NTARC 2.0

MAJOR INCIDENT INVESTIGATION REPORT 2024

COVERING MAJOR INCIDENTS IN 2023

In Partnership nti NRSPP NATIONAL ROAD SAFETY PARTNERSHIP PROGRAM MONASH University ACCIDENT RESEARCH CENTRE

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FOREWORD

Senator Carol Brown
Assistant Minister for Infrastructure and Transport, with responsibility for road safety

Australia's size and population spread means road transport is integral to Australia's economy – and it is what drives our nation. The Australian road transport sector is a global innovator in how to safely and efficiently move freight on our roads. This has been achieved through the sector's collaborative approach to understanding emerging issues, risks and trends and willingness to share solutions.

For more than two decades, NTI has produced the National Truck Accident Research Centre (NTARC) Major Incident Report, providing industry and policymakers with a snapshot of the truck insurer's claims data. The Report is an annual benchmark for how the transport sector is tracking in road safety, what factors remain constant, and issues that are emerging.

The 2024 Major Incident Investigation Report for NTARC2.0 is foundational and, looking to 2025 and beyond, you will see annual reporting and insights evolve and become more interactive.

The 2024 report is the start of an exciting collaborative journey, one that will continue to grow and reflects a simple philosophy: road safety is a shared responsibility and is simply good business.

WHO IS NTARC2.0?

Welcome to NTARC2.0

Building on the work of the past two decades, the 2024 Major Incident Investigation Report marks a significant shift forward. It will now be presented through a ground-breaking collaborative partnership established by NTI with the National Road Safety Partnership Program (NRSPP) and the Monash University Accident Research Centre (MUARC), known as NTARC2.0. The NTARC2.0 partnership is an Australian first, with NTI taking a major industry leadership step in sharing its claims data with a third party. Over time, the diversity and quality of this data will provide a greater understanding of key hazards, which will feed into developing new interventions, enrich research and inform policy.

The NRSPP is the home of NTARC2.0, where the program's collaborative network will expand on the learnings from the report to build and implement effective workplace road safety strategies. The NRSPP is delivered in partnership with MUARC, which is Australia's largest and leading multi-disciplinary research centre specialising in injury prevention research, including road transport.

These types of collaborative partnerships will make a significant impact in helping us target our efforts to significantly reduce trauma on our roads. Vehicle Safety, Heavy Vehicle Safety and Workplace Road Safety are three priority areas identified in the National Road Safety Strategy 2021-30 to put us on the pathway to Vision Zero: no deaths or serious injuries on our roads by 2050.

nti

NTI is a specialist insurance provider offering a wide range of products and assistance services for the transport and logistics industry, including heavy commercial motor, mobile plant & equipment, and marine insurance. NTI actively engages with its chosen markets and works with all stakeholders to support safe and sustainable industries.

NRSPP
NATIONAL ROAD SAFETY
PARTNERSHIP
PROGRAM

The NRSPP offers a collaborative network which builds and implements effective road safety strategies in the workplace. The NRSPP aims to help Australian organisations develop a positive road safety culture and, in turn, become an example for others to enhance road safety nationally.

MONASH University | ACCIDENT RESEARCH CENTRE

MUARC is Australia's largest and most respected accident and injury prevention research organisation. MUARC's goal is simple but profound: to create safe and resilient solutions to local and global challenges.

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KEY FINDINGS

01 The overall incident rate in 2023 has increased by 27% since 2022, marking a concerning trend that has been accelerating since 2020.

02 Losses have risen across almost all cause codes, with crashes related to Human Factors seeing a 42% increase since 2022.

03 Inattention/Distraction incidents were the most prevalent cause in 2023, with incidents doubling the rate of any other cause and increasing 75% since 2022. Over the past five years, there was a 2.6-fold increase.

04 Over five years, incidents due to Inappropriate Speed increased by 41%. In 2023, 89% of these incidents involved a single vehicle, with 85% resulting in vehicles going off the path on curves.

05 Inadequate Following Distance incidents have increased by 73.5% over five years. These incidents mainly resulted in collisions with the rear of third-party vehicles, occurring predominantly in major cities and involving heavy vehicles and cars travelling in the same direction.

INTRODUCTION
REPORTING WITH PURPOSE

Due to the expansive distances between Australian metropolitan centres, the trucking industry is vital to maintaining economic growth and supplying communities in Australia. The trucking industry in Australia faces many challenges. Particularly concerning is the number of injuries and fatalities that truck drivers experience every year and the effect of heavy vehicle involved incidents on other road users.

Over the past ten years (2012-2021) the number of fatal incidents on Australian roads involving a heavy vehicle has reduced by 2.9%. Over this same period, light vehicle fatalities involving heavy vehicles have also reduced by 5.2%, however heavy vehicle occupant deaths have increased by 2.6% (Bureau of Infrastructure and Transport Research Economics (BITRE), 2023).

In 2021, BITRE reported that 68% of truck driver fatalities were single vehicle incidents (BITRE, 2023). Due to the high rates of fatalities and/or injuries, road transport, agriculture and construction have all been classified as priority industries by the Australian Work, Health and Safety Strategy, acknowledging the hazardous nature of these industries.

The road transport industry has the highest fatality rate of any industry, at 16.2 per 100,000 workers in 2021.The road transport industry accounted for 21% of all worker fatalities between 2017 and 2021 (Safe Work Australia, 2023), with 74% of these occurring due to vehicle collision (Safe Work Australia, 2023). Note: Construction and agriculture industries have overlap with road transport that is not included in these statistics.

The purpose of this report is understanding, acknowledging and proactively improving on the key hazards that can be managed in the trucking industry to keep all road users safe. This report is not about allocation of blame.
This report aims to:

1. Highlight opportunities and initiate actions to reduce fatalities and serious injuries in the trucking industry and the broader road user community.

2. Identify opportunities to implement measures to reduce overall risk for the trucking industry, as tracked by overall cost of claims.

3. Inform and influence government, regulators, industry, safety bodies and suppliers to play an active role in improving the safe performance of the trucking industry.

4. Share the performance of the trucking sector with industry, other road users and the wider community.

OVERVIEW FINDINGS FOR 2023

This report examined incidents in the calendar year 2023, involving at least one heavy vehicle (with a GVM over 4,500kg) insured with NTI with an identified incident cost equal to or greater than $50k. The sample for 2023 is 1,634 incidents, an increase of 27% over the 1,282 incidents that were in-scope in 2022.

Incident Rate - With and Without Inflation Correction

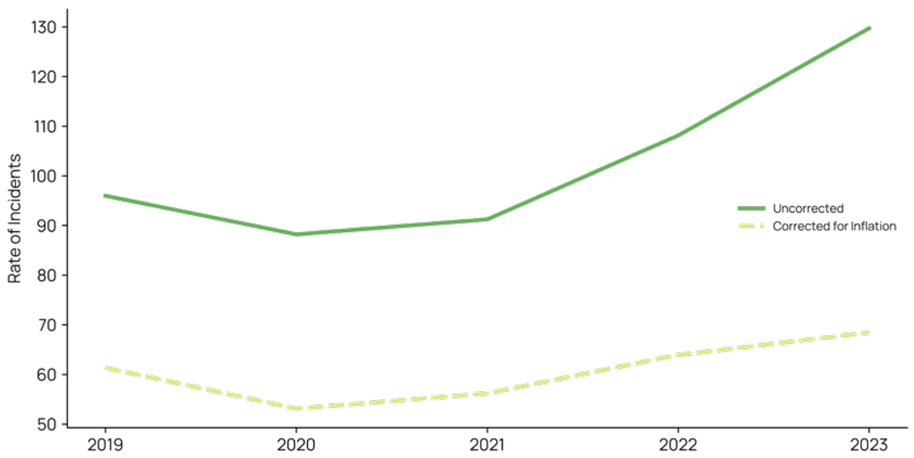


Figure 1.1 - Rate of incidents per 10,000 heavy vehicle powered units by year and above the inflation threshold (2003)

The drop in incidents in 2020 is attributable to the significant impacts of the COVID-19 pandemic. In 2021 this resulted in significant changes to road usage, particularly among light vehicle drivers and in those jurisdictions which experienced extended lockdowns. This reduced overall traffic density and the total exposure for truck and car crashes.

A key theme throughout 2023 data is an increase in claims frequency. This is apparent in the rate of incidents, with an increase from 91.2 incidents over $50k per 10k powered units in 2021 to 129.9 incidents in 2023.

Correcting for inflation, the 2003-dollar value of the $50k threshold equates to $75.5k in 2021, $80.5k in 2022 and $85k in 2023. Applying these inflation corrected thresholds shows an increase from 56.2 incidents per 10k powered units in 2021 to 68.4 incidents per 10,000 powered units in 2023. This 21.7% increase represents a marked change in incident frequency in NTI's heavy motor portfolio.

Incidents by Operator Size

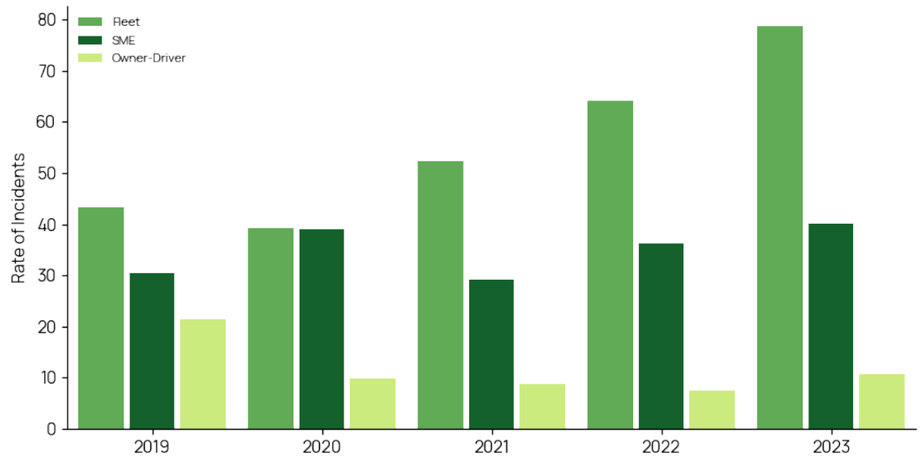
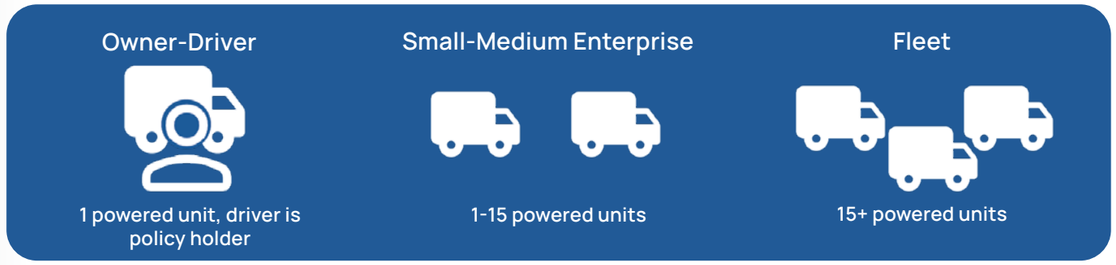


Figure 1.2 - Rate of incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by operator size

Fleets, operators with greater than 15 insured items, accounted for most of the 2023 increase. By contrast, incident rates across Small-to-Medium Enterprises (1-15 units, employee or other non-owner driver) and Owner-Driver (1 powered unit, driver is policy holder) have remained comparatively stable.



