University of Southern Queensland
Faculty of Health, Engineering and Sciences

Examining the influence COVID-19 had on Australian road fatalities and serious injuries during 2020

A dissertation by
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Abstract

In response to the emerging positive COVID-19 cases recorded in March 2020, the Australian Government, Australian states and territories quickly implemented strict lockdown orders, significantly changing the movement of people and goods. It would be expected that a reduction in traffic volumes and vehicle kilometres travelled would equate to a reduction in road fatalities and serious injuries. Unfortunately, Australia still experienced road fatality and serious injury rates similar to previous years. This undergraduate research dissertation aims to examine the influence COVID-19 had on Australian road fatalities and serious injuries in 2020. The research methodology approach entails a two-step approach. The first step of the methodology approach is the collection of quantitative data relating to Australian road fatalities and serious injuries from 2015 to 2020. The second step of the methodology approach is the detailed analysis of the quantitative data. For this undergraduate research dissertation, significant variations must represent road fatalities or serious injuries rate changes of at least 15% during 2020 compared to 2019 and changes of at least 15% from the 2015-2018 to the 2015-2019 average.

The undergraduate research dissertation found that COVID-19 significantly influenced road fatalities and serious injuries nationwide. While not all states and territories had significant variations in annual road fatality and serious injury rates, each characteristic still had significant variations.

- Annual road fatality rates were significantly increased in Queensland (+27%) and Tasmania (+31%).
- Annual road fatality rates were significantly decreased in New South Wales (-20%), Victoria (-21%) and South Australia (-18%).
- Annual serious injury rates were significantly increased in Tasmania (+16%).
- Annual serious injury rates were significantly decreased in Victoria (-23%).

To further understand how the changes in the movement of people and goods on Australian roads can impact road user behaviour and safety, several avenues still exist to investigate COVID-19 further. They include a qualitative research component, investigating minor and property crashes, further investigation into each state and territory road safety during 2020 and further analysis into the human and economic implications that COVID-19 had on road fatalities and serious injuries during 2020.

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Signature

15/10/2023

Date

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Chapter 1 – Introduction

1.1 The Background

Reporting of road fatalities in Australia commenced in 1925. Since then, there have been over 190,000 deaths recorded on Australian roads with road fatalities peaking in 1970 at 3,798 deaths. There have since been significant measures taken to decrease road fatalities despite considerable population growth and increased vehicle registration, as shown in Figure 1 and Figure 2 (Department of Infrastructure, Transport, Regional Development, Communications and the Arts n.d.).

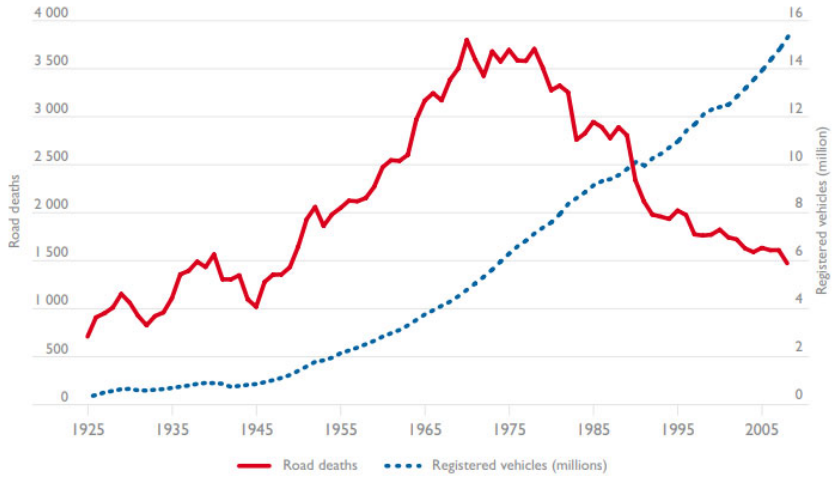

Figure 1: Number of Road Fatalities and Registered Vehicles in Australia (Bureau of Infrastructure, Transport and Regional Economics 2010)

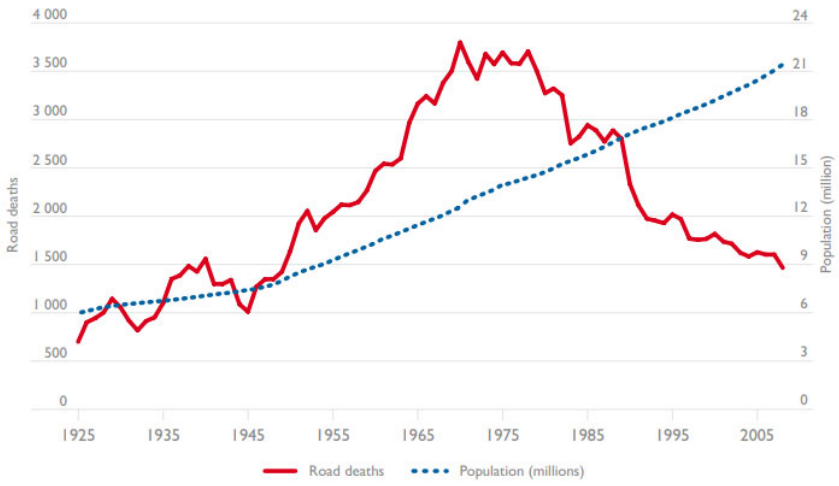

Figure 2: Number of Road Fatalities in Australia and the Australian Population (Bureau of Infrastructure, Transport and Regional Economics 2010)

Major contributors to the decrease of road fatalities have come from the introduction of safety measures such as seatbelts, enhanced police enforcement, speed cameras, random breath testing and the introduction of helmet laws, as shown in Figure 3 (Federal Office of Road Safety 1998) (Department of Transport and Main Roads 2022). More recently, key measures contributing to the decline in road fatalities have been intensive speed compliance measures, targeted safety road infrastructure investments and vehicle safety enhancements (International Transport Forum 2021).

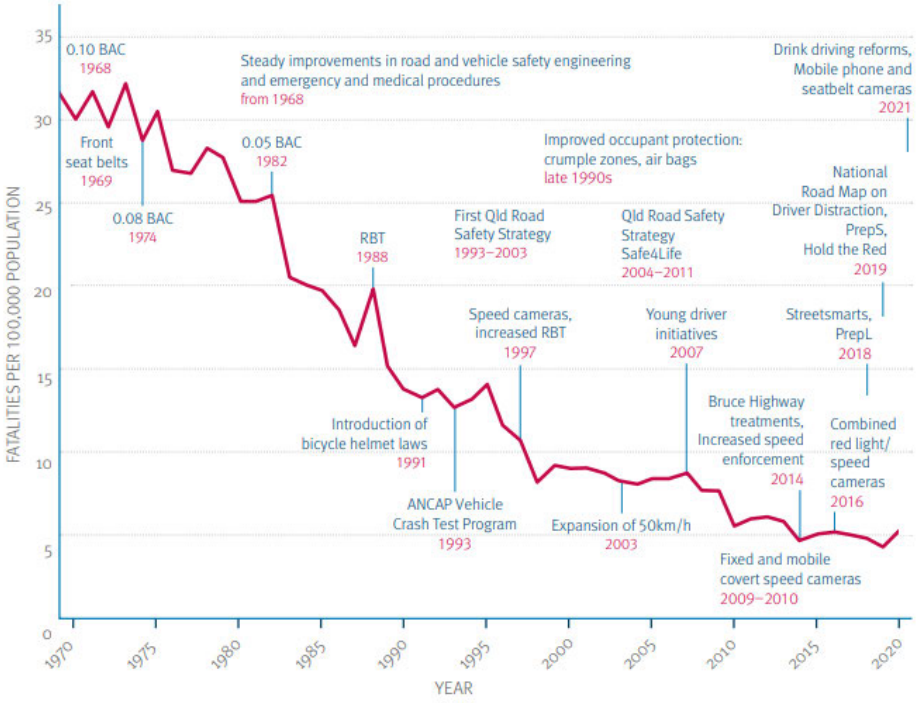

Figure 3: Road Fatalities per 100,000 Population in Queensland between 1969 – 2020 (Department of Transport and Main Roads 2022)

Road safety has become a fundamental commitment to all levels of Government. Over the last decade, 12,061 people have been killed on Australian roads and approximately 375,000 people seriously injured on Australian roads resulting in an overall cost of $300 billion to the Australian Economy (National Road Safety Strategy 2021). The Australian Government has committed to a vision of zero road fatalities and serious injuries on Australian roads by 2050 (National Road Safety Strategy n.d. -a). All government levels have responsibility for ensuring the Australian road safety targets are achieved, as shown by Table 1. To ensure progress in reducing road fatalities and serious injuries occurs, the Infrastructure and Transport Ministers provide oversight and additional inquiries by the Australian Parliament occur as required (National Road Safety Strategy 2022).

Level of Government	Responsibilities
Federal Government	• Allocating infrastructure funding and resources across national highways and local road networks. • Regulating standards for new vehicles.
State and Territory Governments	• Funding, planning, designing and managing road network systems within their jurisdiction. • Manage vehicle registrations and driver licencing. • Enforcement of road user behaviour such as speeding and drink driving. • Post-crash care through their healthcare system.
Local Governments	• Funding, planning, designing, and managing local road network systems within their jurisdiction.

Table 1: All Levels of Australian Government Road Safety Responsibilities (National Road Safety Strategy 2022)

Local governments have unique safety challenges as their local roads typically have lower traffic volumes, a wider variety of road environments and a greater distribution of road users such as pedestrians and bicycle users (Durdin & Tuke 2020).

