

Major Accident Investigation Report 2009



NATIONAL CENTRE FOR
TRUCK ACCIDENT RESEARCH



National Transport Insurance

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INTRODUCTION

This report is a longitudinal study involving the tracking of a cohort of Australian heavy vehicle drivers involved in accidents, since 1998. This study continues a series of quantitative evaluations undertaken biannually by NTI's National Centre of Truck Accident Research. This research focuses on primary data specifically reviewing major heavy truck crashes managed by the National Claims Centre. Such incidents have an aggregate cost greater than (>) \$50,000.

This research into major losses in 2007 follows quantitative studies completed on major truck crash incidents reported during 2003 and 2005. Throughout the 2007 period, 325 major incidents were reported at a cost of AUD\$41.6m. Whilst there was a 19.56% decrease in the number of major incidents reported, when comparing to those investigated in 2005, the average financial loss per incident increased by 9.2% to AUD\$128,485. Losses in relation to freight cargo and worker's compensation / personal injury are not included.

In terms of portfolio growth, during 2005, NTI insured 104,412 items which increased to 114,057 by the end of 2007. Representing a growth of 9.2% in numbers, the accident frequency rate, across all claims (major and minor), deteriorated marginally to 6.45%. The average cost of claim decreased by 9.7% to AUD\$14,222.

This research will focus on heavy vehicle accidents in the hire and reward freight sector with vehicles having a payload exceeding five tonnes.

National Transport Insurance (NTI) is Australia's principal truck insurance underwriter. NTI provides insurance, risk supervision, claims and accident management services to the road transport industry.

NTI currently insures more than 106,155 items of plant and equipment having an insured asset value of AUD\$7.8B. Since 2002 NTI has settled 33,000 notified losses with claims payments exceeding AUD\$468.5M.

INVESTIGATING AND REVIEWING EVIDENCE

For the purpose of this research, investigators gather and evaluate a wide variety of evidence.

Such information is extracted by the following means:

- 24 hour accident assist national support centre (94% of all incidents reported via this channel)
- Claim Forms and Accident Reports
- Police reports
- Independent investigators
- Interviews with repair managers, claims personnel, drivers, owners, risk managers and witnesses, and
- On-scene crash recovery operators.

Additionally, proxy/surrogate measures are factored into accident investigations with consideration of single vehicle accidents (SVA), time of day, time at task, freight task, etc.

The new research studies the following criteria in each and every incident:

Criteria	Issues under review	Action Pending
Accident date	Review worst performing months and compare with past studies.	Risk management focus
Day of week	Review worst performing days and compare with past studies.	Risk management focus
Accident time	Review driver rosters and freight schedules	Review start and finish
Accident place	Identification of road network	Black spots and rest areas
Accident State/Territory	State Agencies – road and infrastructure funding	Black spots and rest areas
Freight on board	Loading and load restraint	Risk management and training
Solo/Two-up driving	Associated risk factors. Team selection.	Risk management and training
Vehicle configuration	Comparison semi/b-double/road train	Risk management and training
Inbound/outbound journey	Fitness for duty, driver management	Medicals, risk management and training
Single vehicle accident	Fatigue, speed management, fitness for duty.	Medicals, risk management and training
Distance from departure point	Fatigue, speed management, fitness for duty.	Risk management and training
Driver's age	Age bracket, freight task comparison	Management and training



SUMMARY OF FINDINGS 2007

- Inappropriate speed for the conditions continues to be the predominant cause for heavy truck crashes in Australia. The 2007 study found that 27.4% of reported incidents could be attributed to inappropriate speed particularly when altering direction.
- Two of the major causes of incidents, fatigue and inappropriate speed, made up 1 in 2 serious truck crashes (47.7%).
- 1 in 6 serious truck crashes occurred on Australia's National Highway 1.
- A 19.56% decrease in the number of major incidents reported (damage > \$50,000), when comparing those to crashes investigated in the 2005 period; the average financial loss per incident however increased by 9.2% to AUS\$128,485.
- With 20.6% of losses, Monday was found to be the worst day.
- February through to May were the worst months consistently for major incidents.
- The worst time of day was 1100 – 1400 hours.
- NSW, with 30.7% of major truck crashes experienced a quantum improvement on 2003 (43.1%). Taking into account the improved NSW result, the 2007 study identified substantially fewer incidents on NSW's Pacific, Newell and Hume Highways.
- Semi Trailers are disproportionately over-represented with 57.5% of major crashes, though only responsible for 41.2% of the freight task (loaded tonne/km).
- B-doubles appear to be the safer alternative, carrying 43.4% of the freight task with only 21.8% of major accidents.
- In 75.4% of serious truck crashes, no other vehicle involved.
- In 86.7% of serious truck crashes, the vehicle was within 500km of point of departure.
- In 76.9% of serious truck crashes, the vehicle was involved in an outbound journey from home base.
- In 24.6% of serious truck crashes where other vehicles were involved, the truck driver was totally responsible in 46.3% of the incidents.