Incidents by Loss Amount

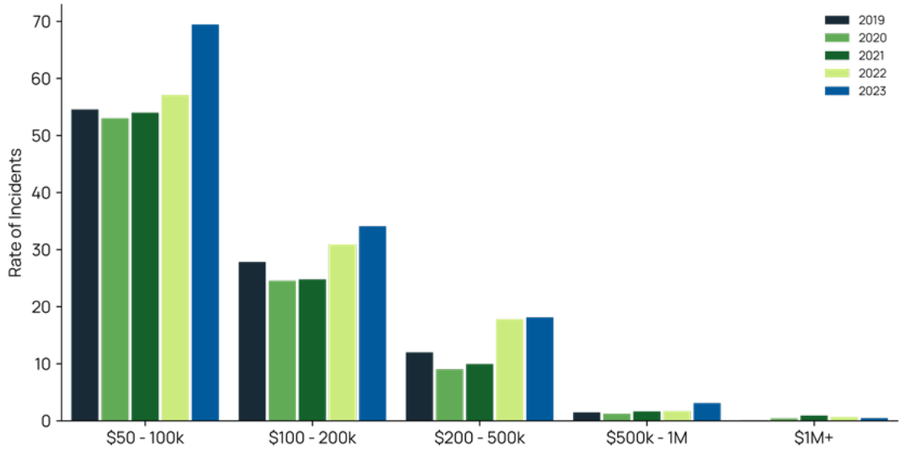


Figure 1.3 - Rate of incidents per 10,000 heavy vehicle powered units by loss amount (AUD)

In 2023, there has been an escalation in the rate of incidents across all loss amount cost brackets below $1M. Substantial increases were recorded in incident loss amounts in the $50k–100k (69.6 incidents per 10k trucks) cost bracket, up 21.9% from 2022, and $100-200k (34.1/10k) cost bracket, up 10.4% from 2022. The rate of claims between $500k and $1M increased by 83% compared to 2022. There has been a steady decline in extremely high loss amounts in the $1M+ cost bracket, down 47.3% since 2021.

Incidents by Principal Cause

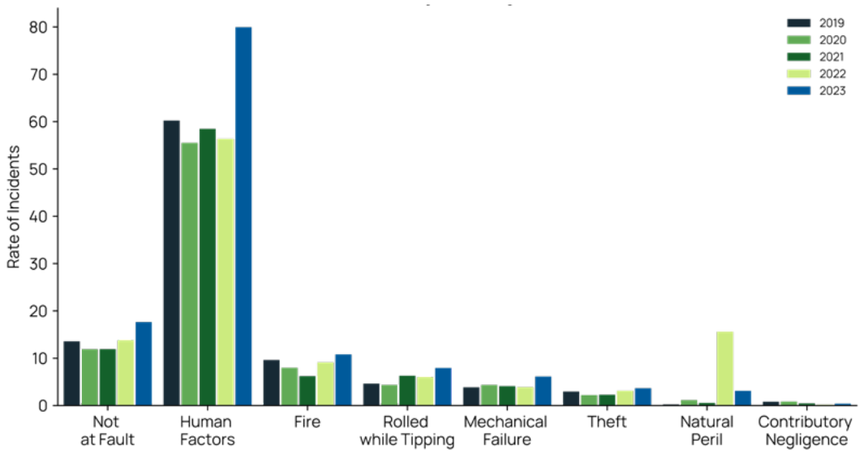


Figure 1.4 - Rate of incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by principal cause classification

Human Factors incidents represented 61.2% of major loss incident claims in 2023, with a dramatic 42.1% increase in the rate of incidents where Human Factors were the principal cause (80/10k trucks) compared to 2022 (56.3/10k trucks). Non-Impact Fire incidents (10.8/10k trucks) increased 18.2% and Not-at-Fault incidents (17.6/10k trucks) increased 28.5% from 2022. Overall, all principal cause categories recorded an upward trend, with the exception of Natural Peril (down 79.5% from 2022), reflecting the impact of east coast flood events in early 2022.

2023 Distribution of Claim Costs by Claim Cost Band

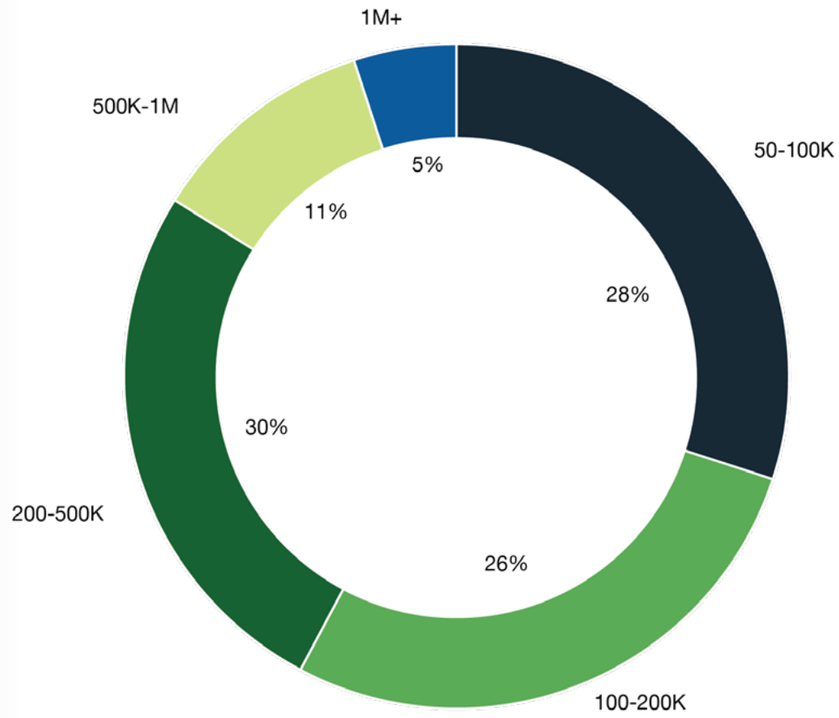


Figure 1.5 - Percentage of claim costs resulting in > $50k damage in 2023 by claim cost band

While the rate of incidents (in 2023) halves as you move up between each of the first three cost bands, the proportion of total claims cost which is attributed to each of the 50-100k, 100-200k and 200k-500k cost bands is quite comparable.

Incidents by Human Factors Cause

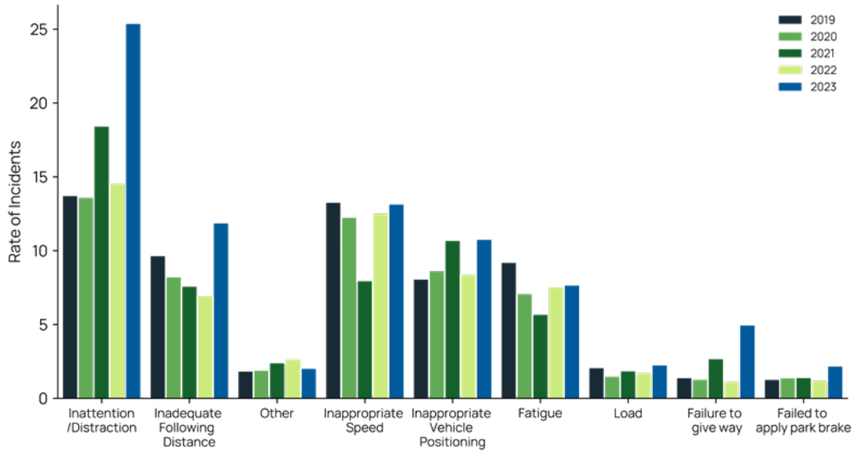


Figure 1.6 - Rate of incidents resulting in >$50k damage per 10,000 heavy vehicle powered unit by Human Factors cause classification

A substantial increase in Inattention/Distraction incidents is of great concern to the heavy vehicle industry. Following a 21.2% decrease from 2021 (18.4/10k trucks) to 2022 (14.5/10k trucks), there was a 75.2% increase in 2023 (25.4/10k trucks), far exceeding any previous years. Other key hazards in the industry included: Inappropriate Speed, with 13.1 incidents per 10k heavy vehicle powered unit representing an increase of 4.8% from 2022; and, Inadequate Following Distance, which represented a 71% increase to 11.8 incidents per 10k heavy vehicle powered unit.

Human Factors Incidents by Cause

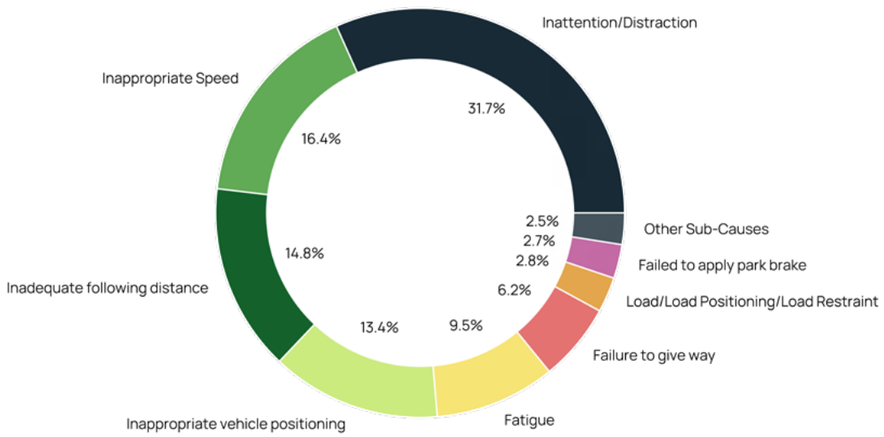


Figure 1.7 - Percentage of Human Factors incidents resulting in >$50k damage by Human Factors classification in 2023

The top 3 Human Factors causes of incidents in 2023 made up almost two-thirds (62.9%) of all incidents. Inattention/Distraction incidents were the most common, accounting for almost one-third (31.7%) of Human Factors incidents and one-fifth (19.5%) of total claims in 2023.

2023 Incidents by Driver Age

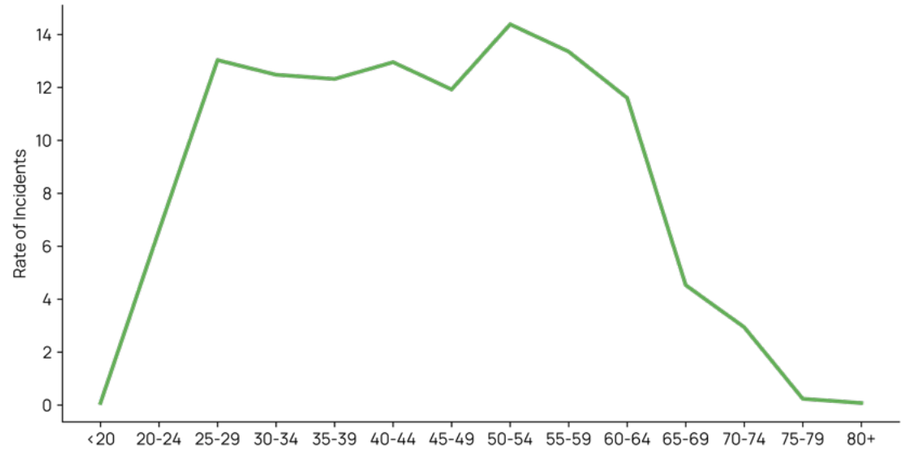


Figure 1.8 - Number of incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by driver age

Age of the NTI-insured driver was identified in 1,467 incidents. The distribution of driver age for incidents was relatively evenly spread across 25 to 64 age groups. Average age of drivers involved in incidents has remained fairly consistent between 2019 and 2023, averaging 46.1 years.

Inattention/Distraction Incidents

↑75%

in 2023 from 2022

Human Factors Incidents

↑42%

in 2023 from 2022

INATTENTION/ DISTRACTION

INTRODUCTION

Crashes resulting from inattention or distraction have increased sharply and with this increase comes the challenge of identifying strategies to respond. However, addressing crashes resulting from losing focus on the task is a challenge, involving balancing operational demands, which have seen a proliferation of in-cab technology, with the need to reduce cognitive workload. The risk of inattention, that comes with extended periods of long distance driving, increases this challenge.

DEFINED: INATTENTION/DISTRACTION

Inattention and Distraction incidents are a grouped pairing of crash causes where the incident is determined to be the result of the driver becoming disengaged from the driving task due to either a specific non-driving related stimulus (Distraction) or a loss of task focus (Inattention).