Established by the Australian Government, the Office of Road Safety implements and manages road safety programs to address road safety priorities identified in the National Road Safety Strategy (National Road Safety Strategy 2022). The National Road Safety Strategy utilises the safe system approach that no person should be killed or seriously injured on Australian roads (International Transport Forum 2020). Released in December 2021, the National Road Safety Strategy 2021-2030 sets out Australia's road safety priorities over the next decade to reduce the annual number of road fatalities by 50% and serious injuries by 30% by 2030 (International Transport Forum 2020) (National Road Safety Strategy 2021).

The nine priorities of the National Road Safety Strategy 2021-2030 respond to the most significant road safety challenges currently present in Australia. The priorities include infrastructure planning and investment, regional road safety, remote road safety, vehicle safety, heavy vehicle safety, workplace road safety, Aboriginal and Torres Strait Islander people, vulnerable road users and risky road use. Safety performance indicators such as the number and rate per capita of road crash fatalities and serious injuries within Australia provide an understanding of the performance of the National Road Safety Strategy (National Road Safety Strategy 2021).

1.2 The Problem

COVID-19, also known as the coronavirus disease, is an infectious disease caused by the SARS-CoV-2 virus discovered in November 2019. The disease spread from Wuhan, China, to around the world within a matter of months due to the highly infectious nature of the disease transmission (World Health Organisation n.d.) (Hao, Wang, Wang, Zhou, Shi, Cao & Wang 2022). By the 11th of March 2020, the World Health Organisation declared COVID-19 a worldwide pandemic (Department of Health and Aged Care 2023). As a result of COVID-19, there have been significant impacts on global economies, healthcare, education and transportation (Hao et al. 2022).

In response to the emerging positive COVID-19 cases recorded in March 2020, the Australian Government, Australian States and Territories quickly implemented strict lockdown orders, significantly changing the movement of people and goods within Australia. On the 15th of March 2020, all international arrivals were quarantined, restrictions were placed on large social gatherings and social distancing measures were encouraged. By the 19th of March 2020, Prime Minister Scott Morrison announced the closure of Australia's international borders to all non-citizens and non-residents. Then the 22nd of March 2020, the National Cabinet agreed to implement restrictions on social gatherings and recommended against all non-essential travel within Australia (Parliament of Australia n.d.).

Travel was restricted to a small, local radius as people started working from home and businesses were closed due to lockdown orders (Jones 2022). As a result, there were major reductions in traffic volumes and socioeconomic consequences (Yasin, Grivna & Abu-Zidan 2021). It would be expected that a reduction in traffic volumes and vehicle kilometres travelled would equate to a reduction in road fatalities and serious injuries. Unfortunately, Australia still experienced road fatality and serious injury rates similar to previous years (International Transport Forum 2020). Although, during 2020, each Australian States and Territories reported differing results concerning the reduction of vehicle kilometres travelled, road fatalities and serious injuries (Jones 2022).

The current scope of global publications referencing the influence of COVID-19 on road safety identifies that the reduced traffic volume did not correlate to reduced road fatalities and serious injuries during 2020. Each identified publication could not report on the reasoning behind these changes and how changes in the movement of people and goods on the roads can significantly influence changes in road safety.

1.3 Research Aims, Objectives and Scope

This undergraduate research dissertation aims to examine the influence COVID-19 had on Australian road fatalities and serious injuries in 2020. To accomplish the Australian Government's plan to achieve zero deaths and serious injuries by 2050, it is imperative that industry professionals have a comprehensive understanding of how people and goods on Australian roads can significantly impact road user behaviour and road safety. With the reduced traffic volume conditions that occurred as a result of COVID-19, it provides a unique insight into road user behaviour and road safety. It shall ultimately assist industry professionals in identifying problems, assessing interventions, allocating resources and making informed decision when it comes to road safety within Australia.

To achieve the aim of the undergraduate research dissertation, several objectives need to be addressed:

- Undertake a literature review on road safety, the safe system approach and the influence COVID-19 had on Australia.
- Collect quantitative data relating to road fatalities and serious injuries from the Bureau of Infrastructure and Transport Economics and the relevant state and territory government databases during 2020 and previous years for comparison.
- Conduct a detailed analysis of the quantitative data and summarise the findings.
- Finalise the undergraduate research dissertation providing recommendations and a conclusion on the influence COVID-19 had on Australian road fatalities and serious injuries during 2020.

The scope of this undergraduate research dissertation is limited to investigating the influence COVID-19 had on Australian road fatalities and serious injuries during 2020. This undergraduate research dissertation does not investigate the influence COVID-19 had on road fatalities and serious injuries worldwide.

Chapter 2 – Road Safety Literature Review

2.1 Introduction

Chapter 2 provides an academic overview of the literature concerning road safety within Australia through the lenses of the safe system approach.

2.2 Road Fatalities and Serious Injuries

Road fatalities are globally defined as a person who dies from injuries sustained in a road crash within 30 days. Fatalities from road crashes where suicide or when natural causes occur, such as heart attacks, are excluded from road fatality reporting (Office of Road Safety n.d.). The Australian Road Death Database reports on road crash deaths and fatal road crashes on Australian roads. Managed by the Bureau of Infrastructure and Transport Research Economics, data is sourced from police authorities and each of Australia's states and territories government transport agencies. Details provided with fatalities data include the age, gender and road user group of the deceased individual. Details provided with fatal crash data include the year, month, day of week, time, location, crash type and involvement of vehicles for the crash (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023a). In 2020, 1,097 people died on Australian roads (Bureau of Infrastructure and Transport Research Economics 2023).

A widely accepted definition for serious injuries relating to road crashes is an individual who is injured, admitted into hospital and who did not die within 30 days (Transport for NSW n.d. -b). However, Australia lacks a uniform, agreed-upon definition of serious injuries for reporting purposes. Instead, each state and territory within Australia maintains its own distinct definition of serious injuries, as detailed in Table 2.

To fulfill the objectives outlined in the National Road Safety Plan to reduce serious injuries by 30% by 2030 and ultimately achieve zero serious injuries on Australian roads by 2050, significant systemic alterations are imperative (National Road Safety Strategy n.d. -a). This necessity arises from the current deficiency in reliable, nationally consistent sources of non-fatal crash data (Department of Infrastructure and Regional Development 2016). To address this issue, it has been identified as a priority action in the National Road Safety Strategy Plan (National Road Safety Strategy n.d. -a).

Furthermore, an additional concern lies in the underreporting of crash related injuries among pedal cyclists and motorcyclists, as highlighted by a study conducted in New South Wales. These crashes and injuries are substantially underreported to police, resulting in their omission from crash reporting records (Transport for NSW 2017).

State or Jurisdiction	**Serious Injury Definition**
New South Wales	An individual who is injured, admitted into hospital and who does not die within 30 days from a road crash (Transport for NSW n.d. -b).
Queensland	An individual transported to hospital, from injuries sustained in a road crash and who does not die within 30 days of the crash. Queensland denotes the casualty severity as hospitalised (Department of Transport and Main Roads n.d.).
Victoria	An individual who was injured, admitted into hospital and did not die within 30 days of the crash (VicRoads n.d.).
South Australia	Individual who is injured, admitted into hospital and who did not die within 30 days from a road crash (Department of Infrastructure and Transport n.d.).
Northern Territory	An individual who is injured and admitted into hospital because of a crash (Department of Infrastructure and Regional Development 2016).
Australian Capital Territory	An individual who is injured and admitted into hospital because of a crash (Transport Canberra and City Services 2021).
Western Australia	An individual who is injured and admitted into hospital because of a reported crash (Government of Western Australia 2023b).
Tasmania	An individual who is injured and admitted into hospital for more than 24 hours because of a crash (Department of State Growth 2016).

Table 2: Serious Injury Definition per State and Territory

2.3 The Safe System Approach

The Australian Government has committed to a vision of zero road fatalities and serious injuries on Australian roads by 2050 (National Road Safety Strategy n.d. -a). To achieve this, the National Road Safety Strategy is developed using the safe system approach and implemented across all levels of government and industry (National Road Safety Strategy 2021). The underlying principles of the safe system approach comprise that fatalities and serious injuries on roads are unacceptable, individuals make mistakes that can lead to road crashes, humans are vulnerable and have limits for tolerating crash forces before death or serious injuries occur, all stakeholders share the responsibility of road safety, road safety needs to be proactive rather than reactive and if one part of the system fails, then the other parts will still protect people from harm (Federal Highway Administration n.d.).

Four overarching pillars under the Australian safe system approach influence road safety outcomes. Figure 4 showcases the safe system approach in Australia as safe roads, people, speeds and vehicles (Towards Zero n.d.).

Figure 4: Australian Safe System Approach (Towards Zero n.d.)

The safe road pillar in the safe system approach means that roads are designed and built to be more forgiving and to consider for human error. Well-designed road infrastructure can significantly reduce the risk that a crash will result in a fatality or a serious injury (Towards Zero n.d.).

At all levels of government, substantial financial investments are channelled annually into road infrastructure programs aimed at enhancing the safety of the road network. In an effort to stimulate the economy, the Australian Government allocated an investment exceeding $33 billion dollars over a four-year period, commencing in the 2020-2021 financial year, with the primary objective of enhancing road safety throughout Australia. Furthermore, the Australian Government has committed an additional $500 million dollars to empower states and territories to execute targeted road safety initiatives during the COVID-19 pandemic (National Road Safety Strategy n.d. -b). However, it is noteworthy that the safe roads component is not perceived to have exerted a significant impact on road fatalities and serious injuries in 2020. This assessment is grounded in the observation that the delivery of road infrastructure programs from previous years had a limited influence on the outcomes experienced during that particular year.