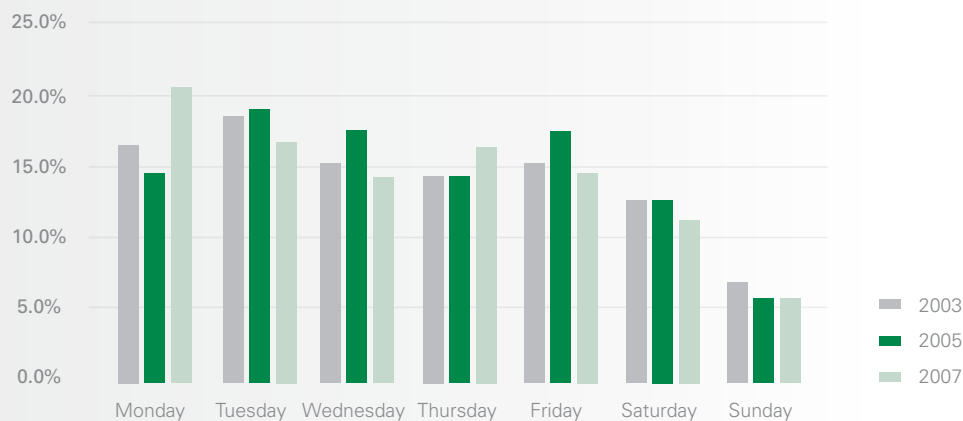
ACCIDENT DAY

Information processed and analysed in the 2007 study found the worst day to be Monday with 20.6% of major incidents occurring within this 24 hour cycle. Otherwise, excluding Saturdays and Sundays, crash rates marginally improved as each week progressed.

Irrespective of the fact that for various freight tasks the working week may commence on differing days,

it could be argued that there is a correlation with driver's fitness for duty, or lack thereof, where they have not worked through the weekend.

The 2003 and 2005 studies found that Tuesday was the worst day with 18.6% and 19.1% respectively. A further investigation with regard to driver fatigue and day of week is detailed later in this report.

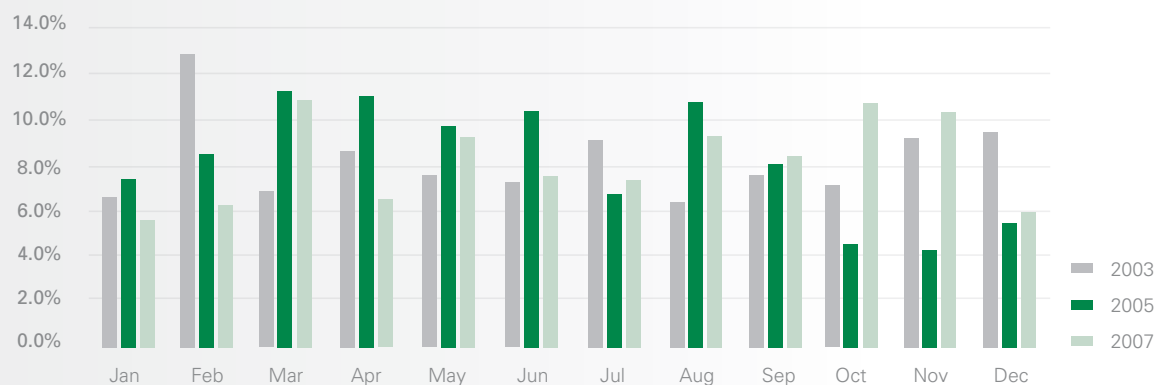


ACCIDENT MONTH

Information reviewed in the 2007 study found that the worst month was March with 11.1% of major incidents occurring in this period. Further, accidents increased appreciably during the months of October/November accounting for 21.2% of the year's major incidents. Prior research had found

these months to be the quietest. When compared to the 2005 study, accident rates increased in the later part of the year.

In this and in prior studies, the period February through to early May is consistently the worst for major truck crash incidents.