CRASH SUMMARY:

Articulated

City

Since 2022

Inattention/Distraction Incidents by Year

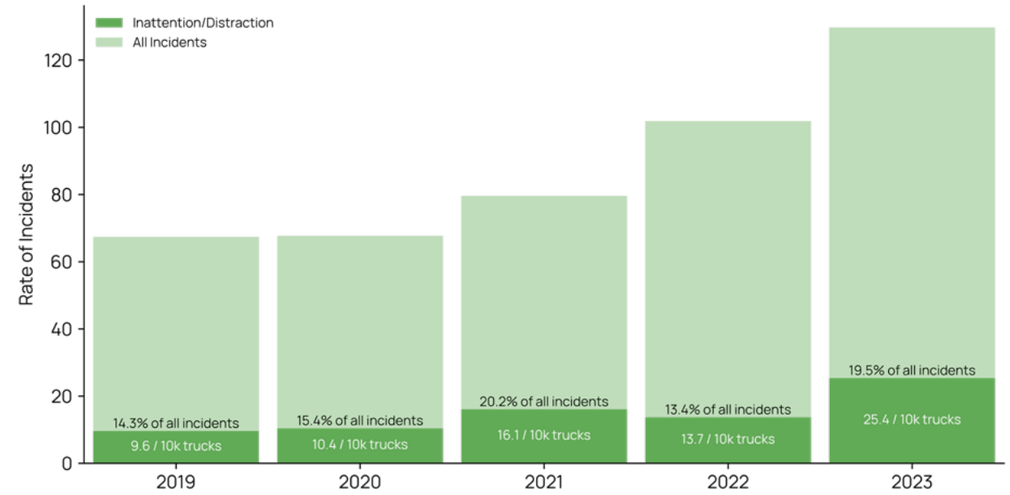


Figure 2.1 - Rate of Inattention/Distraction incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by year

Inattention/Distraction incidents are the largest incident cause in 2023, accounting for one-fifth (19.5%) of all incidents and 25.4 incidents per 10k heavy vehicle powered units. The rate of Inattention/Distraction incidents has increased more than 2.6 times (164.6%) since 2019. In 2023, Inattention/Distraction incidents increased to 19.5% of all incidents, compared to 13.4% in 2022, and similar to the 20.2% recorded in 2021. The data indicates that while rate of Inattention/Distraction incidents is increasing, the proportion of losses is consistent since 2021.

2.6x The rate of Inattention/Distraction incidents has increased since 2019.

Inattention/Distraction Incidents by Combination Type & Remoteness Index

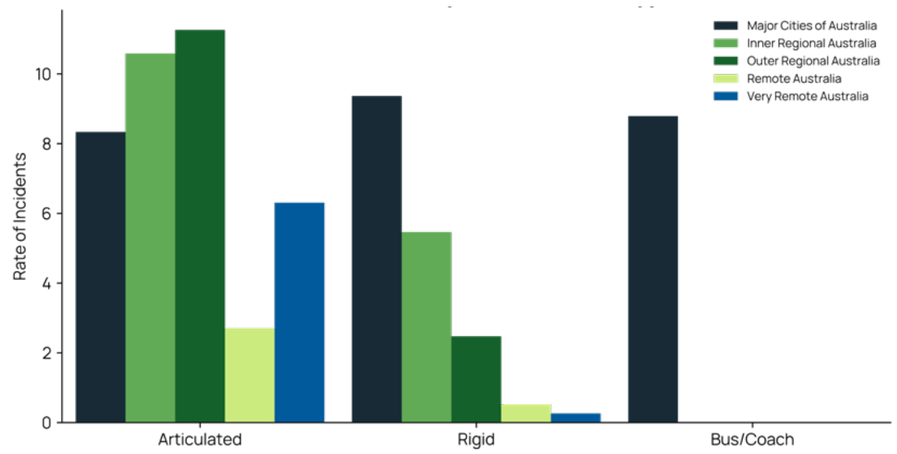


Figure 2.2 - Rate of Inattention/Distraction incidents resulting in >$50k damage per 10,000 combination type vehicles in 2023 by combination type & remoteness index

Inattention/Distraction incidents for Rigid trucks and Bus/Coaches most often occur in major cities, with 9.4/10k Rigid trucks and 8.8/10k Bus/Coaches. These vehicle types most often operate in major cities, so are likely to have increased exposure. Inattention/Distraction incidents for articulated trucks most often occurred in outer regional (11.3/10k articulated trucks) and inner regional areas (10.6/10k articulated trucks).

Inattention/Distraction Incidents by Combination Type

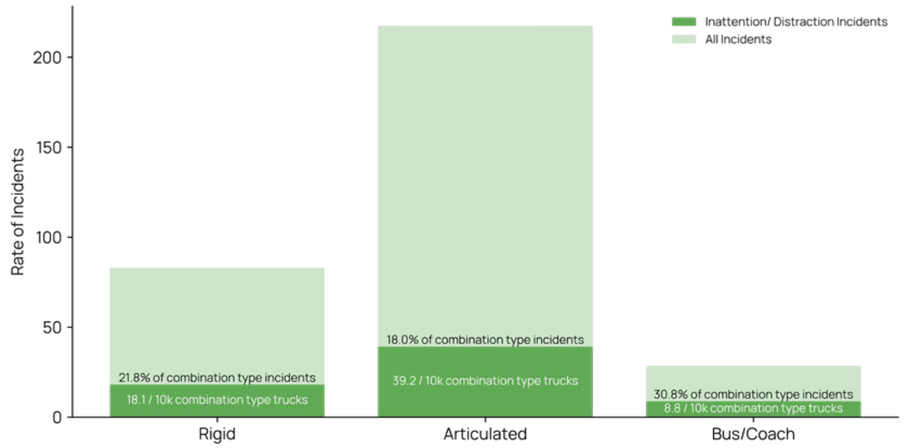


Figure 2.3 - Number of Inattention/Distraction incidents resulting in >$50k damage per 10,000 combination type vehicles in 2023

Articulated combinations have the highest rate of Inattention/Distraction incidents (39.2 per 10k insured prime movers) but the lowest representation of Inattention/Distraction incidents when examining all prime mover incidents. Therefore, while articulated vehicles have a high rate of Inattention/Distraction incidents, they are not disproportionately represented in all articulated vehicle incidents. Inattention/Distraction is a major factor in Bus/Coach incidents, with almost one-third (30.8%) of all Bus/Coach incidents caused by Inattention/Distraction.

Four most common incident mechanisms (DCA code) for Inattention/Distraction Crashes

Off path on straight 9.5

Vehicles from same direction 6.1

Off path on curve 5.5

On path 3.1

(Incidents/10k trucks)

Incidents occurring 'off path on straight' (9.5/10k trucks), which do not involve another vehicle, made up the largest number of Inattention/ Distraction incidents. Similarly, 'off path on curve' incidents made up 22.4% of Inattention/Distraction incidents, at a rate of 5.5 incidents per 10k trucks, while vehicles from the same direction (6.1/10k trucks), which do involve a third-party vehicle, made up almost a quarter (24%) of Inattention/ Distraction incidents.

37%

of Inattention/Distraction incidents involved the truck crashing off the road on a straight

Inattention/Distraction vs All Incidents by Remoteness Index

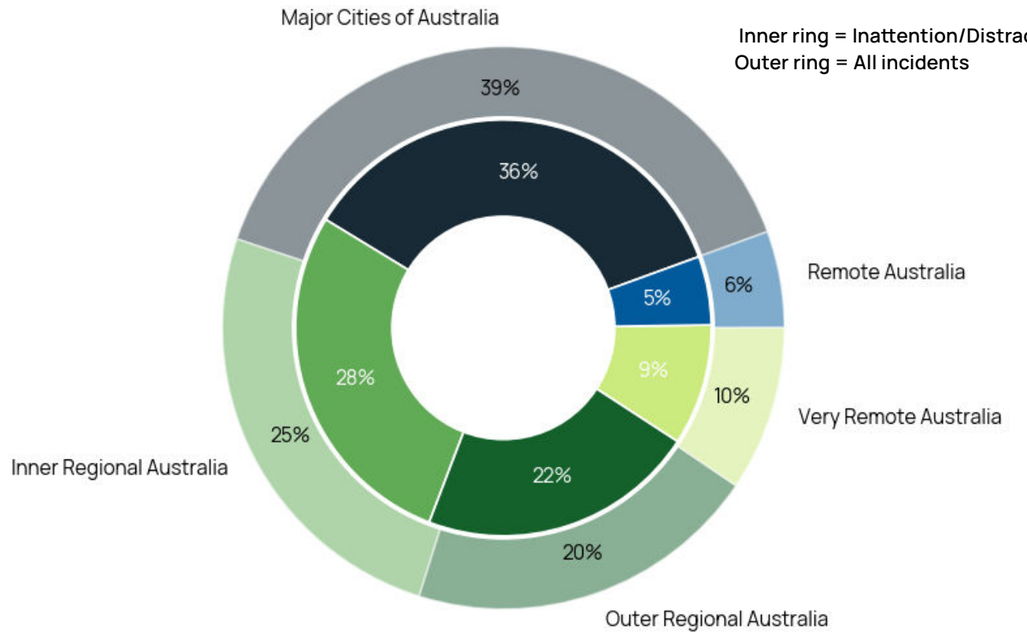
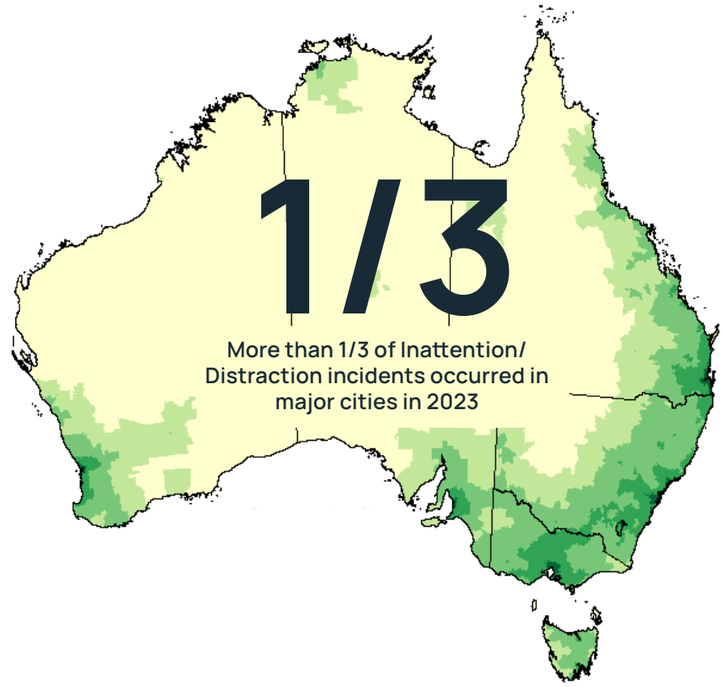


Figure 2.4 - Percentage of Inattention/Distraction versus all incidents resulting in >$50k damage in 2023 by remoteness index

More than one third of Inattention/Distraction incidents occurred in the major cities of Australia (35.7%), followed by 27.9% of Inattention/Distraction incidents occurring in inner regional areas and 21.6% in outer regional areas. Remote and very remote areas make up 14.7% of Inattention/Distraction incidents. This distribution is generally consistent across all incidents, with the exception of a lower proportion of incidents in major cities and a higher proportion of incidents in inner regional areas.



INAPPROPRIATE SPEED

INTRODUCTION:
Inappropriate Speed crashes should be a key focus area for road transport safety. They are the second most common cause of losses in 2023 and, by their nature, involve significant speed and therefore kinetic energy, creating increased risk of death and serious injury.

DEFINED: INAPPROPRIATE SPEED
Where the proximate cause of the crash was that the speed of the vehicle was incompatible with vehicle dynamics, road geometry and/or prevailing weather and road conditions.
IMPORTANT NOTE: This is not trucks exceeding the posted speed limit.