The safe people pillar in the safe system approach refers to the road user behaviours that allows individuals to follow road rules and to drive to the conditions where crashes can be prevented by making safe choices (Towards Zero n.d.). The examination of the safe people pillar will be further discussed with a focus on the implications arising from the influence of COVID-19.

The safe speeds pillar in the safe system approach refers to the human body tolerance that a crash can enforce before death or serious injury is inevitable. Speed limits are set to ensure individuals can safely respond to potential risks in the road environment (Towards Zero n.d.). The examination of the safe speeds pillar will be further discussed with a focus on the implications arising from the influence of COVID-19.

The safe vehicles pillar in the safe system approach refers to safe vehicle choices that have a significant impact on an individual's chances of being in a crash and the survivability of the crash. Important safety features in new vehicles include electronic stability control, lane departure warning, side curtain airbags and autonomous emergency braking (Towards Zero n.d.).

During COVID-19, the arrival of new vehicles in Australia faced delays as shipping companies sought to mitigate the risk of extended quarantine waiting times. Concurrently, changes in Australia’s preferences for vehicle types resulted in a demand-driven allocation of space on ships. This surge in demand for new vehicles led to an escalation in prices (Dowling 2021).

Consequently, this price escalation had a ripple effect, significantly driving up the prices in the used-car market as well (Costello 2023). During times of economic downturns, studies have also found that fewer new vehicles are purchased, older vehicles are in use for longer periods of time and less is spent on vehicle maintenance (International Traffic Safety Data and Analysis Group 2015).

The safe vehicle component is deemed to not have significantly influenced road fatalities and serious injuries in 2020, as notable changes were not observed. However, when considering the post-2020 COVID-19 impact on road fatalities and serious injuries, the safe vehicle component assumes importance due to the enduring economic repercussions stemming from the pandemic.

There is a fifth pillar of the safe system approach that many countries around the world utilise and it is post-crash care, as shown in Figure 5. Post-crash care examines when a person is injured in a collision and the response by emergency services to locate them, stabilise their injuries and to transport them to medical facilities (Federal Highway Administration n.d.).

Figure 5: United States Department of Transportation Safe System Approach (Federal Highway Administration n.d.)

Chapter 3 – COVID-19 Literature Review

3.1 Introduction

In Chapter 3, the influence COVID-19 had on each state and territory within Australia is comprehensively analysed.

3.2 Australia during 2020

In response to the emerging positive COVID-19 cases recorded in March 2020, the Australian Government, states and territories quickly implemented strict lockdown orders, significantly changing the movement of people and goods within Australia. On the 15th of March 2020, all international arrivals were quarantined, restrictions were placed on large social gatherings and social distancing measures were encouraged. By the 19th of March 2020, Prime Minister Scott Morrison announced the closure of Australia's international borders to all non-citizens and non-residents. Then the 22nd of March 2020, the National Cabinet agreed to implement restrictions on social gatherings and recommended against all non-essential travel within Australia (Parliament of Australia n.d.).

There were two significant waves of COVID-19 transmissions in Australia during 2020, as shown in Figure 6 and Figure 7. The first wave occurred in March 2020, where the source of acquisition was predominantly from overseas travellers. Then the second wave occurred in July 2020, where the source of acquisition was predominantly from local transmissions (Australian Institute of Health and Welfare 2021). Each state and territory implemented their own lockdown, stay-at-home orders and restrictions as required to reduce the spread of COVID-19 in the community. Despite the attempts to have zero cases of COVID-19 recorded in Australia, fatalities resulting from COVID-19 still occurred at a high rate, as shown in Figure 8 (Australian Institute of Health and Welfare 2021).

It was not until the 22nd of February 2021 that COVID-19 vaccinations began administrating in Australia. The first group to receive the vaccines were individuals who are at higher risk of contracting COVID-19 such as quarantine workers, front line healthcare works and vulnerable population care staff (Department of Health and Aged Care 2021).

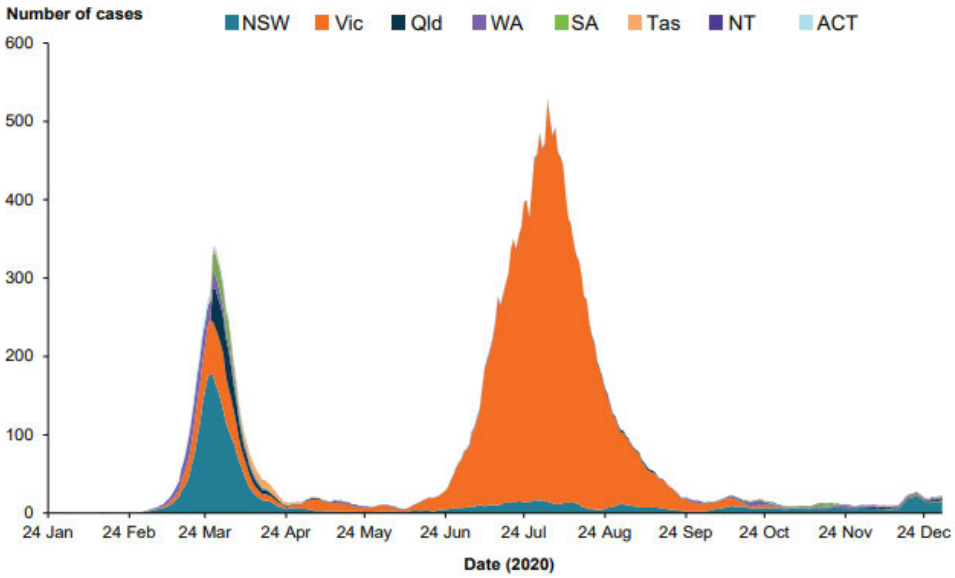

Figure 6: Confirmed COVID-19 Cases throughout Australia in 2020 (Australian Institute of Health and Welfare 2021)

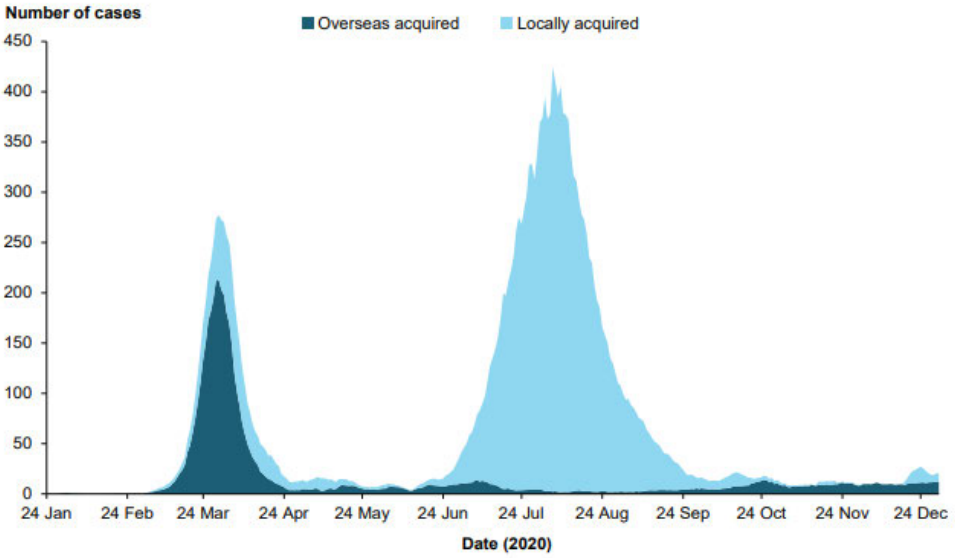

Figure 7: Confirmed COVID-19 Cases by Source of Acquisition in Australia (Australian Institute of Health and Welfare 2021)

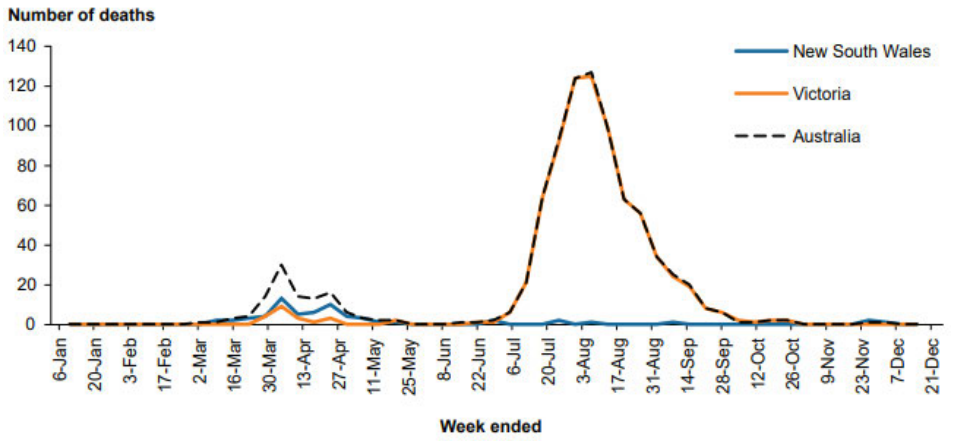

Figure 8: Confirmed COVID-19 Related Deaths in Australia (Australian Institute of Health and Welfare 2021)

Mental health and well-being were a central area of interest for health professionals as Australians experienced significant degradation of mental well-being and higher levels of psychological distress. Poor mental health and well-being rates were predominately due to long periods of loneliness and social isolation due to the COVID-19 lockdown and restrictions (Biddle, Gray & Rehill 2022). It is known that individuals with poor mental health have difficulties maintaining focus and are more likely to engage in risky road behaviours such as aggressive and distracted driving, consequently increasing the risk of being in a road crash (Gupta 2023).