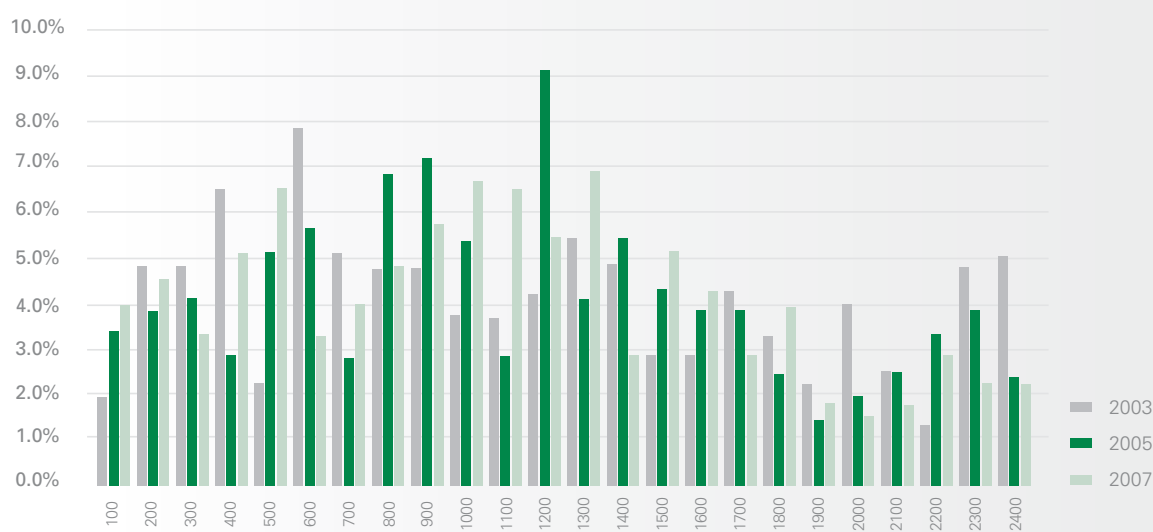




ACCIDENT TIME

Information processed and analysed in the 2007 study found that the worst time of day was between 1100 – 1400 hours. This was similar to the finding in the 2005 major accident study. These results differed from the 2003 study which found the most dangerous period to be between 0400 – 0600 hours.

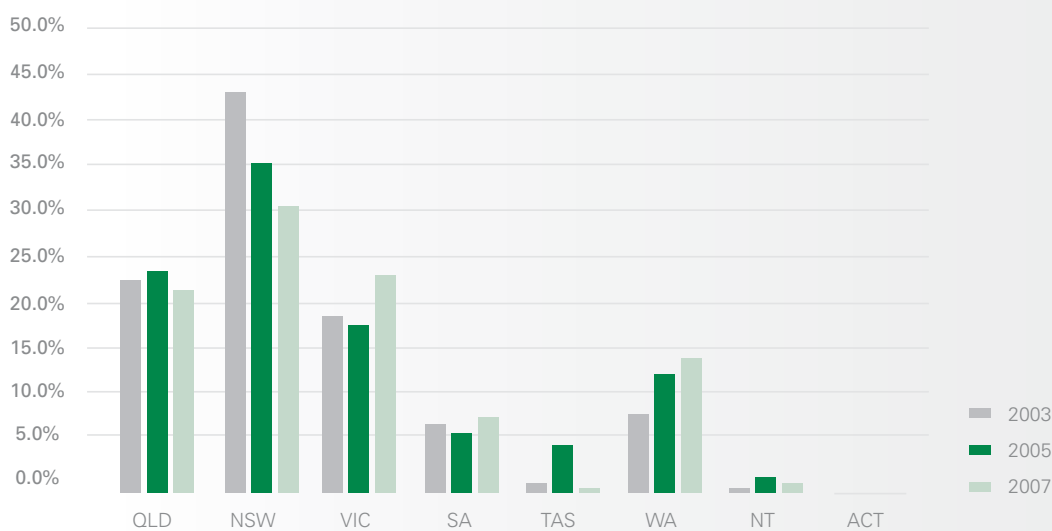
Taking into account all studies, the period from midnight to 0600 was over-represented with 1 in 4 major crashes occurring during this period. Given the substantial decrease in road population throughout these hours the result is concerning with further reference to the impact of fatigue during these hours to be addressed later in this report.



ACCIDENT LOCATION Australian State

Research into major incidents in 2007 again noted that New South Wales (NSW) continued to dominate major crash incidents (30.7%), however this was a quantum improvement on 2005 (35.4%) and 2003 (43.1%). As previously noted, 29.2% of road freight movements travel through or within NSW (ABS 9220.0 Freight Movements 2001) thus putting the improved result in context.

Whilst statistically, the Queensland result remained unchanged, the evaluation established that major incidents had increased in Victoria, South Australia and Western Australia on past studies. Major truck crash incidents were minimal in the Australian Capital Territory, Northern Territory and Tasmania.