CRASH SUMMARY:

Articulated | Outer regional | Since 2022

Inappropriate Speed Incidents by Year

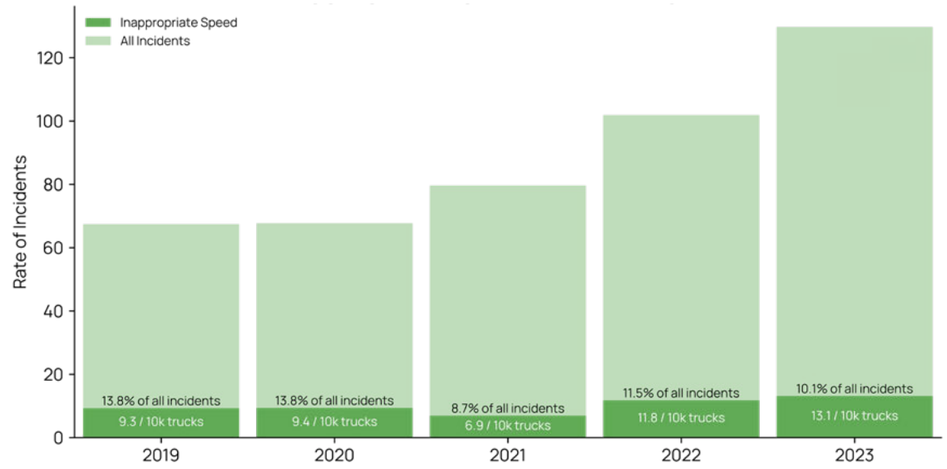


Figure 3.1 - Number of Inappropriate Speed incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by year

While the proportion of all losses due to Inappropriate Speed decreased compared to 2022 (from 11.5% to 10.1%), the overall rate of losses increased from 9.3 in 2019 to 13.1 losses per 10k trucks in 2023.

Inappropriate Speed Incidents by Combination Type & Incident Outcome

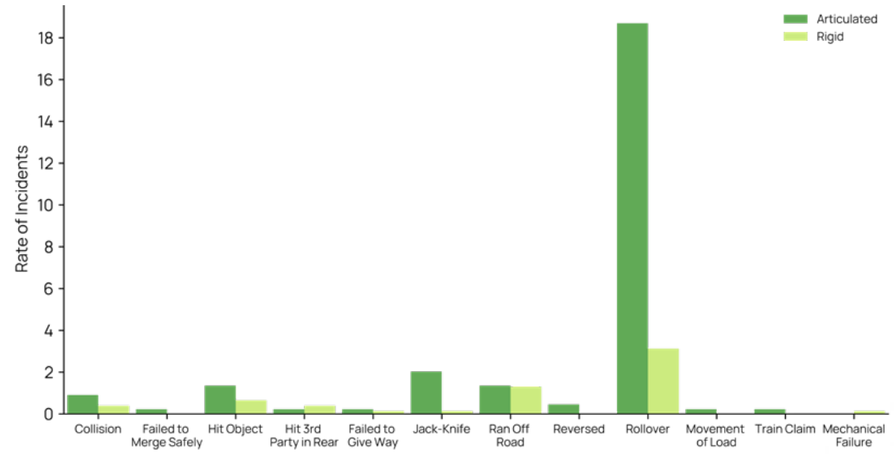


Figure 3.2 - Rate of Inappropriate Speed incidents resulting in >$50k damage per 10,000 combination type assets in 2023 by combination type & incident outcome

The DCA coding showed that most of these crashes are single-vehicle events happening on curves. This is further informed by review of the Claims Codes, showing that the majority of events were rollover crashes, particularly in the case of articulated combinations.

Inappropriate Speed Incidents by Incident Outcome

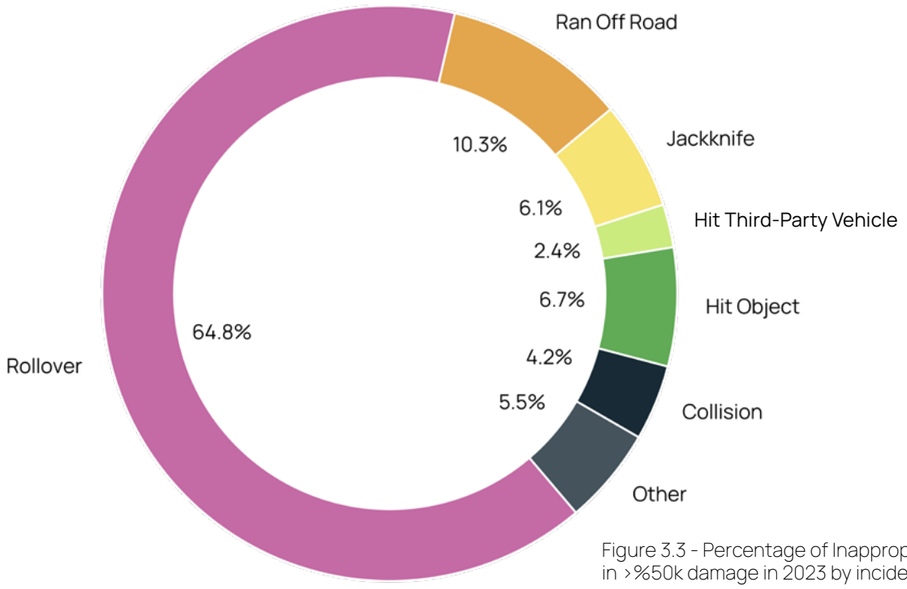
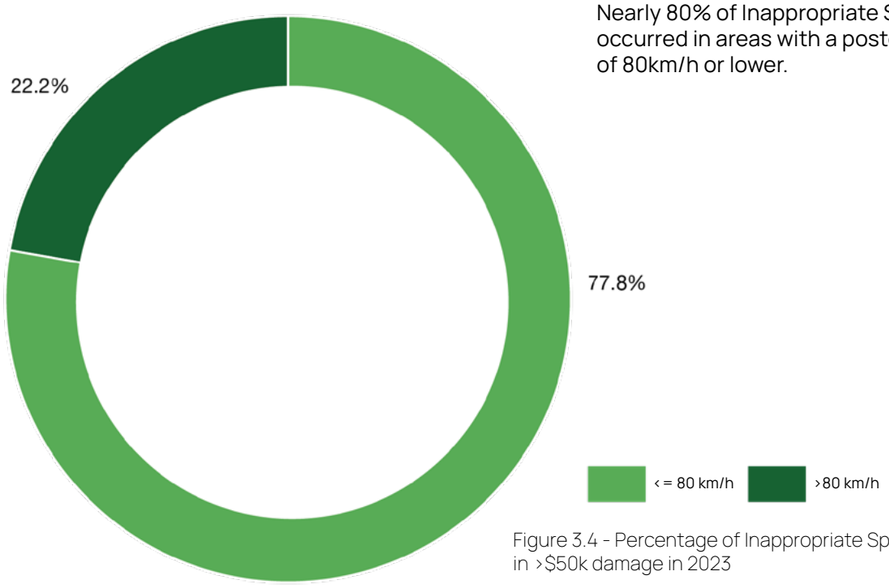


Figure 3.3 - Percentage of Inappropriate Speed incidents resulting in >%50k damage in 2023 by incident outcome

85%

Of Inappropriate Speed crashes involve trucks crashing on bends

Inappropriate Speed Incidents by Posted Speed Limit



Nearly 80% of Inappropriate Speed crashes occurred in areas with a posted speed limit of 80km/h or lower.

Figure 3.4 - Percentage of Inappropriate Speed incidents resulting in >$50k damage in 2023

Inappropriate Speed Incidents by Vehicles Involved

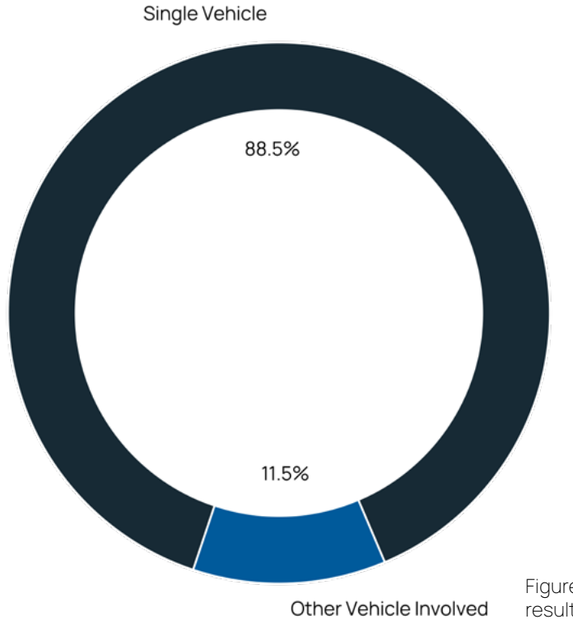


Figure 3.5 - Percentage of Inappropriate Speed incidents resulting in >$50k damage in 2023 by vehicles involved

INADEQUATE FOLLOWING DISTANCE

INTRODUCTION:
Within Human Factors crashes, no incident cause has less variety in the mechanisms and shape of incidents than Inadequate Following Distance: virtually identical incidents play out more than twice a week among NTI-insured trucks.

DEFINED: INADEQUATE FOLLOWING DISTANCE
Where the driver of the vehicle has not maintained sufficient following distance to traffic in front and, due to lack of manoeuvring time/space, an incident has occurred when traffic is disrupted, such as vehicles ahead unexpectedly slowing.

CRASH SUMMARY:

Rigid | Major Cities | Since 2022

Inadequate Following Distance Incidents by Year

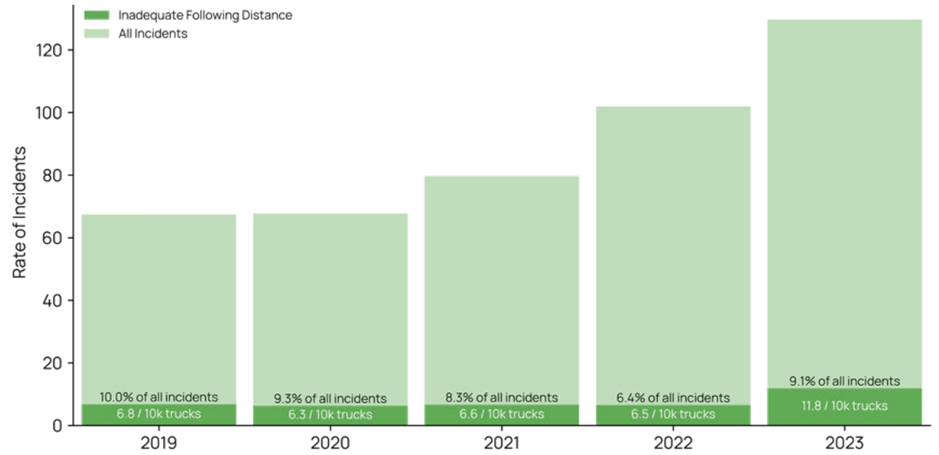


Figure 4.1 - Rate of Inadequate Following Distance incidents resulting in >$50k damage per 10,000 heavy vehicle powered units per year

The five-year trend shows Inadequate Following Distance incident rates increased by more than 73%, to 11.8 incidents per 10k trucks. In 2023 after a steady rate of around 6.5 incidents per 10k trucks from 2019 to 2022.