During the pandemic in 2020, the total spend on alcohol had increased compared to prior years. Although this could be attributed to the stockpiling of alcohol as individuals were concerned that bottle shops may close due to being non-essential. It was also notable that there was a major decline of spending at alcohol service locations such as pubs, bars and restaurants which was strongly correlated to restrictions in place for the closure of non-essential business in the early stages of the pandemic. November 2020 was the first month that spending at alcohol service locations returned to pre-covid-19 rates (Australian Institute of Health and Welfare 2023).

In the initial phases of the COVID-19 pandemic, there was considerable confusion among both individuals and authorities regarding the guidelines pertaining to driving lessons for learner drivers. Instances were observed across Australia where learner drivers faced fines for engaging in driving lessons, as these activities were initially categorised as non-essential travel. However, many of these fines were subsequently rescinded (Fuller 2020).

In the state of Queensland, driving tests were temporarily halted from the end of March until mid-June, with authorities encouraging learner drivers to continue their lessons, albeit within their local areas (The Queensland Cabinet and Ministerial Director 2020). But the importance of challenging learner drivers as they develop the complex skills necessary for safer and more defensive driving is essential.

Because of the pandemic, it was evident that learner drivers encountered difficulties in maintaining their driving skills due to interruptions caused by lockdowns. Additionally, they experienced heightened anxiety associated with learning to drive in an environment marked by uncertainty regarding travel restrictions during lockdowns (Marmalade 2021).

3.3 New South Wales during 2020

On the 16th of March 2020, the first set of restrictions mandated by the Government of New South Wales occurred. It was to limit the number of individuals attending public events. By the 31st of March 2020, the first lockdown requiring individuals to stay home was established. During this period, individuals were strongly encouraged to remain in their residences and all non-essential travel was actively discouraged. The public lockdown ended on the 15th of May 2020, where public gatherings increased to 10 individuals and certain public recreational facilities reopened. On the 1st of June 2020, businesses were allowed to reopen on the condition that they have a COVID-19 safety management plan (NSW Parliamentary Research Service 2020).

Through the months of March to July, the change in petrol sales decreased in New South Wales and the Australian Capital Territory by 22.5% compared to the 2017-2019 average (Catchpole & Naznin 2020). The change in vehicle kilometres travelled from 2019 was -6% and from the 2015 to 2019 average, the change in vehicle kilometres travelled was -4%, as shown in Figure 9 (Department of Infrastructure, Transport, Regional Development and Communications 2021).

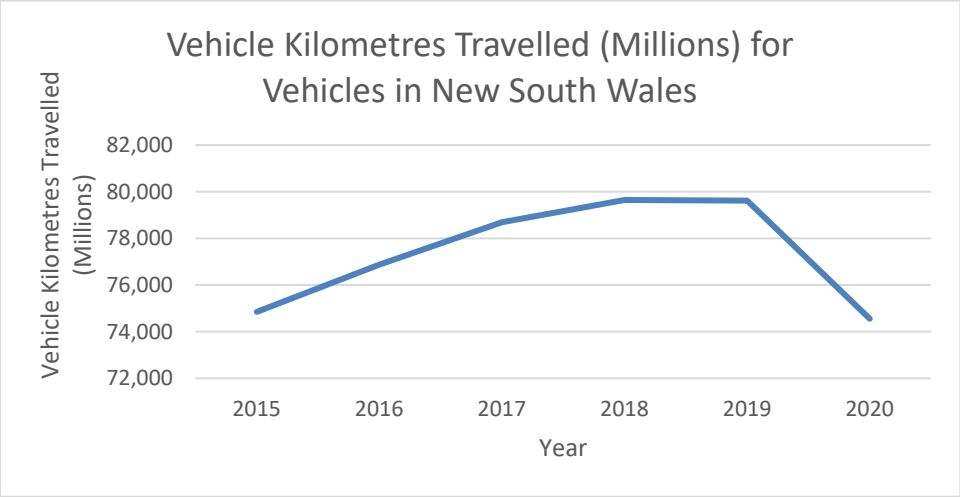

Figure 9: Vehicle Kilometres Travelled (Millions) for all Vehicles in New South Wales (Department of Infrastructure, Transport, Regional Development and Communications 2021)

By the end of 2020, there were 4,923 confirmed COVID-19 cases that were reported and 53 COVID-19 related deaths in New South Wales (Tsang n.d.).

3.4 Queensland during 2020

On the 23rd of March 2020, Queensland initiated its first COVID-19 mandates, urging individuals to remain within their residences and all non-essential travel was actively discouraging. By the 26th of March 2020, Queensland implemented an unprecedented border closure, marking the first occurrence of such an event in over a century. Notably, the initial easing of restrictions occurred on the 26th of April 2020. This milestone permitted individuals to venture out of their homes for non-essential shopping. However, on the 31st of May 2020, the freedom to travel unrestricted within the state was released (Lynch 2021).

Regarding the Queensland border, it was reopened on the 10th of July 2020 to all states and territories except Victoria. Due to the escalating rates of COVID-19 in Sydney and the surrounding regions, the Queensland Government decided to close its border to New South Wales and the Australian Capital Territory on the 5th of August 2020. Subsequently, this border closure restriction was lifted on the 3rd of November 2020. After 250 days with stringent restrictions in place, the Queensland border was eventually reopened on the 1st of December 2020, permitting the entry of all travellers from New South Wales and Victoria after the prolonged period of border restrictions. The final border closure in 2020 occurred on the 20th of December when Queensland refused the entry of individuals who had recently been in the greater Sydney area (Lynch 2021).

Through the months of March to July, the change in petrol sales decreased in Queensland by 17.4% compared to the 2017-2019 average (Catchpole et al. 2020). The change in vehicle kilometres travelled from 2019 was 15% and from the 2015 to 2019 average, the change in vehicle kilometres travelled was 17%, as shown in Figure 10 (Department of Infrastructure, Transport, Regional Development and Communications 2021).

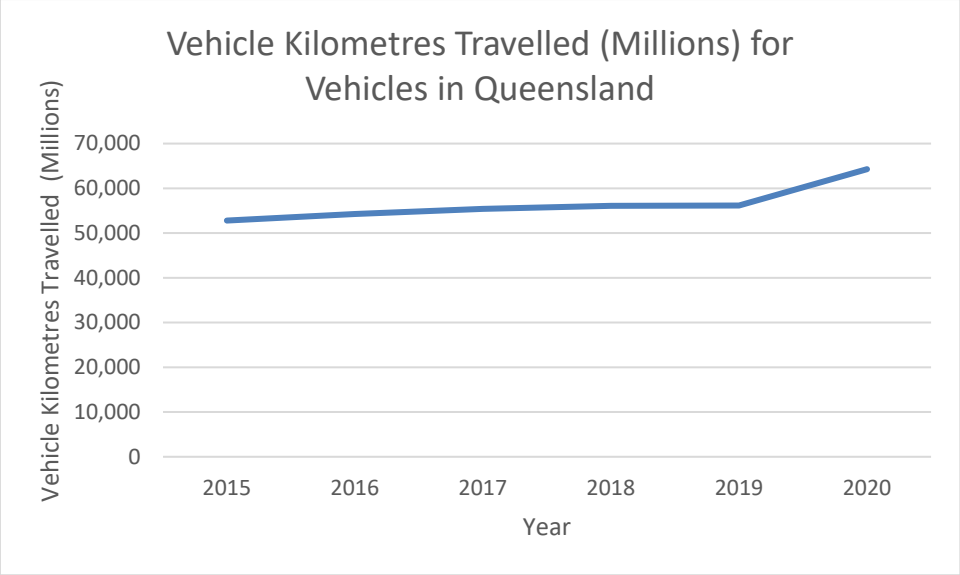

Figure 10: Vehicle Kilometres Travelled (Millions) for all Vehicles in Queensland (Department of Infrastructure, Transport, Regional Development and Communications 2021)

By the end of 2020, there were 1,253 confirmed COVID-19 cases that were reported and five COVID-19 related deaths in Queensland (Tsang n.d.).

3.5 Victoria during 2020

In 2020, Victoria witnessed two distinct phases of mandated lockdown measures, which profoundly impacted traffic volumes and the mobility of its residents. The first mandated lockdown commenced on the 30th of March. During this period, individuals were strongly encouraged to remain in their residences and all non-essential travel was actively discouraged. On the 12th of May, the restrictions began to ease gradually, marking a total lockdown duration of 43 days (Dunstan 2021).

Subsequently, in June, Victoria faced a resurgence of recorded COVID-19 cases, leading to the reimplementation of stringent lockdown measures that took effect on the 8th of July. Notably, Melbourne bore the brunt of these restrictions, with the closure of schools for an entire term, the enforcement of a five-kilometre travel radius from one's place of residence and the introduction of overnight curfews (Palmer & Teague 2021).

The gradual relaxation of these restrictions began on the 27th of October, resulting in Victoria, particularly Melbourne, experiencing a total lockdown period lasting 111 days (Dunstan 2021).

Through the months of March to July, the change in petrol sales decreased in Victoria by 26.3% compared to the 2017-2019 average (Catchpole et al. 2020). The change in vehicle kilometres travelled from 2019 was -5% and from the 2015 to 2019 average, the change in vehicle kilometre travelled was -3%, as shown in Figure 11 (Department of Infrastructure, Transport, Regional Development and Communications 2021).