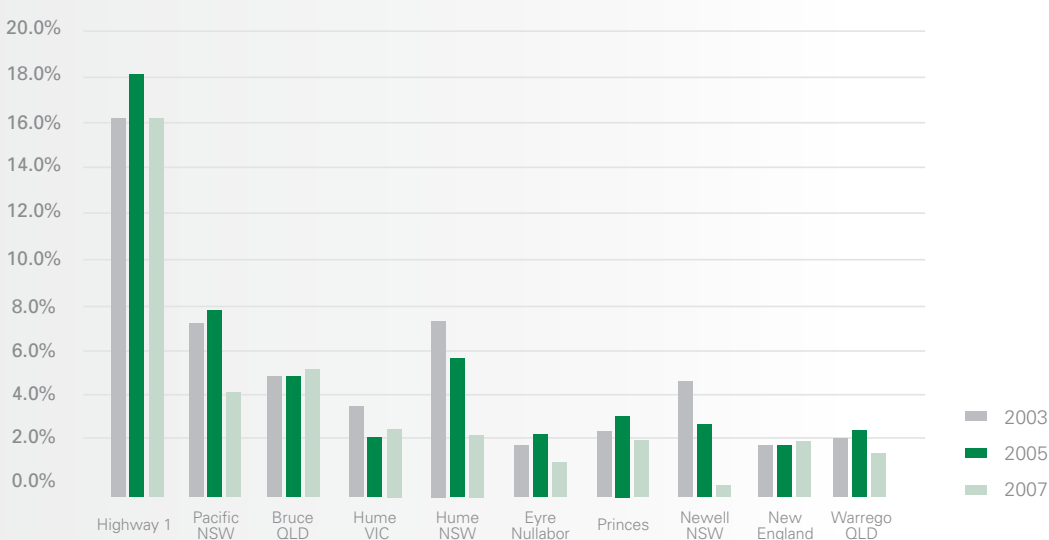
ACCIDENT LOCATION Australian Road Network

The 2007 research into this criteria, focused on incidents occurring on Australia’s National Highway 1. Since 2003, 1 in 6 major truck crashes have taken place on this segment of the network. This result remains relatively constant during the past five years.

Taking into account the improved NSW result, the 2007 study identified substantially fewer incidents on

NSW’s Pacific, Newell and Hume Highways. This result is possibly attributable to improvements to the road landscape on these parts of the network.

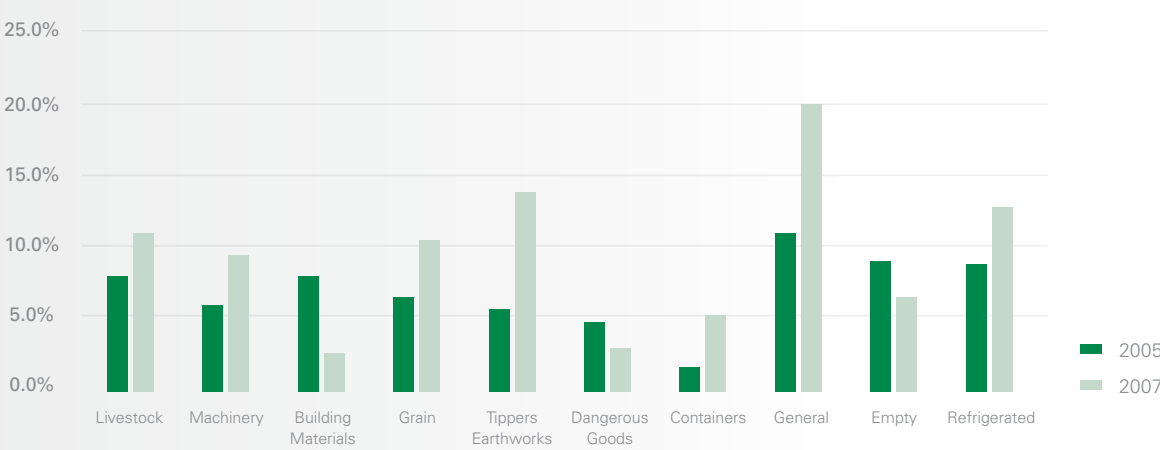
In Victoria there was a slight increase in the percentage of incidents on the M31, Hume Highway, with a marginal improvement to the Princes artery.



ACCIDENT FREIGHT ONBOARD

Research into major incidents in the 2007 study found that freight onboard at the time of loss was predominately general at 20.1%, Claims results deteriorated in livestock with 11.1% of major truck crashes.

Semi articulated tippers, specifically working local on earthworks, accounted for 14.1% of major incidents, an increase on the 2005 result of 5.6%. Refrigerated goods and grain hauliers were also prominent.





ACCIDENT VEHICLE CONFIGURATION

Vehicle configuration was introduced into NTI’s research into major incidents in the 2005 report. Such a criteria was appropriate given the growing utilisation of multi-combination equipment. Indications are that as the freight task escalates there will be longer, heavier combinations as driver shortages continue to influence the Australian logistics chain.

The freight task (excluding rigid vehicles), in consideration of (articulated) loaded tonne/km travelled, is divided between semi-trailers carrying 41.2% of all freight with b-doubles 43.4% and the residual being moved by roadtrains. The share of freight carried by b-doubles continues to grow at 2.2% per annum. (Source: ABS Survey of motor vehicle use, 1992–2005). The number of b-doubles has increased by 267% to 9,594 since 2000, but their average annual kilometres has decreased by 18%. (Source: NTC 2007).

In the 2005 research, semi trailers were disproportionately over represented as they registered 59.1% of major incidents. This result has marginally improved to 57.5% in the recent study, nevertheless given the decrease in the overall freight task for this segment, it is an improvement of little consequence. This result is to be expected given the fact that in many instances, this configuration operates on the worst of the network, with ageing equipment and drivers with less experience.

