This guideline makes reference to these specifications.

These are draft guidelines which give effect to the policy positions in this paper. It is likely that this guideline will change as a result of the New South Wales RTA pilot of electronic work diaries.

Applying to get an electronic work diary approved

The overall process is:

Step 1. The applicant shall contact the intended approving authority for
   a. an application form
   b. a copy of the functional and technical specification
   c. a list of approved certification bodies.

Step 2. The applicant shall then contact the certification body that they intend to engage to perform the functional and technical assessment of the applicant's electronic work diary. Each certification body shall have their own process for submitting an electronic work diary and its associated documentation.

Step 3. Upon completion of the assessment of the electronic work diary submission, the certification body shall provide the applicant with a report detailing the results of the assessment.

Step 4. Upon successful completion of the assessment of the electronic work diary submission, the applicant shall contact the authority and provide the assessment report.

Step 5. The authority shall then assess the report and the submission and either approve or deny the application.

Step 1

In contacting the authority, the applicant should use the opportunity to understand the authority’s requirements and ask any questions they have about the process. Applicants are encouraged to read the specification carefully to determine the necessary requirements for their system. The specification is performance-based to allow applicants to be innovative and be accepting of the widest range of technology as possible. Questions about the specification may be clarified by the certification body.

Step 2

Each certification body can provide a copy of the functional and technical specification. Applicants are encouraged to discuss their intended submission with the certification body to determine any significant short falls in meeting the requirements.

Designers of new systems are encouraged to discuss their design with the certification body to identify any potential short falls or misinterpretation of the requirements.

The applicant should also ask the certification body about the process for making a technical submission.
Step 3
Results of the technical assessment shall be provided to the applicant in a test report. The test report will detail any features that failed to meet the minimum requirements. The applicant should be aware that the certification body will not provide advice on how to change the submission but may provide clarity on why it did not meet the requirements.

Step 4
Upon successful completion of the assessment, the applicant shall take their test report and application and submit it to the authority for approval.

Step 5
The authority shall assess the test report and application form and either approve or deny the application. If the road authority approves the application, the applicant will receive written notification and a type approval number. This type approval number will need to be labelled on the approved electronic work diary (section 74A of the model fatigue legislation).

If the authority does not make the decision sought by an applicant, the authority must also give the applicant a written notice that states the decision and the reasons for the decision. Applicants may apply to have the decision reconsidered, for example, if more information was sought in the application.

Requirements that will be assessed
The functional and technical requirements of an electronic work diary are contained within Austroads Performance-based Specification for Electronic Work Diary and Heavy Vehicle Speed Monitoring (Draft) (Austroads 2010).

Variations to approved electronic work diaries
Operators of approved electronic work diaries may continue to use the electronic work diary until the authority cancels the approval of the electronic work diary or the electronic work diary is changed.

If an electronic work diary needs to be changed, the applicant will need to contact the authority that approved the electronic work diary and may need to go through the assessment process (steps 1 to 5) again.
References

Australian Transport Council 2008a, 7 November 2008 *Communiqué*, Canberra.