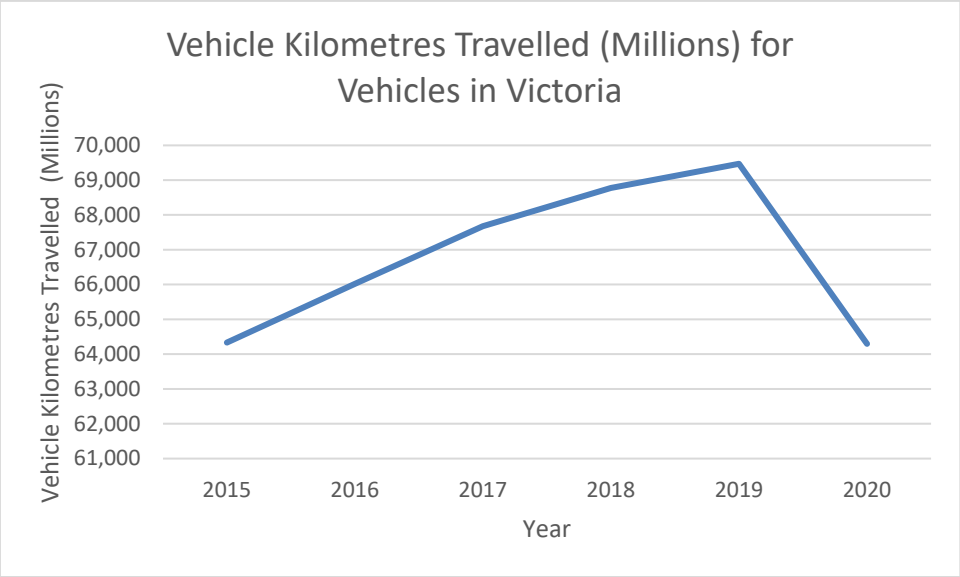

Figure 11: Vehicle Kilometres Travelled (Millions) for all Vehicles in Victoria (Department of Infrastructure, Transport, Regional Development and Communications 2021)

By the end of 2020, there were 20,366 confirmed COVID-19 cases that were reported and 823 COVID-19 related deaths in Victoria (Data Vic n.d.) (Tsang n.d.).

3.6 South Australia during 2020

From the 22nd of March 2020 to the 24th of March, the Government of Australia imposed mandated restrictions that meant non-essential businesses had to close, non-essential travellers into South Australia had to go into a 14-day self-quarantine and workers had to transition to working from home where possible. By the 8th of May 2020, easing of restrictions began and staff were allowed to return to the workplace. It was not until the 19th of November 2020 that South Australia experienced an outbreak in the northern suburbs of Adelaide, prompting a six-day lockdown (Elsegood, Kloeden & Mackenzie 2022)

Through the months of March to July, the change in petrol sales decreased in South Australia by 16.6% compared to the 2017-2019 average (Catchpole et al. 2020). The change in vehicle kilometres travelled from 2019 was -7% and from the 2015 to 2019 average, the change in vehicle kilometre travelled was -6%, as shown in Figure 12 (Department of Infrastructure, Transport, Regional Development and Communications 2021).

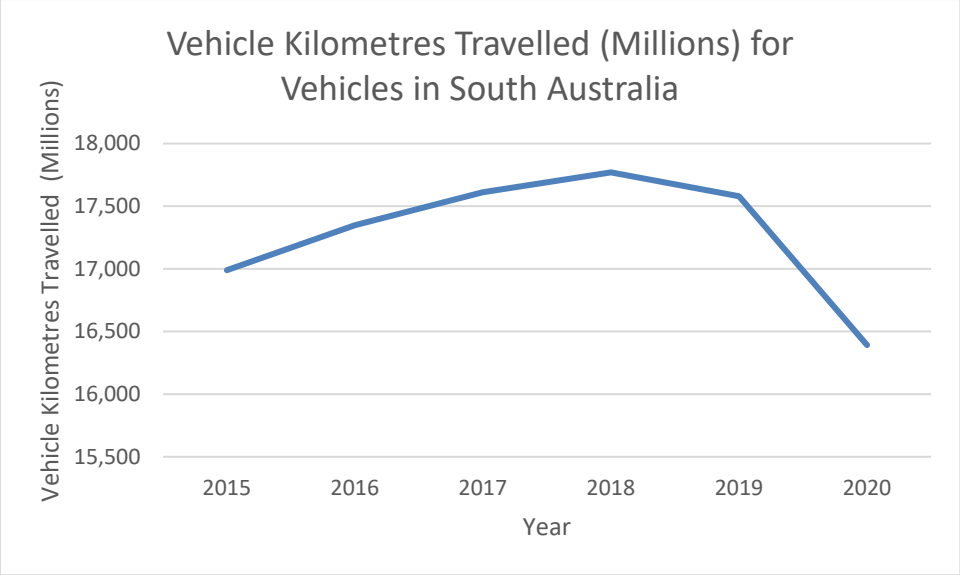

Figure 12: Vehicle Kilometres Travelled (Millions) for all Vehicles in South Australia (Department of Infrastructure, Transport, Regional Development and Communications 2021)

By the end of 2020, there were 576 confirmed COVID-19 cases that were reported and four COVID-19 related deaths in South Australia (Tsang n.d.).

3.7 Northern Territory during 2020

On the 24th of March 2020, the Northern Territory Government quickly implemented strict border controls in response to COVID-19. It was encouraged that all individuals remain in their residences and all non-essential travel was actively discouraged. In addition, all non-essential travel to the 76 remote Northern Territory communities was banned as indigenous populations suffer disproportionate levels of chronic diseases (Roberts 2020). On the 1st of May 2020, easing of restrictions began and by the 5th of June 2020 travel to the 76 remote communities were lifted (Heaney 2020) (Vivian & Hynes 2020).

Through the months of March to July, the change in petrol sales decreased in the Northern Territory by 2.6% compared to the 2017-2019 average (Catchpole et al. 2020). The change in vehicle kilometres travelled from 2019 was -4% and from the 2015 to 2019 average, the change in vehicle kilometre travelled was -2%, as shown in Figure 13 (Department of Infrastructure, Transport, Regional Development and Communications 2021).

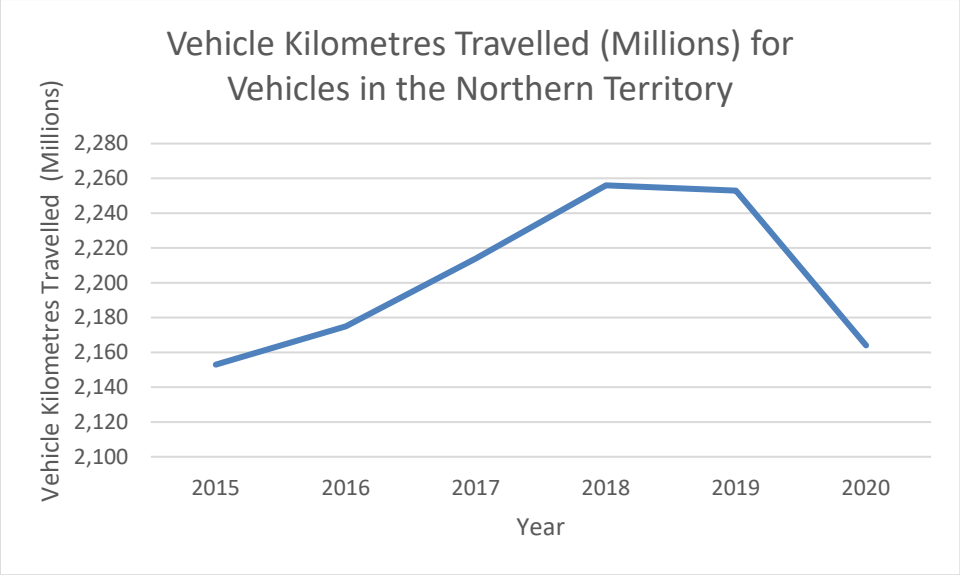

Figure 13: Vehicle Kilometres Travelled (Millions) for all Vehicles in the Northern Territory (Department of Infrastructure, Transport, Regional Development and Communications 2021)

By the end of 2020, there were 74 confirmed COVID-19 cases that were reported and zero COVID-19 related deaths in the Northern Territory (Tsang n.d.).

3.8 Australian Capital Territory during 2020

During 2020, there were two significant impacts on traffic volumes to the Australian Capital Territory. The first impact was bushfires in various regions across New South Wales from September 2019 to March 2020. As a result, residents remained inside due to concerns regarding the air quality dropping to hazardous levels and fires heavily impacting road closures. By the 4th of March 2020, all the fires in New South Wales were extinguished.

The second impact on traffic volumes was the lockdown resulting from COVID-19. On the 23rd of March 2020, a territory-wide shutdown of all non-essential travel and services was implemented to slow the spread of COVID-19 within the community. Restrictions eased on the 1st of May 2020, although many workers continued to work from home for the remainder of the year (Transport Canberra and City Services 2021).

Through the months of March to July, the change in petrol sales decreased in New South Wales and the Australian Capital Territory by 22.5% compared to the 2017-2019 average (Catchpole et al. 2020). The change in vehicle kilometres travelled from 2019 was -5% and from the 2015 to 2019 average was -3%, as shown in Figure 14 (Department of Infrastructure, Transport, Regional Development and Communications 2021).