In contrast, b-doubles now carry 43.4% of freight and registered 21.8% of major truck crashes. This followed the 2005 research where b-doubles were again better performers with 15.6% of losses. This of course can be attributed to the fact that b-doubles are newer, better maintained vehicles, with experienced and highly trained drivers using the best of the road network.



ACCIDENT INBOUND/ OUTBOUND JOURNEY Single Vehicle Accidents

Research into the aspect of whether a journey is inbound or outbound from home port ultimately establishes, from a fatigue management criteria, the general health and well being of the driver during the course of his or her work program.

Confirming the 2003 and 2005 research, it has once again been established that a high proportion of crashes in the 2007 study occurred on the outbound leg (76.9%). Historically, the vast majority of severe incidents occur on outbound trips, and ironically not on the return journey where the expectation would be that the driver has 'grown' fatigue during the journey.

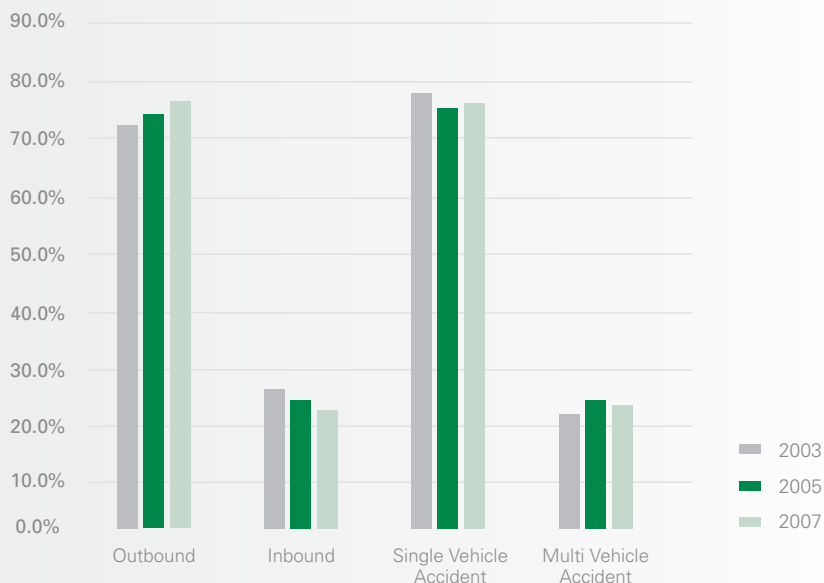
Given that such incidents are found to occur on outbound legs, from a risk management perspective, the driver must be required to satisfy management that he or she is 'fit for duty' at the commencement of the task. Additionally, stress created at the commencement of the trip through inefficient loading practices, late departures and unachievable

time slots ultimately leads to driver fatigue. It is to be expected that the 'Chain of Responsibility' legislation will influence this current result.

Yet another indicator that fatigue influences major crash incidents is that of research findings into single vehicle accidents. Again it is noted that 75.4% of major truck crashes are single vehicle accidents where no other vehicle was found to be involved. This is a very marginal increase on the 2005 research which found 75.2% of incidents involved no other vehicle.

In cases of multi-vehicle accidents, it was found that the driver of the heavy vehicle was negligent in 46.3% of the incidents.

Whilst the 2007 study reviewed major truck crashes where a two-up team was in place, the losses were too few to report although it should be noted that these teams are rarely used given the introduction of freight shuttle operations.





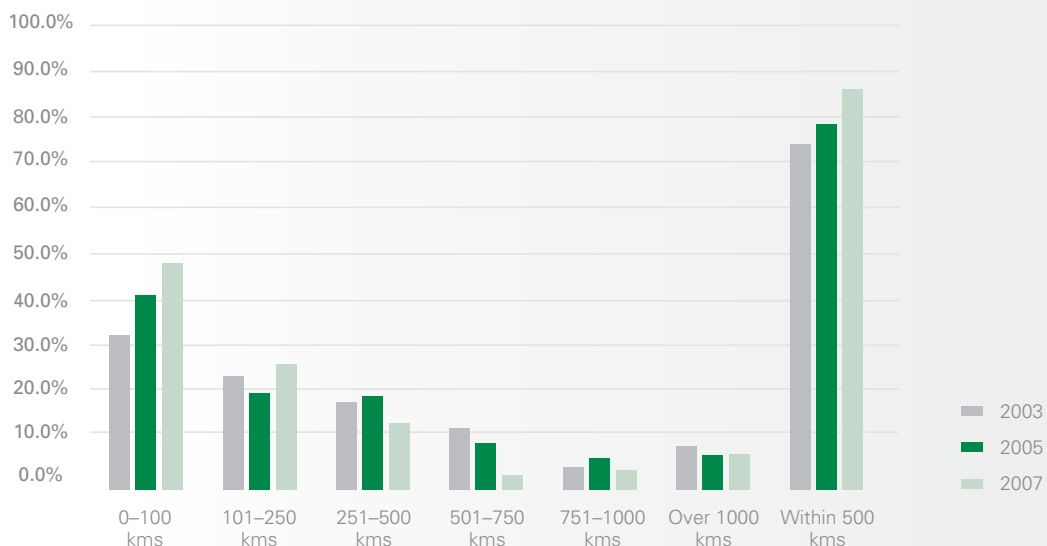
ACCIDENT DISTANCE FROM POINT OF DEPARTURE