Inadequate Following Distance Incidents by Combination Type & Remoteness Index

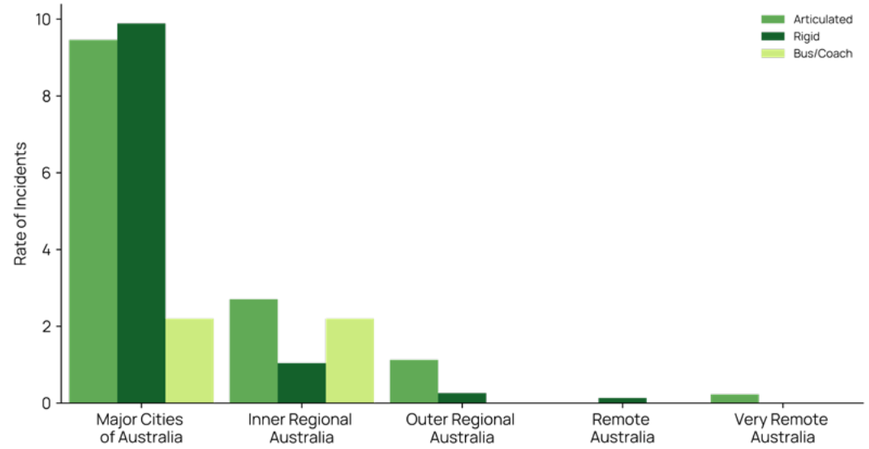


Figure 4.2 - Rate of Inadequate Following Distance incidents resulting in >$50k damage per 10,000 combination type assets in 2023 by combination type & remoteness index

Unsurprisingly, the remoteness index shows Inadequate Following Distance is predominantly an issue in major cities, with increased interaction between trucks and other vehicles. Incident rates are higher for Rigid trucks, which is also to be expected as they are more likely to operate in urban and peri-urban environments.

Inadequate Following Distance Incidents by Third-Party Vehicle Class

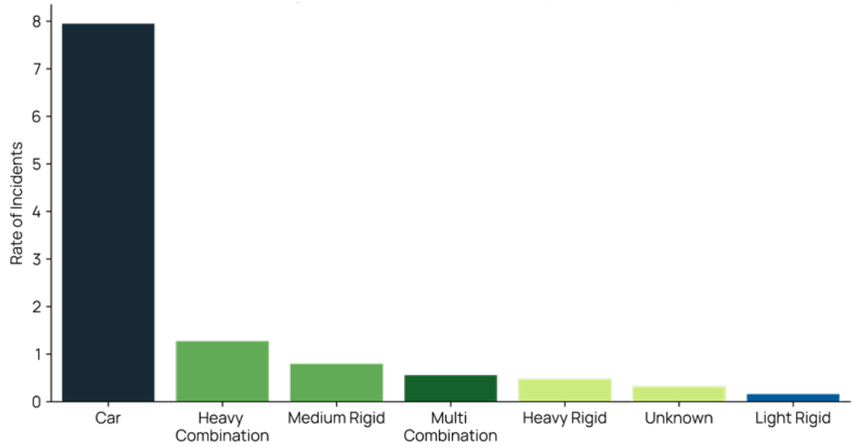


Figure 4.3 - Rate of Inadequate Following Distance incidents resulting in >$50k damage in 2023 by third-party vehicle class

The most common vehicles impacted, or first vehicle when the impact causes that vehicle to be pushed into the vehicle in front, were cars (or other light vehicles operated on a C class licence). This category represented more than double (7.9/10k trucks) the rate of incidents than all other third-party vehicles combined (3.6/10k trucks).

11.3/10K

Vehicles from same direction

Inadequate Following Distance Incidents most common DCA code

“The five-year trend shows Inadequate Following Distance incident rates increased by more than 80%...in 2023.”

NON-IMPACT FIRE

CRASH SUMMARY:

Articulated | Outer regional | Since 2022

INTRODUCTION:
Heavy vehicle fires tend to be at one of two extremes: either the fire is quickly extinguished and damage limited to a degree where no insurance claim is lodged (and, in turn, no data is created); or the fire takes hold and consumes entire vehicle units or combinations. When compared to crash incidents, Non-Impact Fires are less likely to result in fatality or serious injury.

DEFINED: FIRE
These events are where the proximate cause of the event is a fire, as distinct from fires which are a consequential result of another cause, such as fires triggered after a truck has crashed into an object.

Non-Impact Fire by Year

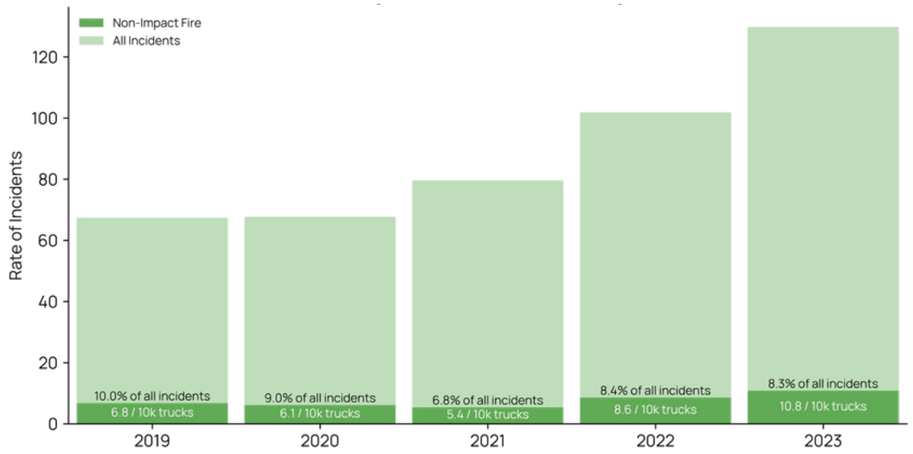


Figure 5.1 - Rate of Non-Impact Fire incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by year

Over the past three years, the rate of heavy vehicle Non-Impact Fire incidents has increased from 5.45/10k trucks to 10.8/10k trucks. While the rate has doubled since 2021, the proportion of all incidents has remained reasonably steady.

Non-Impact Fire by Sub-Cause

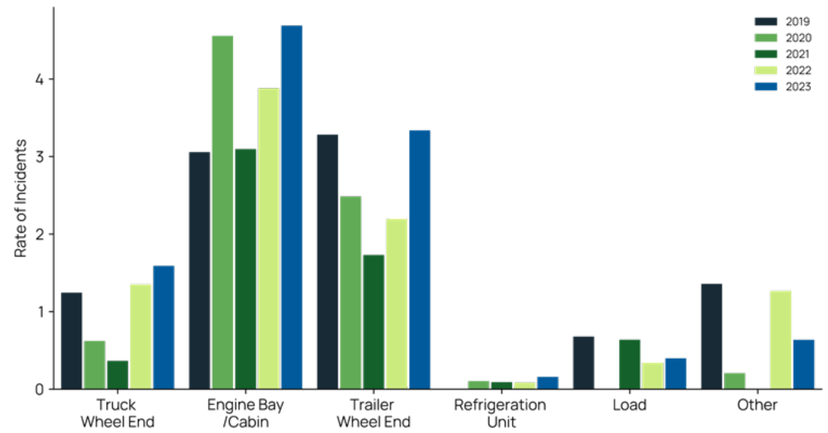


Figure 5.2 - Rate of incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by Non-Impact Fire sub-cause classification

Collectively, including truck and trailer, wheel end fires are the most common cause of Non-Impact Fires in 2023, closely followed by engine bay/cabin fires. Wheel end fires are almost twice as common in trailer wheel ends than wheel ends on powered units (trucks and prime movers).

Wheel End Fires by Cause

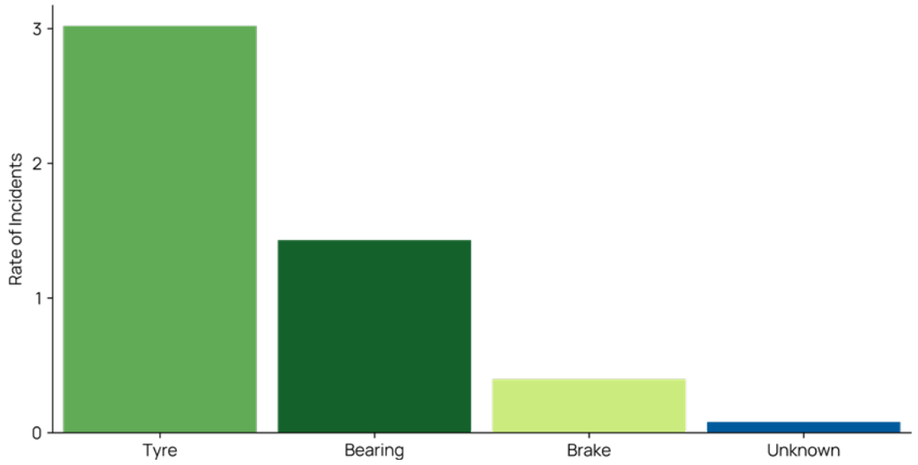


Figure 5.3 - Rate of incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by Non-Impact Fire sub-cause classification

The majority of wheel end fires (61.3%), regardless whether truck or trailer wheel ends, are initiated at the tyre. The rate of wheel end fire losses was 3 per 10k powered units, double that of the next most-common wheel end fire cause, bearing failure (1.4/10k trucks).

Engine Bay/Cabin Incidents By Non-Impact Fire Sub-Cause

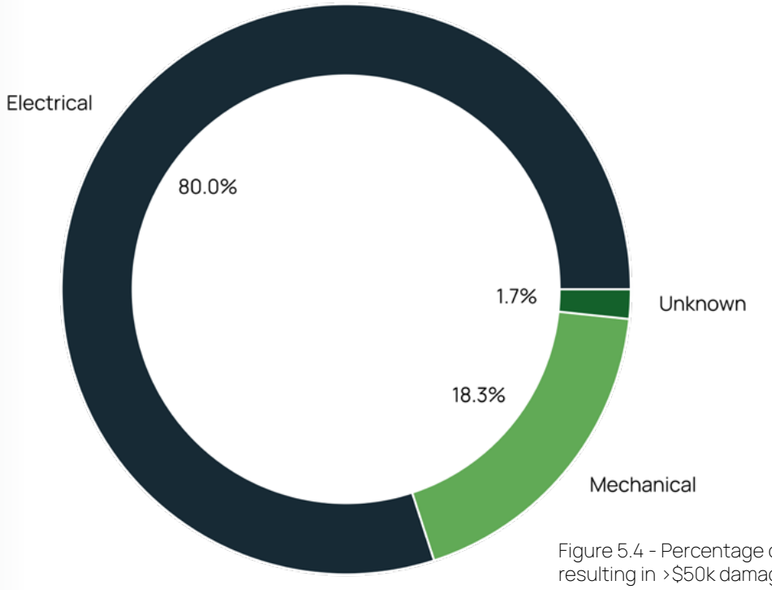


Figure 5.4 - Percentage of engine bay/cabin fire incidents resulting in >$50k damage in 2023

Electrical issues are responsible for the majority of engine bay/cabin fires (80%), with incidents most commonly related to unfused, high-current cables between batteries, starter motors and alternators.

Non-Impact Fire Incidents by Vehicle Age

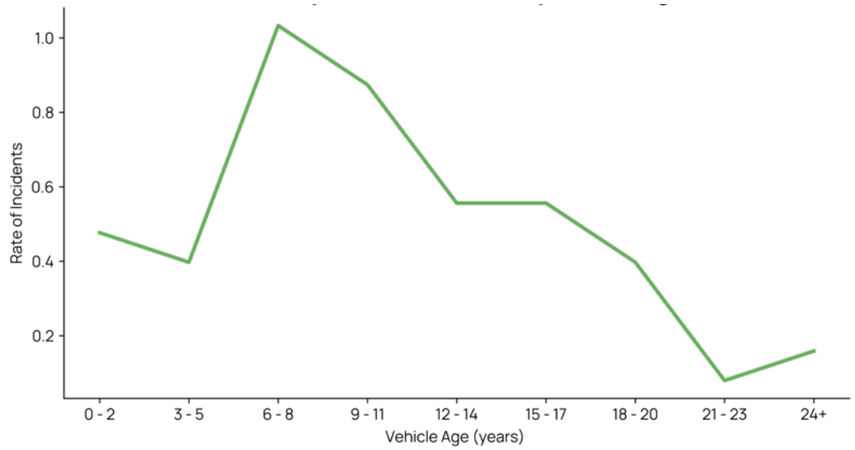
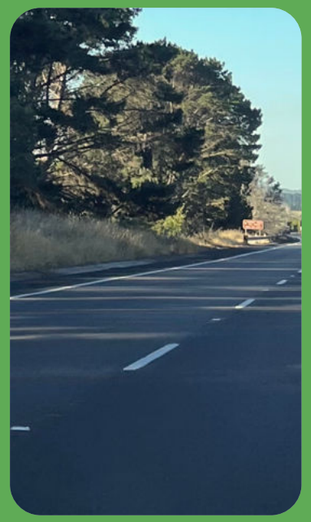


Figure 5.5 - Rate of Non-Impact Fire incidents resulting in >$50k damage per 10,000 combination type assets in 2023 by vehicle age

The average age of units having engine bay/cabin electrical fires was 12 years, compared to 9.6 years for all incident causes. The data shows a spike in losses involving vehicles aged 6-8 years. This may relate to the age of vehicles at original equipment starter motor replacement; however, this requires further research to confirm.