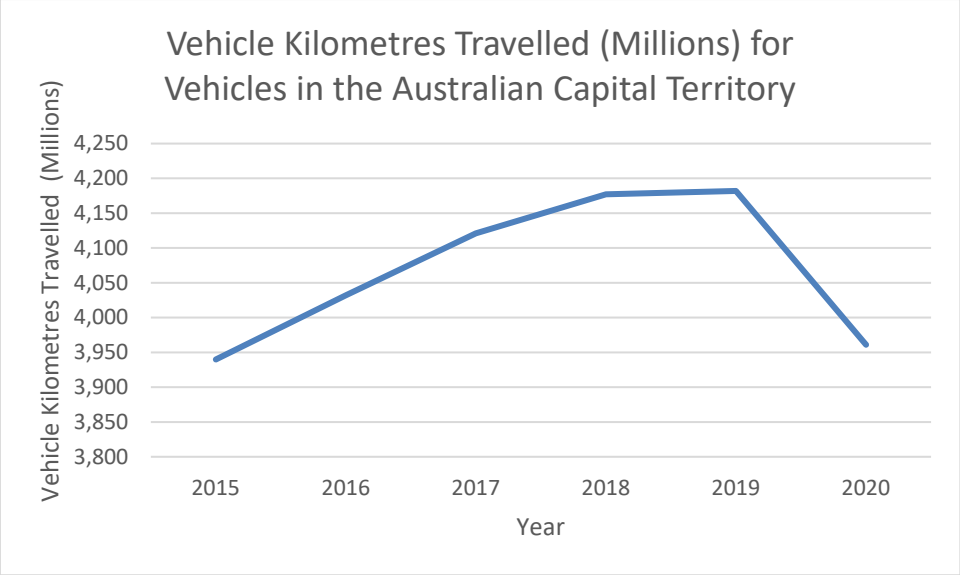

Figure 14: Vehicle Kilometres Travelled (Millions) for all Vehicles in the Australian Capital Territory (Department of Infrastructure, Transport, Regional Development and Communications 2021)

By the end of 2020, there were 119 confirmed COVID-19 cases that were reported and three COVID-19 related deaths in the Australian Capital Territory (ACT Health 2023).

3.9 Western Australia during 2020

On the 23rd of March 2020, Western Australia enacted a comprehensive state-wide shutdown of all non-essential travel and services as a crucial measure to mitigate the spread of COVID-19 within the community (McNeill 2020). These measures encompassed stringent restrictions on intrastate travel between regions unless such travel was deemed essential. Furthermore, the State imposed mandatory quarantine requirements for arrivals, permitted only takeaway services from restaurants and imposed capacity limits on gatherings (Government of Western Australia 2023a). The gradual relaxation of these restrictions commenced on the 27th of April 2020 with gatherings adhering to a two-square-meter rule on the 26th of June 2020 (McNeill 2020). Western Australia's border remained closed until the 3rd of March 2022, which then required interstate travellers to have the G2G pass, triple dose vaccinations and to take a rapid antigen test upon arrival (Government of Western Australia 2022).

Through the months of March to July, the change in petrol sales decreased in Western Australia by 16.9% compared to the 2017-2019 average (Catchpole et al. 2020). The change in vehicle kilometres travelled from 2019 was -6% and from the 2015 to 2019 average was -5%, as shown in Figure 15Figure 14 (Department of Infrastructure, Transport, Regional Development and Communications 2021).

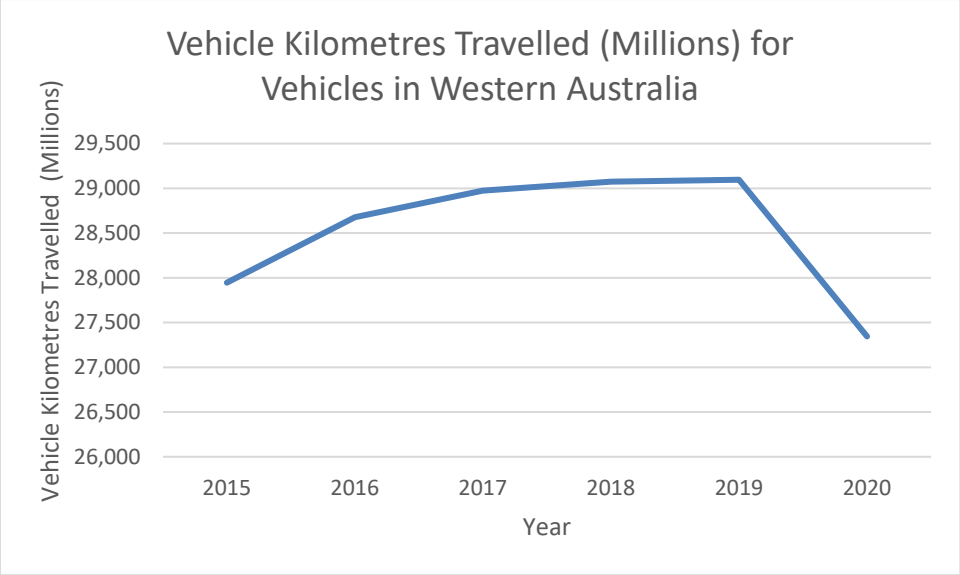

Figure 15: Vehicle Kilometres Travelled (Millions) for Vehicles in Western Australia (Department of Infrastructure, Transport, Regional Development and Communications 2021)

By the end of 2020, there were 868 confirmed COVID-19 cases that were reported and eight COVID-19 related deaths in Western Australia (Tsang n.d.).

3.10 Tasmania during 2020

On the 20th of March 2020, Tasmania, in response to the COVID-19 pandemic, took the decisive step of closing its borders. As a result, all non-essential travellers entering Tasmania became subject to a mandatory 14-day quarantine period. Mandatory quarantines did not apply to essential travellers such as healthcare and emergency workers, crews from planes and ships, the Australian Defence Force and freight transport (Gutwein 2020c). By the 25th of March 2020, the Tasmanian Government had been encouraging individuals to remain at their residences, apart from those engaged in essential work or attending school. Non-essential travel was strongly discouraged (Gutwein 2020a).

On the 8th of May 2020, the Tasmanian Government unveiled a phased strategy for gradually relaxing restrictions to curtail the spread of COVID-19 (Gale 2020). Then, on the 26th of June 2020, most restrictions were lifted, affording individuals increased access to businesses and leisurely activities (Gutwein 2020b).

Through the months of March to July, the change in petrol sales decreased in Tasmania by 26.1% compared to the 2017-2019 average (Catchpole et al. 2020). The change in vehicle kilometres travelled from 2019 was -7% and from the 2015 to 2019 average was -5%, as shown in Figure 16 (Department of Infrastructure, Transport, Regional Development and Communications 2021).

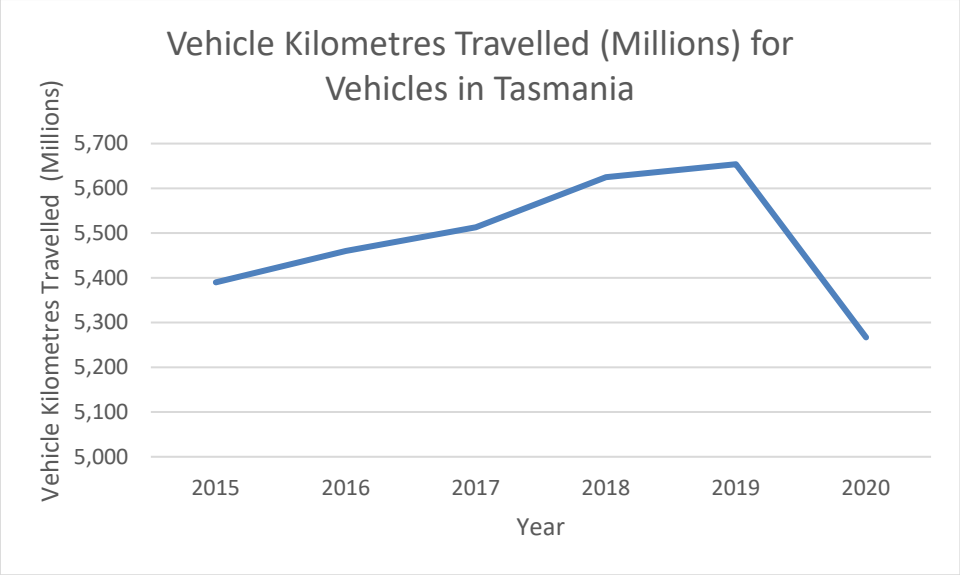

Figure 16: Vehicle Kilometres Travelled (Millions) for Vehicles in Tasmania (Department of Infrastructure, Transport, Regional Development and Communications 2021)

By the end of 2020, there were 234 confirmed COVID-19 cases that were reported and 13 COVID-19 related deaths in Tasmania (Tsang n.d.).

Chapter 4 – Research Methodology

4.1 Introduction

In response to the emerging positive COVID-19 cases recorded in March 2020, the Australian Government quickly implemented strict lockdown orders, significantly changing the movement of people and goods within Australia. Chapter 4 outlines the research methodology approach in addition to the assumptions and limitations taken to achieve the aim and research objectives as outlined in Chapter 1.

4.2 Research Methodology Approach

The aim of this undergraduate research dissertation is to better understand how changes in the movement of people and goods on the roads within Australia can significantly change road user behaviour and road safety. The research methodology approach for this undergraduate research dissertation will entail a two-step approach:

Step 1 Quantitative Data Collection

Step 2 Quantitative Data Analysis

This process was chosen to observe the trends in road fatalities and serious injuries that occurred in Australia and in each jurisdiction in 2020 and the prior five-year average.