The 2007 evaluation has established that 86.7% of major crash incidents occurred within 500kms of point of departure, irrespective of whether the journey was outbound or on the homeward leg. This is an increase on prior research with the 2003 study finding that 74.8% of major crash incidents occurred within this range, and 79.4% in 2005.

The report notes that whilst some consideration should be given to those vehicles involved in a local and generally short haul freight task, given

the severity of losses in this evaluation a high proportion of these incidents occurred with vehicles undertaking long haul operations.

Such information also confirms that from a fatigue viewpoint the far greatest exposure is within the initial five to six hours of a journey, thus the importance of strictly monitoring 'fitness for duty'. This result also brings into question the relevance of regulated driving hours over a comprehensive focus on driver fatigue management programs.



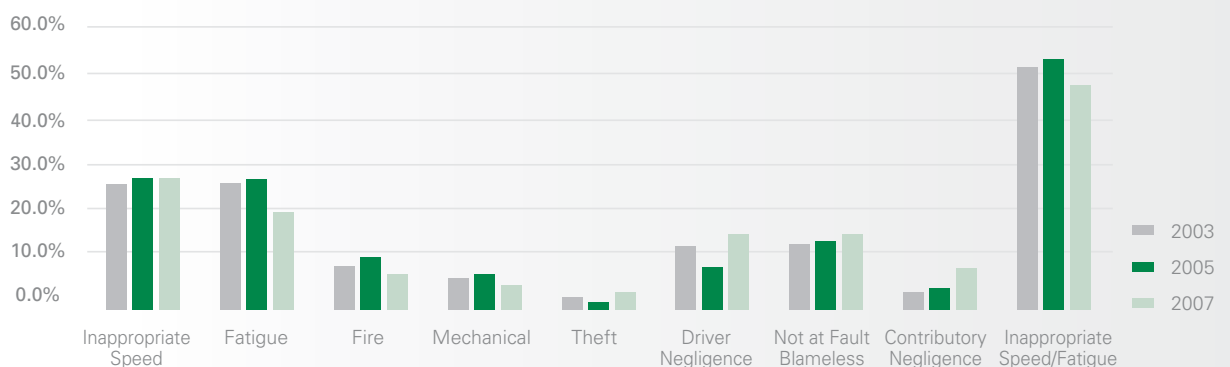
ACCIDENT CAUSE: Investigation Finding

This chapter of the study evaluates accident cause, irrespective of that alleged by the driver at the time of the incident. Once again, this most recent research has found inappropriate speed for the prevailing conditions and fatigue to be the primary factor when establishing cause. In 2007, the research identifies speed (27.4%) and fatigue (20.3%) as the predominant findings with composite results of 47.7%. This compares

with the 2003 and 2005 findings that concluded composite results of 52.6% and 57.1% respectively.

From a road safety perspective these two causal factors remain a major concern, even though there is some evidence of improvement.

Vehicle theft continued to be insignificant whilst there has been a marginal decrease in losses attributed to fire.



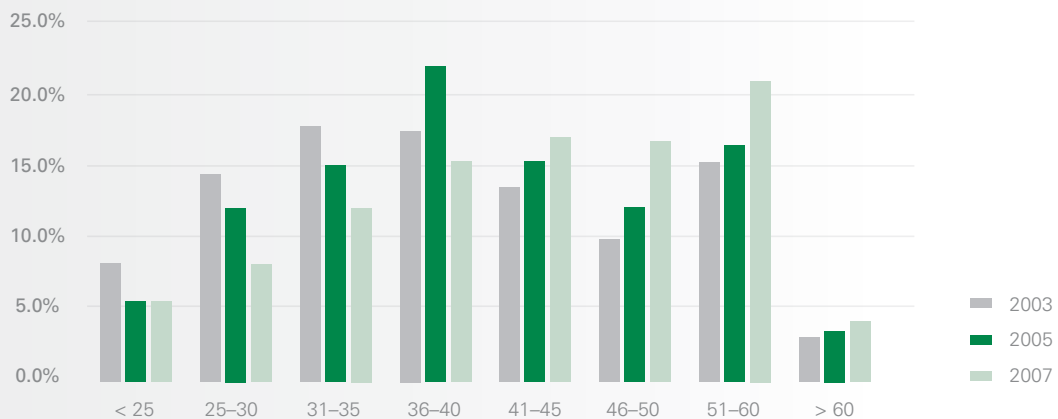
ACCIDENT RATE: Age of Driver

Research into major incidents in the 2007 study found that drivers under the age of 45 were involved in fewer accidents proportionally than that found in the investigations conducted on the 2003 and 2005 crash database.