NOT AT FAULT



CRASH SUMMARY:

Articulated

Inner regional

Since 2022

INTRODUCTION:
This section explores incidents where the at fault party was not insured by NTI. By the nature of insurance claims, there is generally less data available on these events. Objective information such as locations, times and vehicle involvement are available, however third-party drivers are not compelled to provide complete information to the other party's insurer, so information on causation, loads carried by third parties and information around their journey are generally unavailable.

DEFINED: NOT AT FAULT
Incidents where the NTI-insured party was Not At Fault provide an insight into the safety performance and challenges of other road users. Note: Where an incident involves multiple parties insured by NTI, the incident is included in the data set only once and if one of those vehicles was at fault, the incident is processed for the at fault party.

Not At Fault Incidents by Year

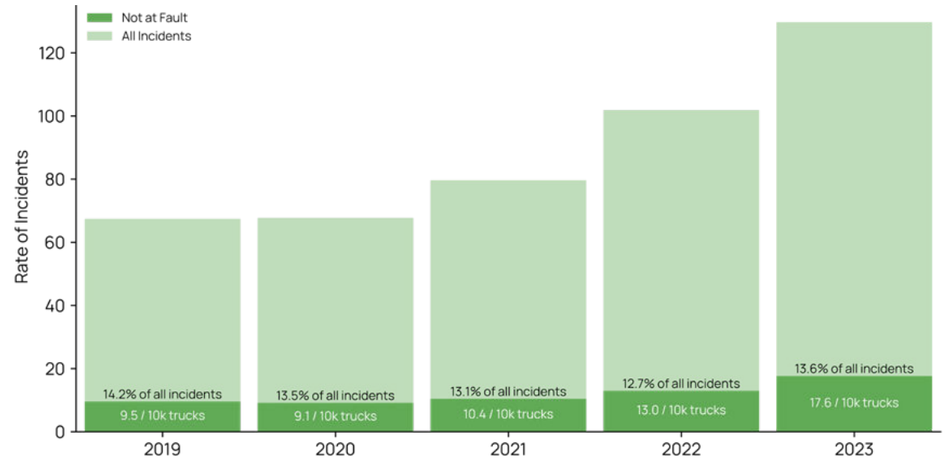


Figure 6.1 - Rate of Not At Fault incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by year

While the proportion of Not At Fault incidents has remained reasonably consistent over the past five years, the rate of incidents has increased from an average of 9.3 incidents per 10k trucks in 2019-2020 to 17.6 per 10k trucks in 2023. This suggests worsening of the safety performance of other road users as more people are crashing into NTI insured trucks.

Not At Fault Incidents by Combination Type & Remoteness Index

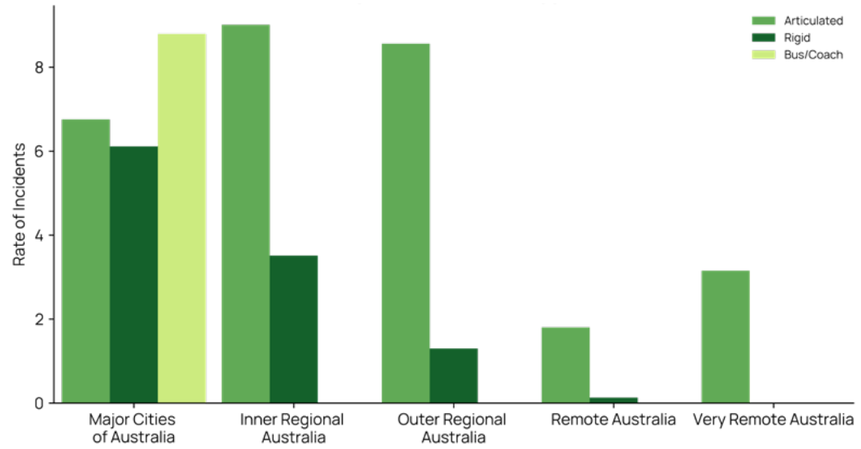


Figure 6.2 - Rate of Not At Fault incidents resulting in >$50k damage per 10,000 in 2023 by combination type & remoteness index

Not At Fault incidents for Buses and Rigid trucks are most common in major cities while articulated combinations show the highest rates in regional areas.

TRUCK & CAR CRASHES

CRASH SUMMARY:

Articulated | Major cities | Since 2022

INTRODUCTION:
Truck and car crashes are often an emotive issue. From the car driver's perspective, trucks may be perceived as large, imposing and impeding the otherwise orderly movement of traffic. From the truck driver's perspective, car drivers may be perceived as unreliable participants with whom professional heavy vehicle drivers are compelled to share their workplace. Due to the mismatch between the size and mass of heavy vehicles and cars, the consequences of truck and car crashes can be severe. They often garner media attention when they occur in metropolitan or inner regional areas.

DEFINED: TRUCK & CAR CRASHES
Truck and car crashes are incidents involving at least one NTI insured truck, where the 'primary' third-party vehicle is able to be driven on a C-class 'Car' licence. In the case of Not At Fault incidents, this is where the at-fault party is a car. In the case of incidents where an NTI insured truck is at fault, these are incidents where the primary third-party vehicle – generally that which is the first point of collision – is a car.

Truck & Car Incidents by Year

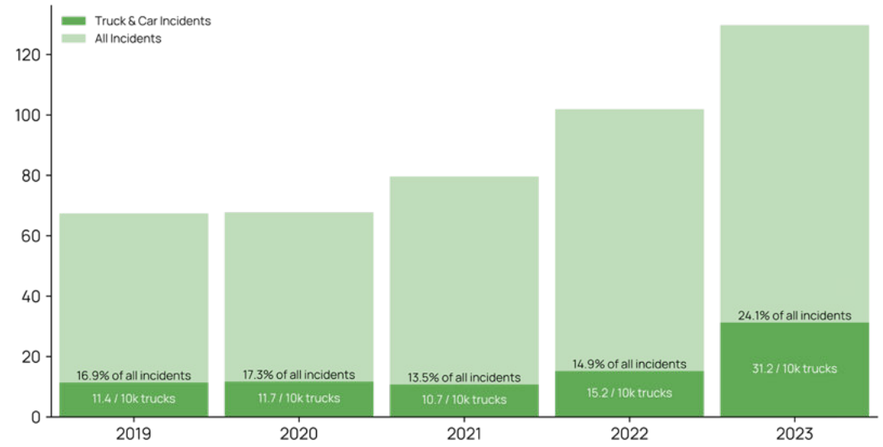


Figure 7.1 - Rate of truck & car incidents resulting in >$50k damage per 10,000 heavy vehicle powered units by year

The rate of truck and third-party car incidents over time was relatively stable through 2019-2021, averaging 11.2 incidents per 10k trucks in this period. However, in 2022 it began to increase, and this increased trend continued in 2023 to 31.2 incidents per 10k trucks, nearly one quarter of all incidents in the dataset.

Truck & Car Incidents by Selected DCA Codes and Fault Status

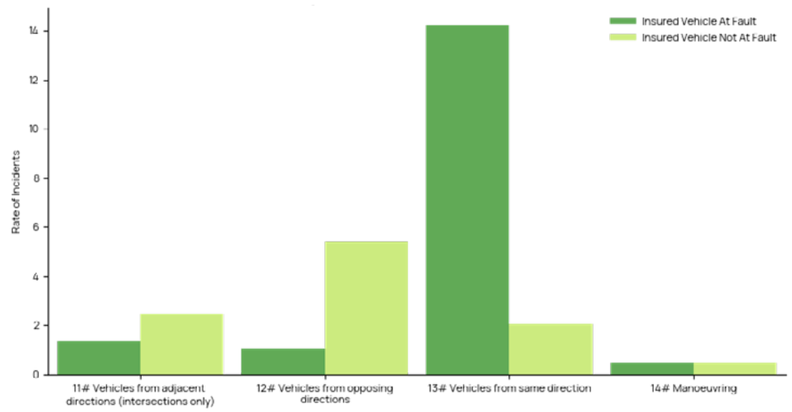


Figure 7.2 - Rate of heavy vehicle and third-party incidents resulting in >$50k damage per 10,000 heavy vehicle powered units in 2023 by selected DCA Codes and Fault Status

The overwhelming majority of at fault truck and car crashes involve the truck running into the rear of the light vehicle, whereas 'head-on' (vehicles from opposing directions) are most common where the car driver is at fault.

Truck & Car Incidents by Remoteness Index and Fault Status

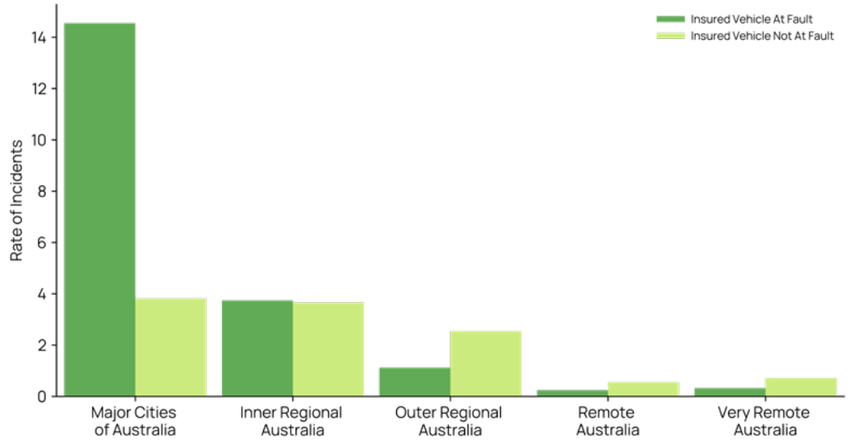


Figure 7.3 - Rate of heavy vehicle and third-party incidents resulting in >$50k damage per 10,000 heavy vehicle powered units in 2023 by remoteness index and insured vehicle Fault Status

At fault truck and car crashes are concentrated in major cities while the rate of car at fault crashes is reasonably consistent between major cities and regional Australia.

Truck & Car Incidents by Time of Day and Fault Status

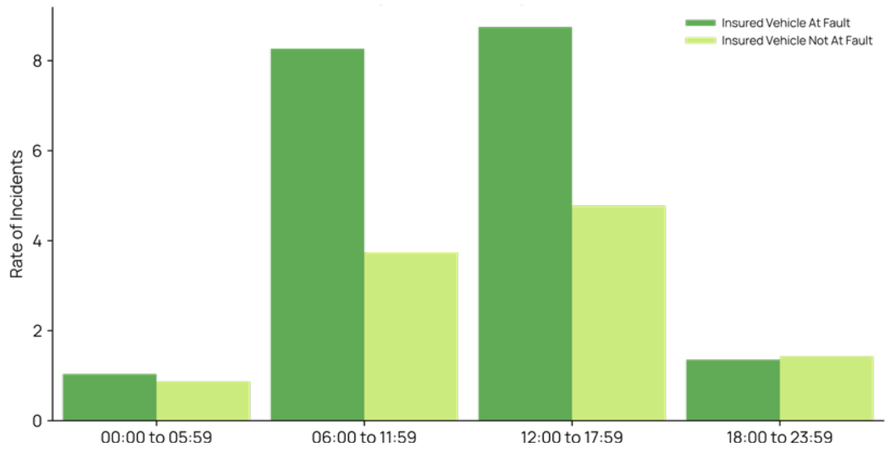


Figure 7.4 - Rate of heavy vehicle and third-party incidents resulting in >$50k damage per 10,000 heavy vehicle powered units in 2023 by time of incident insured vehicle Fault Status

Examining the time of incident shows the rate of truck at fault events during the 'day' (06:00 to 17:59) are around double car at fault incidents. By contrast, 'night' time rates are similar for light and heavy vehicle fault. However, there are two one-hour periods where car at fault crashes spike:

- 11:00-11:59, which is 106% higher than the average for the 'morning' period at 1.26 incidents per 10,000 trucks; and
- 15:00-15:59, which recorded 1.42 incidents per 10k trucks and was 80% higher than the 'afternoon' average.