4.2.1 Quantitative Data Collection

The first step of the methodology approach is the collection of quantitative data relating to Australian road fatalities and serious injuries from 2015 to 2020. The obtainment of historical road fatality and serious injury data provides the basis of the research problem by examining what occurred in the past and in 2020 to examine the possible influence COVID-19 had. The quantitative data is sourced from the following databases and state and territory government agencies: the Australian Road Deaths Database, Queensland Government, Government of New South Wales, Government of South Australia, Victorian Government, Northern Territory Government, Australian Capital Territory Government, Tasmanian Government and Government of Western Australia.

The Australian Road Deaths Database comprises of road fatality data from 1989 to 2023. Data for each fatality includes the crash ID, state, month, year, day of the week, time that crash occurred, crash type, bus involvement, heavy rigid truck involvement, articulated truck involvement, speed limit, road user, gender, age, national remoteness area, national LGA name 2021, national road type, Christmas period and Easter period. The data was then reduced to 2015 to 2020 as per the scope of the undergraduate research dissertation.

The collection of quantitative data relating to road fatalities were organised into respective categories as shown by Table 3.

Category	**Indicator**
Fatalities	Annual Australian Fatalities, Annual Fatal Crashes, Annual Fatalities per 10,000 Registered Vehicles, Annual Fatalities per 100,000 Population
Fatalities by Jurisdiction	New South Wales, Queensland, Victoria, South Australia, Northern Territory, Australian Capital Territory, Western Australia, Tasmania
Fatalities by Month of the Year	January, February, March, April, May, June, July, August, September, October, November, December
Fatalities by Day of the Week	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday
Fatalities by Time of Day	12:00AM to 3:59AM, 4:00AM to 7:59AM, 8:00AM to 11:59AM, 12:00PM to 3:59PM, 4:00PM to 7:59PM, 8:00PM to 11:59PM
Fatalities by Road User	Driver, Passenger, Motorcyclist, Motorcycle Pillion Passenger, Pedestrian, Cyclist
Fatalities by Gender	Male, Female
Fatalities by Age	0 to 16, 17 to 25, 26 to 39, 40 to 64, 65 to 74, over 75, Age per 100,000 Population
Fatalities by Posted Speed Limit	≤ 40km/hr, 41 to 59km/hr, 60 to 79 km/hr, 80 to 99 km/hr, 100 to 109km/hr, ≥ 110 km/hr
Fatalities by Crash Type	Single Vehicle, Multiple Vehicle

Fatalities by Remoteness Area	Major Cities, Inner Regional, Outer Regional, Remote, Very Remote, Remoteness Area per 100,000 Population
Fatalities by Holiday Period	Easter, Christmas
Fatalities by Safety Devices	Seatbelt Restraint Not Used
Fatalities by License Type	Learners, Provisional, Open, Invalid
Fatalities by Behavioral Characteristics	Speeding, Drink Driving, Distracted/Inattentive, Fatigue

Table 3: Collection of Road Fatalities per Category

The Hospitalised Injury Database, maintained by Bureau of Infrastructure and Transport Research Economics and sourced from the Australian Institute of Health and Welfare, offers a comprehensive summary of hospitalisation resulting from road crashes. It includes data on the year, month, Remoteness Area, cause, age, gender, road user type and bed days of each associated with each recorded hospitalisation. However, it is important to note that the database was last updated in September 2022 and only encompasses hospitalisation due to road crashes up to the 2019 calendar year. Unfortunately, at the completion of the undergraduate research dissertation, the database had not been updated to include data from the 2020 calendar year. Consequently, road safety reports from state and territory government agencies were utilised to compile data relating to serious injuries from 2015 to 2020.

The collection of quantitative data relating to serious injuries were organised into respective categories for each jurisdiction (where available) as shown by Table 4.

Category	**Indicator**
Serious Injuries	Annual Serious Injures Casualties, Annual Serious Injury Crashes, 10,000 Registered Vehicles, 10,000 Licenses, 100,000 Population
Serious Injuries by Month of the Year	January, February, March, April, May, June, July, August, September, October, November, December
Serious Injuries by Day of the Week	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday
Serious Injuries by Time of Day	12:00AM to 3:59AM, 4:00AM to 7:59AM, 8:00AM to 11:59AM, 12:00PM to 3:59PM, 4:00PM to 7:59PM, 8:00PM to 11:59PM
Serious Injuries by Road User	Driver, Passenger, Motorcyclist, Motorcyclist Pillion Passenger, Pedestrian, Pedal Cyclist. Tram/Train, ATV Rider
Serious Injuries by Gender	Male, Female
Serious Injuries by Posted Speed Limit	≤ 40km/hr, 41 to 59km/hr, 60 to 79 km/hr, 80 to 99 km/hr, 100 to 109km/hr, ≥ 110 km/hr
Fatalities by Safety Devices	Seatbelt Restraint Not Used
Serious Injuries by License Type	Leaner, Provisional, Invalid
Serious Injuries by Behavioral Characteristics	Speeding, Drink Driving, Distracted/Inattentive Driving, Fatigued Driving

Table 4: Collection of Serious Injuries per Category

Data obtained from the Australian Road Deaths Database, relevant state or territory government agencies may contain entries categorised as 'missing', 'unclassified', 'undetermined', 'unspecified' or 'other'. These categorisations often arise from various factors, including confidentially concerns, data omissions in reports, or uncertainty on the part. For the purpose of this undergraduate research dissertation, unless stated otherwise, missing data will not be included in the analysis.

The categories chosen to collect and analyse in this undergraduate research dissertation provide an insight into road fatalities and serious injuries within Australia. This quantitative

data collection and analysis will allow industry professionals to make more informed decisions regarding road safety and ultimately accomplish the Australian Government's plan to achieve zero deaths and serious injuries on Australian roads by 2050.

4.2.2 Quantitative Data Analysis

The second step of the methodology approach is the detailed analysis of the quantitative data. Analysing the data prior to 2020 will assist in determining whether a trend was evident prior to COVID-19 and whether variation in 2020 road fatality and serious injury rates are significant. For this undergraduate research dissertation, significant variations must represent road fatalities or serious injuries rate changes of at least 15% during 2020 compared to 2019 and changes of at least 15% from the 2015-2018 to the 2015-2019 average. In situations where data sets are limited, it is important to note that variations in road fatalities or serious injuries may readily surpass the 15% threshold. Therefore, it becomes imperative to conduct a thorough examination of the actual data to determine whether the observed variance holds significance. The interpretation of the quantitative data and variations is used to complete the undergraduate research dissertation conclusion and recommendations.

The quantitative data analysis considers three variation calculations with the goal of identifying changes and patterns of road fatalities and serious injuries during COVID-19. The first calculation considers the variation in road fatalities or serious injuries in 2020 from 2019.

$$\frac{n^{2020} - n^{2019}}{n^{2019}}$$

Where:

- $n^{2020} = 2020\ value$
- $n^{2019} = 2019\ value$

This calculation aims to demonstrate the short-term variation between 2019 and 2020 as there would be limited changes in road safety infrastructure upgrades, traffic enforcement methods and vehicle upgrades that would significantly influence road fatality and serious injury rates. Instead, short term variations can highlight immediate changes that would be likely due to specific events or economics conditions such as COVID-19. These immediate changes can only be compared from one year to the next.

The second calculation considers the variation in road fatalities or serious injuries in 2019 from the 2015-2018 average.

$$\frac{n^{2019} - \frac{(n^{2015} + n^{2016} + n^{2017} + n^{2018})}{4}}{\frac{(n^{2015} + n^{2016} + n^{2017} + n^{2018})}{4}}$$

Where:

- $n^{2019} = 2019\ value$
- $n^{2018} = 2018\ value$
- $n^{2017} = 2017\ value$
- $n^{2016} = 2016\ value$
- $n^{2015} = 2015\ value$

This calculation aims to identify a baseline trend of road fatalities and serious injuries prior to 2020. Over time, there would be significant investments occur in road infrastructure, vehicle safety and traffic enforcement methods to improve road safety. This would affect the rates in which road fatalities and serious injuries occur. The variations identified in this analysis serve as critical indicators:

- If the variation demonstrates an increasing trend, it signifies a historical upward trajectory in road fatalities or serious injury rates.
- If the variation indicates a stable trend, it suggests that road fatalities or serious injury rates have exhibited neither a consistent increase nor decrease trend.
- If the variation demonstrates a decreasing trend, it signifies a historical downward trajectory in road fatality or serious injury rates.

The analysis of this data serves a valuable purpose, enabling industry professionals to recognise patterns in road fatality and serious injury rates. Furthermore, it facilitates the evaluation of the long-term efficiency of policies, programs, or strategies aimed at improving road safety.

The third calculation considers the variation in road fatalities or serious injuries in 2020 from the 2015-2019 average.

$$\frac{n^{2020} - \frac{(n^{2015} + n^{2016} + n^{2017} + n^{2018} + n^{2019})}{5}}{\frac{(n^{2015} + n^{2016} + n^{2017} + n^{2018} + n^{2019})}{5}}$$

Where:

- $n^{2019} = 2019\ value$
- $n^{2018} = 2018\ value$
- $n^{2017} = 2017\ value$
- $n^{2016} = 2016\ value$
- $n^{2015} = 2015\ value$

This calculation aims to determine if COVID-19 during 2020 exerted an influence on road fatalities or serious injuries compared to the past five-year average. The presence of a significant variation between this calculation and the previous would indicate that 2020 had an impact that altered the rates of road fatalities and serious injuries.

- If the variation between the two calculations demonstrates a substantial increase exceeding 15%, it signifies that there was an impactful factor in 2020 that contributed to an increased road fatalities and serious injuries rates.
- Should the variation remain relatively stable between the two calculations, it implies that there may have been a limited impact on road fatalities and serious injury rates. However, despite this stability, there were still influences on traffic volumes and the socioeconomic framework.
- If the variation between the two calculations demonstrates a substantial decrease exceeding 15%, it signifies that there was an impactful factor in 2020 that contributed to a decrease road fatalities and serious injuries rates.