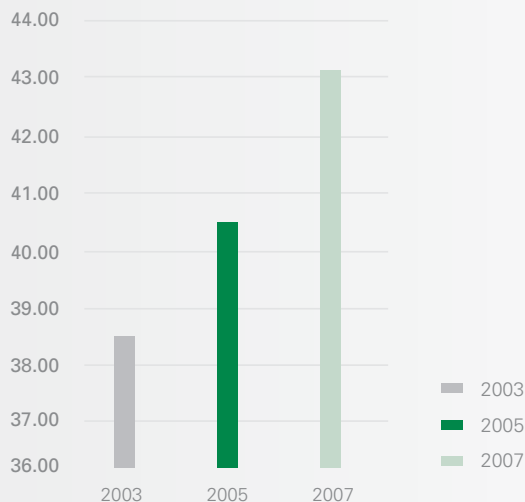
Drivers over the age of 45 were involved in higher proportions when comparing the studies but this could obviously be attributed to the fact that the average age of all heavy vehicle drivers has escalated to 54 years. Consequently, the average age of drivers involved in major truck crashes continues to increase to 43.2 years from 38.5 years in the 2003 study.

Further, the 2007 research found that in 25.1% of serious truck crashes, the driver was over 50 years of age. This is a factor that continues to deteriorate from 2003 (18.5%) and 2005 (20.3%).

Although it could be argued that many insurers desist from the practice of accepting drivers under the age of 25 years, NTI for some time has guardedly supported the acceptance of younger drivers which would suggest that those accepted under 'managed and monitored' apprenticeships are returning improved results. In 2007, there was no evidence of drivers under the age of 25 years increasing in their involvement in major truck crashes.



ACCIDENT DRIVER Average Age





ACCIDENT: Focus on FATIGUE

In 20.3% of major incidents in the 2007 study, fatigue was found to be a significant cause. This was an improved result compared to 2003 and 2005 research, where the outcomes were 26.4% and 27.3% respectively. 86.1% of accidents occurred on outbound journeys, with 73.8% in 2005 and 69.6% in the earliest study. The worst day was Monday with 1 in 4 crashes, and when combined with Tuesday and Wednesday accounted for 58.4% of major incidents. This is compelling evidence that drivers are fatigued at the commencement of their work week if in fact their work program is on a conventional weekly basis.

Saturday and Sunday were recorded as the lightest days in each study.

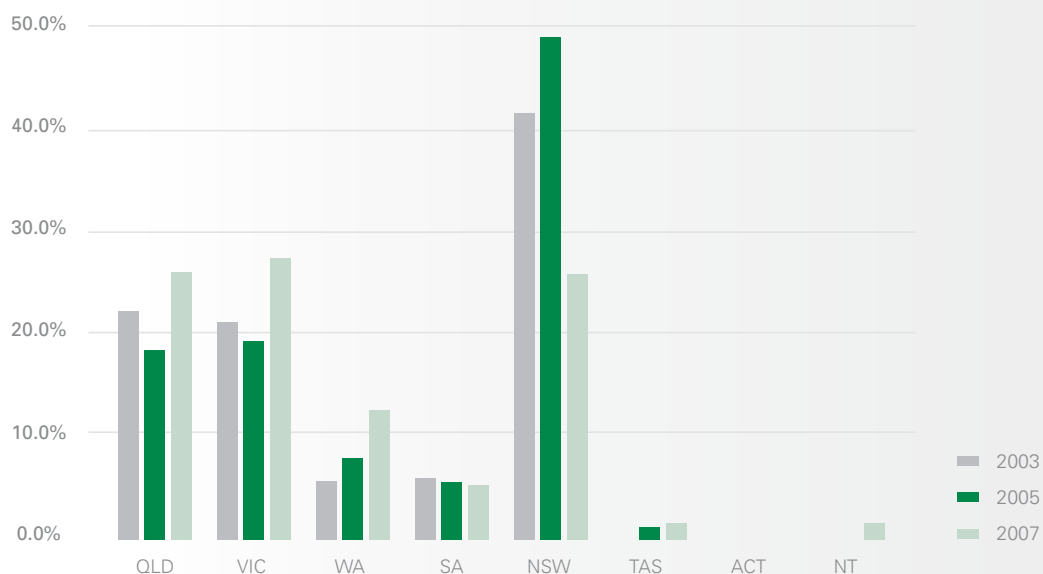
In earlier research, between 45 and 50% of all fatigue-related incidents occurred in the state of New South Wales. This report recognises a considerable improvement to the past result with 26.1% of fatigue related truck crashes occurring in NSW during the 2007 period. Additionally, the latest accident evaluation has found that fatigue-related

incidents have increased in Queensland, Victoria and Western Australia. There were very few fatigue-related truck crashes recorded in Tasmania, the Australian Capital Territory and the Northern Territory.