These spikes may be associated with increases in light vehicle traffic around lunch breaks and school pick-ups, however further research is needed to confirm this.

Non-Fatal Truck & Car Crashes by Fault Status

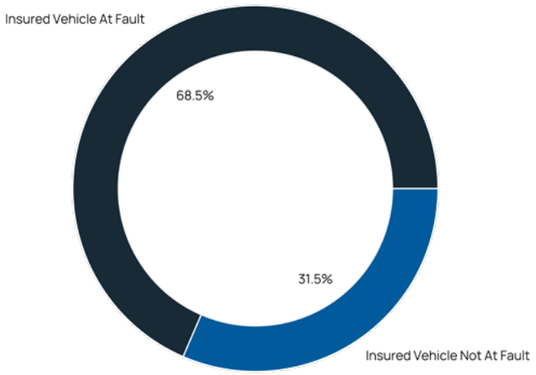


Figure 7.5 - Percentage of non-fatal truck & car incidents resulting in >$50k damage in 2023 by Fault Status

Fatal Truck & Car Crashes by Fault Status

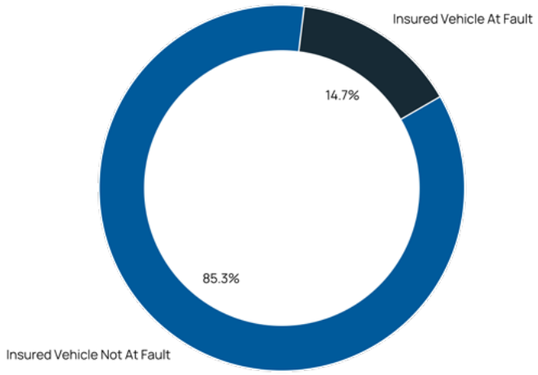


Figure 7.6 - Percentage of fatal truck & car incidents resulting in >$50k damage in 2023 by Fault Status

There is a stark difference in the proportion of incidents where the NTI-insured truck is the at-fault party in truck and car crashes involving a fatality. For fatal truck and car crashes, the car is the at-fault party in 85% of incidents, compared to 31% for non-fatal incidents.

Fatal Truck by Selected DCA Code and Fault Status

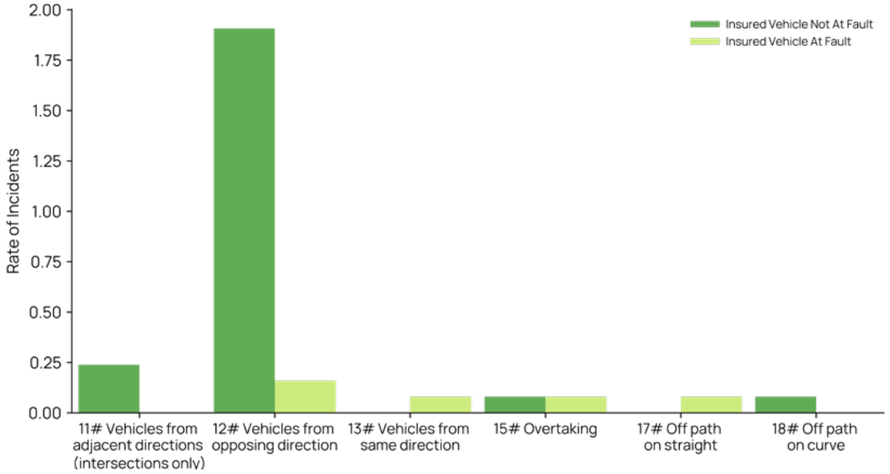


Figure 7.7 - Rate of heavy vehicle and third-party fatal incidents resulting in >$50k damage per 10,000 heavy vehicle powered units in 2023 by DCA Code & At Fault versus Not At Fault

The largest contributor to fatal truck and car crashes is 'head-on' (opposing directions) incidents where the car is at fault.

1.8

Vehicles from opposing direction

(incidents per 10k trucks)

Fatal Truck & Car Incidents by Intention Indication

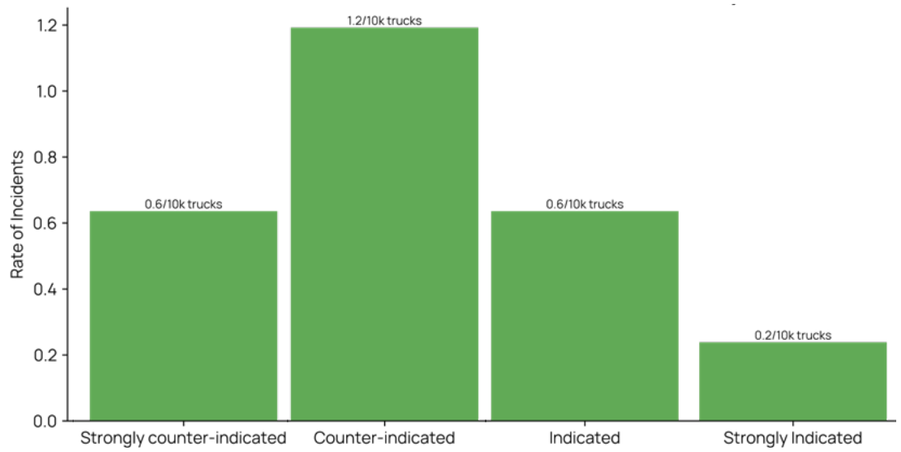


Figure 7.8 - Rate of heavy vehicle and third-party incidents resulting in >$50k damage per 10,000 heavy vehicle powered units in 2023 by indication of intent

Crashes resulting from intentional acts by car drivers remained an ongoing issue in 2023, with almost one-third (30.3%) of fatal truck and car crashes indicated (on the balance of probabilities) or strongly indicated (beyond reasonable doubt) to be intentional.

Truck & Car Incidents by Fatal and Non-Fatal

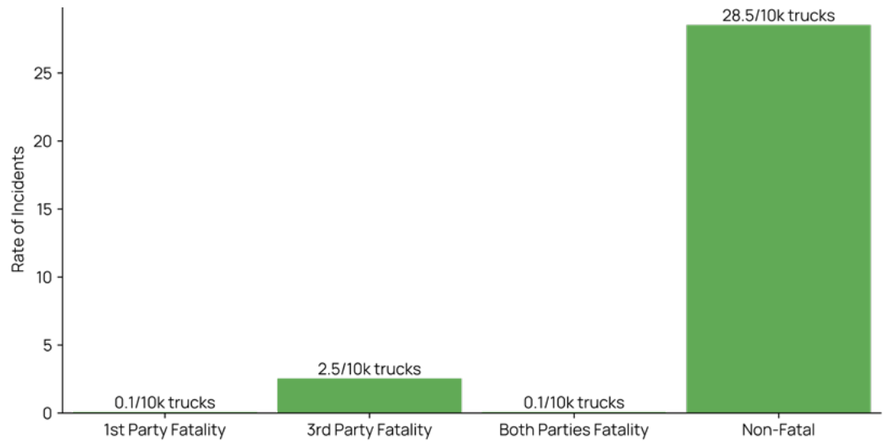


Figure 7.9 - Rate of heavy vehicle and third-party incidents resulting in >$50k damage per 10,000 heavy vehicle powered units in 2023 by Fatal and Non-Fatal

Incidents between a heavy vehicle and a car were more likely to be non-fatal with a rate 10 times higher than the fatality rate (28.5 incidents per 10k heavy vehicles). However, incidents involving a third-party driver fatality had a rate of 2.5 incidents per 10k heavy vehicles, 25 times higher than incidents involving a heavy vehicle driver fatality (0.1 incidents per 10k heavy vehicles), possibly due to the disparity in vehicle mass.

SUMMARY & DISCUSSION

In 2023, the Australian heavy vehicle industry experienced an increase in crash-related serious injuries and fatalities. The findings presented in this 2024 Major Incident Investigation Report highlight significant increases in key hazards to driver safety, with a 42% increase in Human Factors causes since 2022. The Human Factors with the largest increases in incidents were Inattention/Distraction, Inadequate Following Distance and Inappropriate Speed.

Inattention/Distraction incidents were the highest single cause of incidents for 2023 at 25.4 per 10k powered units. This was double the rate of any other cause in 2023. Over a five-year period, the rate of Inattention/Distraction incidents increased 2.6-fold. Approximately two-thirds of these incidents were single vehicle (65%). The highest rate of these incidents was in Articulated vehicles at 39.2 incidents per 10k powered units, representing 18% of all Articulated vehicle incidents.

Secondary tasks include mobile phone and wearables use, consuming food or drink, talking with passengers, and looking at infotainment systems or roadside advertising. Additionally, research has suggested the introduction of advanced driver assistance systems, such as lane keeping assist, adaptive cruise control and traffic sign recognition, may contribute to driver 'boredom' and allow drivers to divert their attention to secondary tasks.

Research suggests that providing training for professional drivers that improves organisational attitudes towards safety and implementing better time management plans can reduce technological distractions while driving (Griffith University, 2021). However, Rigid trucks and Buses had a higher rate of Inattention/Distraction incidents, representing 21.8% of all Rigid trick incidents and 30.8% of all Bus/Coach incidents. Inattention/Distraction incidents are largely an urban issue with one-third occurring in major cities. The most common mechanism for these incidents is the vehicle going off path on a straight road.

"Self-regulation and social attitudes are factors that can be managed through education. This involves improving driver understanding of the importance of attention towards the primary task of driving..."

Inattention/Distraction is an issue for all road users. Causes for this increase in Inattention/Distraction incidents may be due to a number of factors including ability to self-regulate, age, gender, personality, mental health, social attitude and cultural background (Griffith University, 2021). Self-regulation and social attitudes are factors that can be managed through education. This involves improving driver understanding of the importance of attention towards the primary task of driving instead of allowing attention to be diverted to secondary tasks.

Inappropriate Speed had the second highest incident rate in 2023, with 13.1 per 10k powered units. Over a five-year period, Inappropriate Speed incidents have increased 41%. The vast majority (89%) of these incidents involved only a single vehicle and 85% resulted in the heavy vehicle off path on curve incidents. Inappropriate Speed incidents largely (33.5%) occurred in outer regional areas and resulted in a roll-over event in 65% of incidents. This implies that the majority of Inappropriate Speed incidents were single-vehicle, untripped rollover incidents. Interestingly, a large proportion (78.0%) of Inappropriate Speed incidents occurred in lower speed zones (<80 km/h).

In a U.S study of large vehicle roll-over incidents, almost half the incidents were the result of Inappropriate Speed selection for the road geometry or conditions (McKnight & Bahouth, 2008). This suggests that Inappropriate Speed is not just localised to the Australian trucking sector, but is an issue internationally.