The 2007 study establishes that 72.3% of fatigue related incidents occurred within 500 km from commencement of the journey either outbound or on the home leg. This is a substantial increase on the 2005 research result which found 63.6% of fatigue losses occurred within 500 km, a further increase on the 2003 figure (56.9%).

89.3% of major crashes found to be attributed to driver fatigue occurred on outbound journeys within 500 km of the point of departure. This finding is an obvious concern where driver management (insofar as fitness for duty) is taken into account.

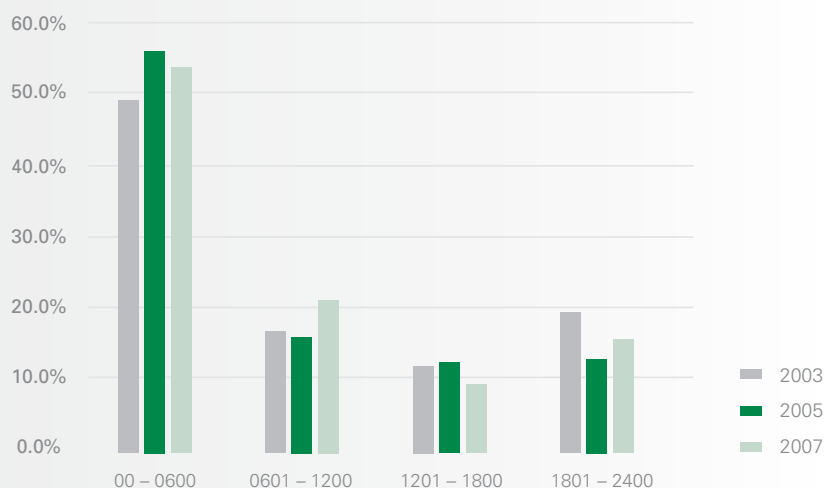
The average age of fatigued drivers, involved in these incidents (42.52 years) mirrored earlier findings of 36.75 years (2003) and 40.56 years (2005), simply confirming that the driver pool is ageing.



FATIGUE ACCIDENT: Time of Day

53.8% of accidents deemed to be fatigue influenced happened between the hours of midnight and 0600. This followed the 2005 finding of 56%

and continued to be a serious concern for those operations continually working through these hours.



ACCIDENT: Focus on Inappropriate Speed

Inappropriate speed for the conditions continues to be the predominant cause for heavy truck crashes in Australia. The 2007 study found that 27.4% of reported incidents could be attributed to inappropriate speed particularly when altering direction. This result was comparable to prior studies with 27.3% of major incidents in 2005, and 26.1% in 2003.

The vast majority of truck crashes in this segment occurred on outbound journeys with 83.1% in the latest evaluation. This is consistent with earlier findings of 79.6% in 2005 and 70.8% in 2003.

NSW again led the result with 29.2% of incidents followed by Victoria with 24.7% and Queensland 20.2%. Western Australia was over-represented with 15.7%.

In 77.5% of incidents in the 2007 research, vehicles rolled over at corners or roundabouts, with jack-knives prominent in 9.1%. Semi trailers had 67.4% of speed related incidents. Livestock transporters at 16.8% were over-represented in this segment with a high centre of gravity and a moving load influencing this result.

CONCLUSIONS

This study of major truck accidents focuses on claims settled during 2007. This is the third in a series of biannual quantitative evaluations tracking the behaviour of a cohort of Australian heavy vehicle operators.

This is a comparable evaluation given that the insurer's portfolio remains relatively constant during the course of such studies.

Consistent throughout all research is the finding that inappropriate speed for the conditions and driver

fatigue, continue to be accountable for 1 in 2 heavy vehicle crashes.

On a case by case basis, to ensure consistency of the comparable model, the National Centre of Truck Accident Research reviews all truck accidents where material damage exceeds A\$50,000.

In the 2007 research the overarching finding is that there were 19.6% fewer major truck crashes recorded however such losses have increased by 9.2% in average cost of claim.



ABOUT THE AUTHOR: Owen Driscoll

Manager, Industry Affairs and Customer Relations for National Transport Insurance.

Mr Driscoll conducted the inaugural research study into severe truck crashes for 2003 and 2005, and published the subsequent findings.

He has 35 years experience in the road transport insurance sector and is a founding member of NTI. He is an advisor on safety and risk management programs and a facilitator of accident research and training systems. He has held executive positions with NTI in areas of administration, underwriting operations and risk management.

Mr Driscoll has undertaken studies in accident investigation, workplace law and logistics management at Deakin University and with the Australian & New Zealand Institute of Insurance and Finance. He is currently completing studies on Road Safety evaluation with Queensland University of Technology's, Centre for Accident Research and Road Safety

He is currently a Director and the Company Secretary of the industry accreditation program, TruckSafe Pty. Ltd.

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