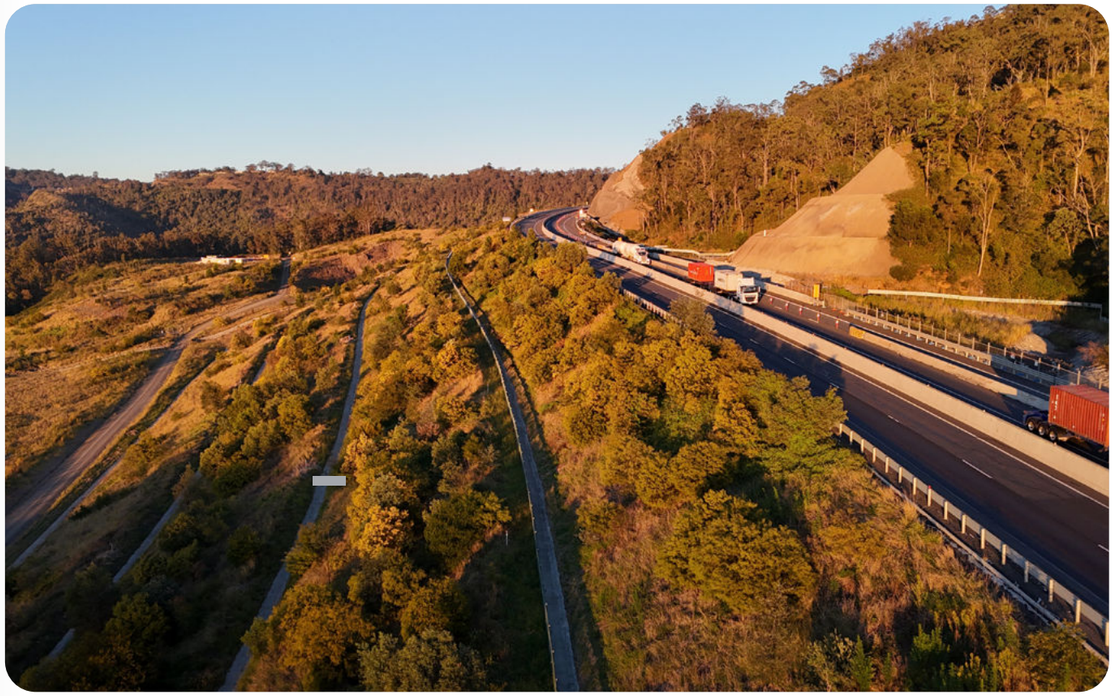
Appropriate speed selection for heavy vehicle drivers is a multi-faceted problem with drivers required to make judgment calls about the road geometry, road surface, weather conditions, vehicle mechanical condition, vehicle combination, weight of load and load geometry (Alrejjal & Ksaibati, 2022). The judgment placed on heavy vehicle drivers often stems from the fact that recommended speed signage is not tailored for heavy vehicles in many cases (McKnight & Bahouth, 2008).

Research has suggested that current methods of heavy vehicle driver training (i.e., printed materials and training workshops), may be insufficient to provide the guidance and experience necessary for drivers to select appropriate speeds based on all the factors required. Previous research has recommended the use of video and simulation to allow drivers to experience these factors without consequence (McKnight & Bahouth, 2008).

Inadequate Following Distance was the third highest rate of incidents with 11.8 per 10k powered units. Over a five-year period, the rate of these incidents has increased by 73.5%. The mechanism for Inadequate Following Distance incidents stands out in the data visualisations. This issue is primarily seen in major cities and mainly involves cars that are traveling in the same direction. The majority of incidents occurred on national and state highways, and at posted speed limits of 100 km/h. Additionally, Inadequate Following Distance incidents resulted mainly in a collision with the rear of a third-party vehicle.

The ability for a vehicle to stop in time is the most important aspect to prevent a crash for incidents that occur with vehicles travelling in the same direction. Determinant factors of stopping distances for heavy vehicles are vehicle mass, vehicle configuration, road surface, speed, reaction time and weather conditions.

Stopping distance is a combination of reaction distance and braking distance. In emergency situations, it is estimated that the average driver takes 1.5 seconds to react, which equates to a light vehicle traveling approximately 42m if it was moving at 100 km/h (Queensland Government, 2016).



CONCLUSION

This report highlights the key hazards for truck drivers and the transport industry in 2023. However, it does not address the underlying reasons behind these issues. Further research is necessary to fully understand the lived experiences of Australian truck drivers and the contributing factors that can be explored to develop effective interventions. By gaining a deeper understanding of the issues and experiences faced by truck drivers, we can better target solutions to mitigate these hazards and measure the impact of these solutions over time.

This report provides valuable insights into the direction that further research should take to reduce fatalities and serious injuries involving heavy vehicles.

NTARC 2.0 will collaborate with the road transport industry, supply chain participants, academia, government, and the road safety community to build on this data. Our goal is to achieve a richer understanding of the contributing factors and to positively influence a safer road transport future.

LIMITATIONS

This 2024 Major Incident Investigation Report:

- Only considers NTI-insured operators, so the sample may be biased towards those who choose to insure with NTI and who NTI chooses to insure.
- Relies on information gathered through the insurance claim process and information that is publicly available.
- Receives less information for Not At Fault claims because the third party has no reason to provide information on the costs they incurred.
- As a result of being a property insurance provider, the data does not capture information on personal injury resulting from road crashes. In particular, this likely results in under-reporting of vulnerable road user crashes as these crashes with trucks will have proportionally higher risks of injury or death for a lower likelihood of sufficient property damage to trigger a heavy motor insurance claim or to meet the $50,000 in property damage threshold for inclusion in this dataset.
- Data classification may suffer from subjectivity bias and an incident is classified into a singular cause while there may be some overlap.

RESOURCES

Human Factors Related

- *NRSPP Are You Roadworthy?*
- *NRSPP Heavy Vehicle Toolbox Talk: Anger*
- *NRSPP Heavy Vehicle Toolbox Talk: Fatigue*
- *NRSPP Heavy Vehicle Toolbox Talk: Fatigue & Distraction*
- *NRSPP Heavy Vehicle Toolbox Talk: Fitness For Duty*

Interactions with Other Road Users

- *NRSPP Toolbox Talk: Blind Spots*
- *NRSPP Toolbox Talk: Cyclists*
- *NRSPP Toolbox Talk: Pedestrians*
- *NRSPP Heavy Vehicle Toolbox Talk: Interactions with Other Road Users*

Mental Health Support for the Transport Sector

- *Healthy Heads - Supporting Mental Health in Trucking and Logistics*
- *Health In Gear - Supporting transport and logistics workers on the job and at home*
- *Health & Wellbeing Hub - Queensland Trucking Association Ltd*
- *NRSPP Heavy Vehicle Toolbox Talk: Are You Okay to Drive?*

Post Road Trauma Support

- For Victorians affected by road trauma free support is available through: *Amber Community - Road incident Support and Education*
- For West Australians affected by road trauma free support is available through *Injury Matters*

Professional Driver Wellbeing

- *NRSPP Heavy Vehicle Toolbox Talk: Fitness*
- *NRSPP Heavy Vehicle Toolbox Talk: Healthy Eating*

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Inappropriate Speed Incidents by DCA Code

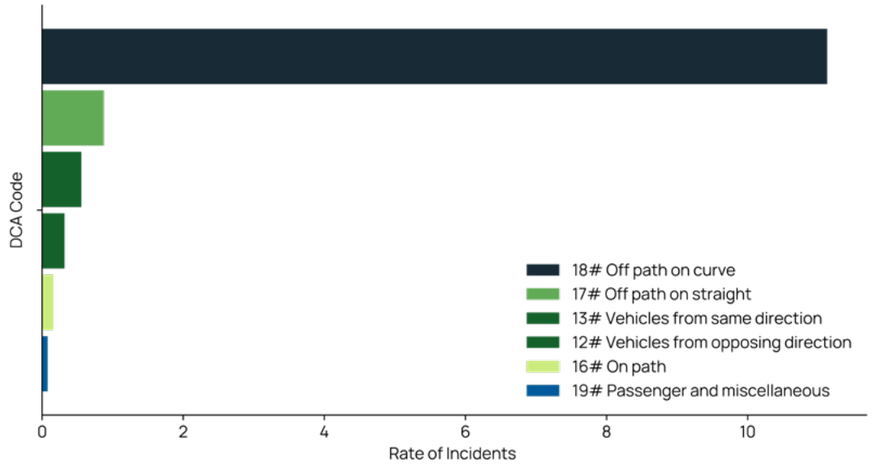

Figure 3.6 - Rate of Inappropriate Speed incidents resulting in >$50k damage in 2023 by DCA code

Inappropriate Speed Incidents by Vehicles Involved

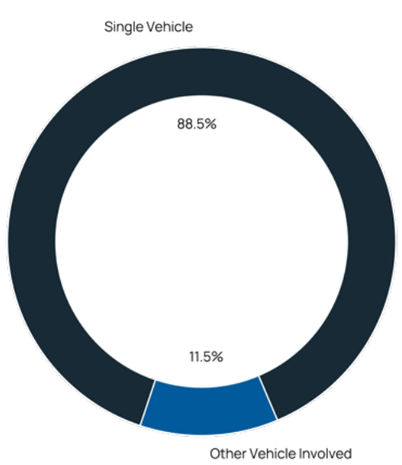

Figure 3.7 - Percentage of inappropriate speed incidents resulting in >$50k damage in 2023 by vehicles involved

Inadequate Following Distance Incidents by DCA Code

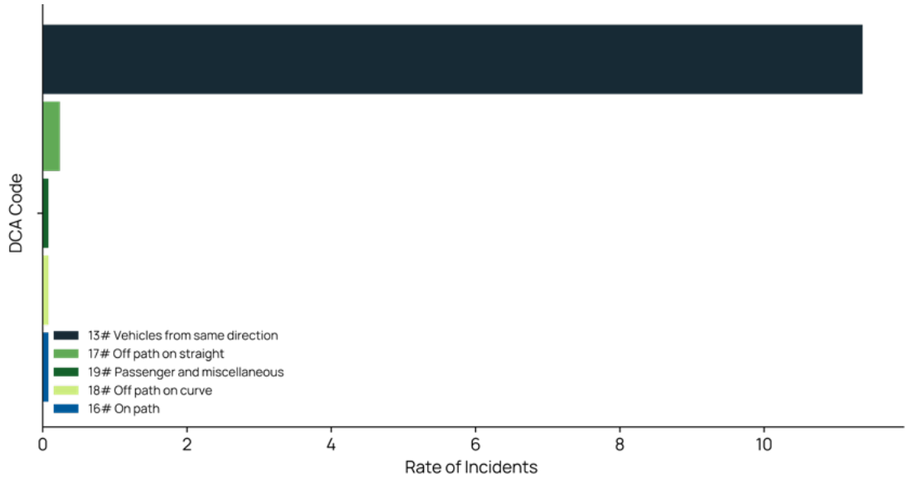

Figure 4.4 - Rate of Inadequate Following Distance incidents resulting in >$50k in 2023 by DCA code

Overwhelmingly, Inadequate Following Distance incidents are 'ran into rear' crashes. Of the 11.8/10k incidents, 'ran into rear' crashes account for 11.3/10k truck. Of the remaining 0.5/10k truck incidents, the next most common type was 'Off path on straight', indicating a truck has swerved off the roadway to avoid a 'ran into rear' crash.

Truck & Car Incidents by Hour of Incident

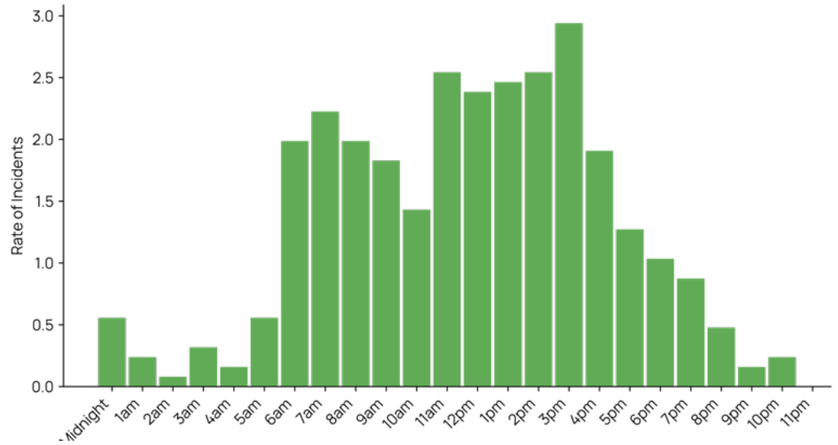

Figure 7.10 - Rate of heavy vehicle and third-party incidents resulting in >$50k damage per 10,000 heavy vehicle powered units in 2023 by hour of incident

NTARC 2.0