This analysis serves as a crucial tool for evaluating the extent to which 2020 impacted road safety outcomes in terms of road fatalities and serious injuries.

4.2 Methodology Assumptions and Limitations

For this research methodology approach, a range of assumptions and limitations considered.

- It is assumed that all the data sourced from the Bureau of Infrastructure and Transport Research Economics and relevant state and territory government agencies is accurate and reliably recorded.
- It is assumed that all sourced data is consistently reported over the study period. Predominantly in terms of serious injuries data sourced from each relevant state and territory government agency as there is no nationally agreed definition.

- Occurrences of road crashes is embedded within a complex system that does not always hinge on a single causative factor as the exclusive reason for their occurrence. An inherent limitation of this undergraduate research dissertation lies in the isolated examination of the individual characteristics.
- An objective of this undergraduate research dissertation is to better understand how people and goods on Australian roads can significantly impact road user behaviour. To gain a better understanding, a qualitative research approach would also be appropriate. Understanding what Australian drivers' perceptions were during 2020 would provide an insight into the different road user behaviours that cannot be captured by road fatality and serious injury data. Due to the scope of the undergraduate research dissertation, completing a qualitative research approach would provide some limitations due to the unlikely access to sufficient sample populations across Australia to provide sufficient and unbiased reporting.

Chapter 5 – Results And Analysis

5.1 Introduction

Chapter 5 examines road fatality and serious injury data in Australia, as well as in each jurisdiction, to identify notable variations in 2020 compared to previous years.

5.2 Road Fatalities Analysis

5.2.1 Fatalities In Australia

The Australian Government's vision of achieving zero road fatalities and serious injuries on Australian roads by 2050 is a significant commitment. As depicted in Figure 17 and Figure 18, there were 1,097 road fatalities on Australian roads in 2020. This was 89 (-8%) less than in 2019 and 122 (-9%) less than the 2015 to 2019 average. After an examination, it is apparent that the influence of COVID-19 did not significantly impact annual road fatalities in Australia on a broader level.

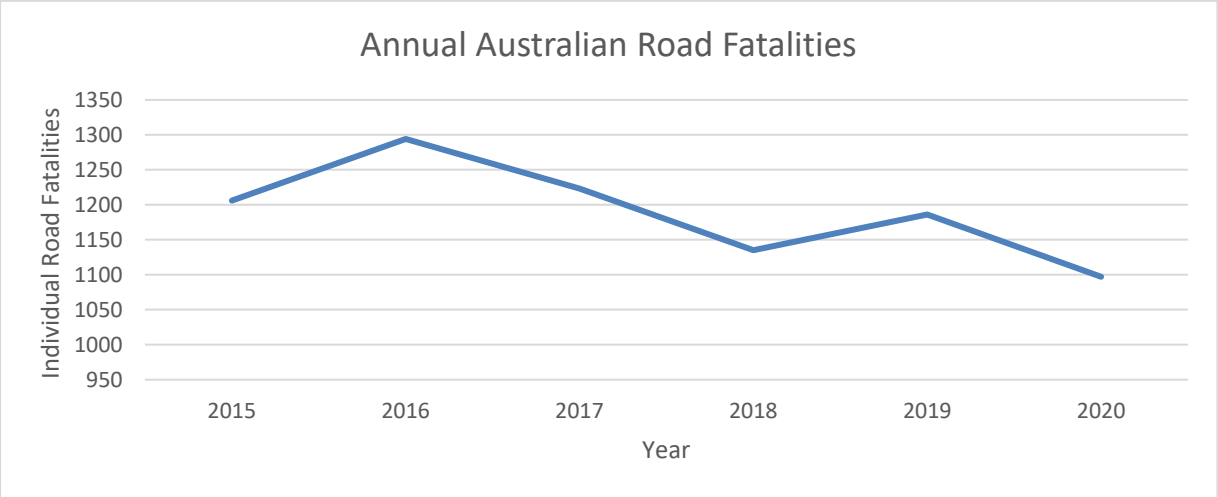

Figure 17: Annual Australian Road Fatalities (Bureau of Infrastructure and Transport Research Economics 2023)

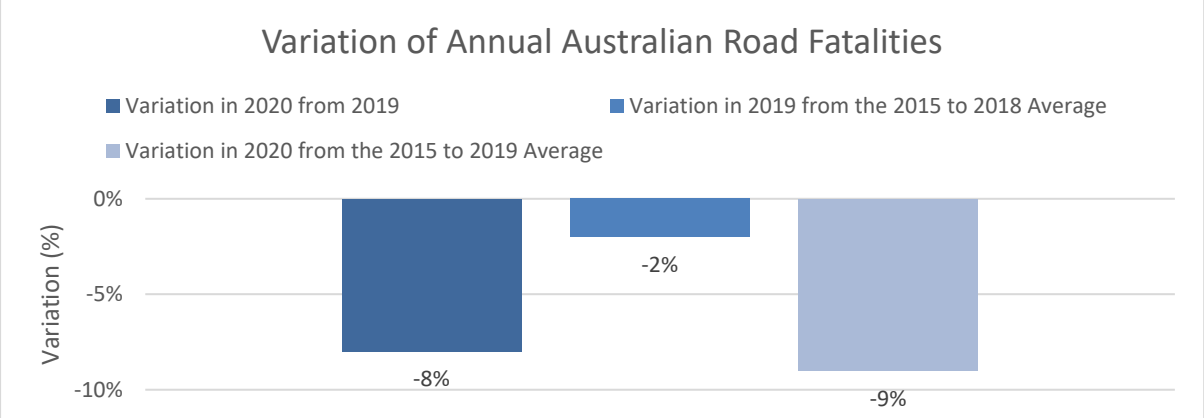

Figure 18: Variation of Annual Australian Road Fatalities (Bureau of Infrastructure and Transport Research Economics 2023)

While the reduction in annual road fatalities in Australia was insignificant, each jurisdiction exhibited varying road fatality rates in 2020 compared to previous years, as depicted in Figure 19.

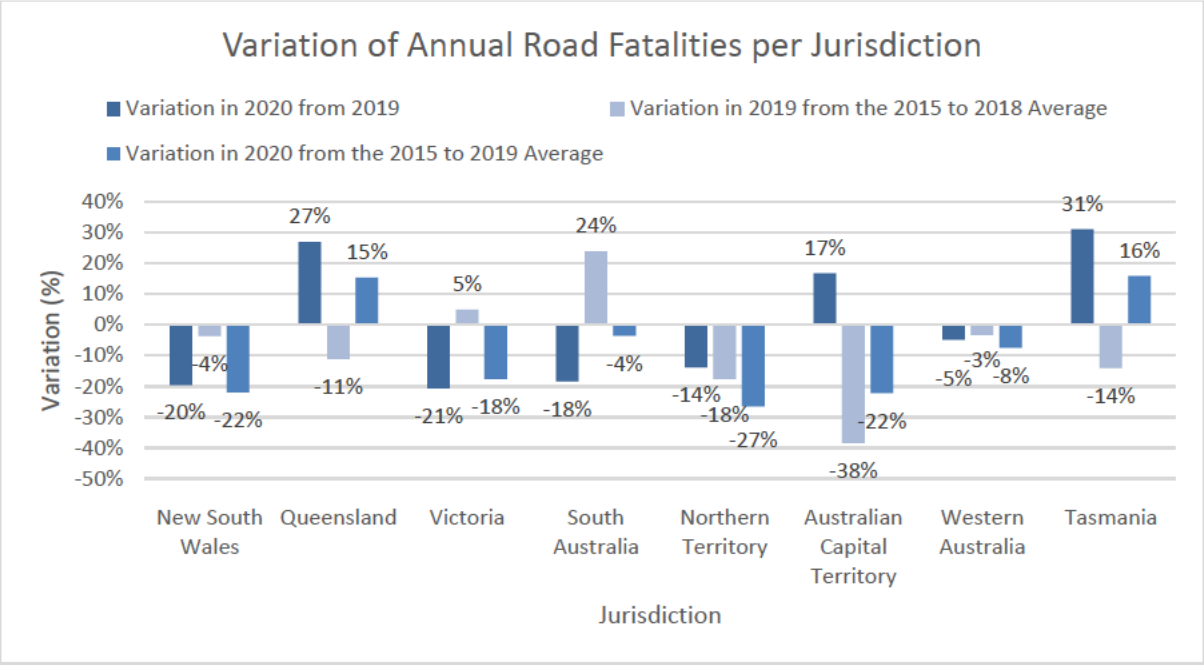

Figure 19: Variation of Annual Road Fatalities per Jurisdiction (Bureau of Infrastructure and Transport Research Economics 2023)

In New South Wales, Victoria, South Australia, Northern Territory, and Western Australia, each jurisdiction reported fewer road fatalities in 2020 compared to 2019. In the case of New South Wales, Northern Territory, and Western Australia, this decline remained consistent with the established trend of road fatality rates from prior years. Conversely, Victoria and South Australia experienced increasing road fatality rates before 2020. However, not all states observed a decline in road fatalities during 2020. Queensland, the Australian Capital Territory and Tasmania reported increased road fatalities compared to 2019. Previously, these jurisdictions had a declining trend in road fatalities before 2020.

A more detailed analysis of road fatalities in each jurisdiction is presented in Figure 20 and Figure 21. Figure 20 illustrates road fatalities per 10,000 registered vehicles by jurisdiction, showcasing a pattern similar to Figure 19.

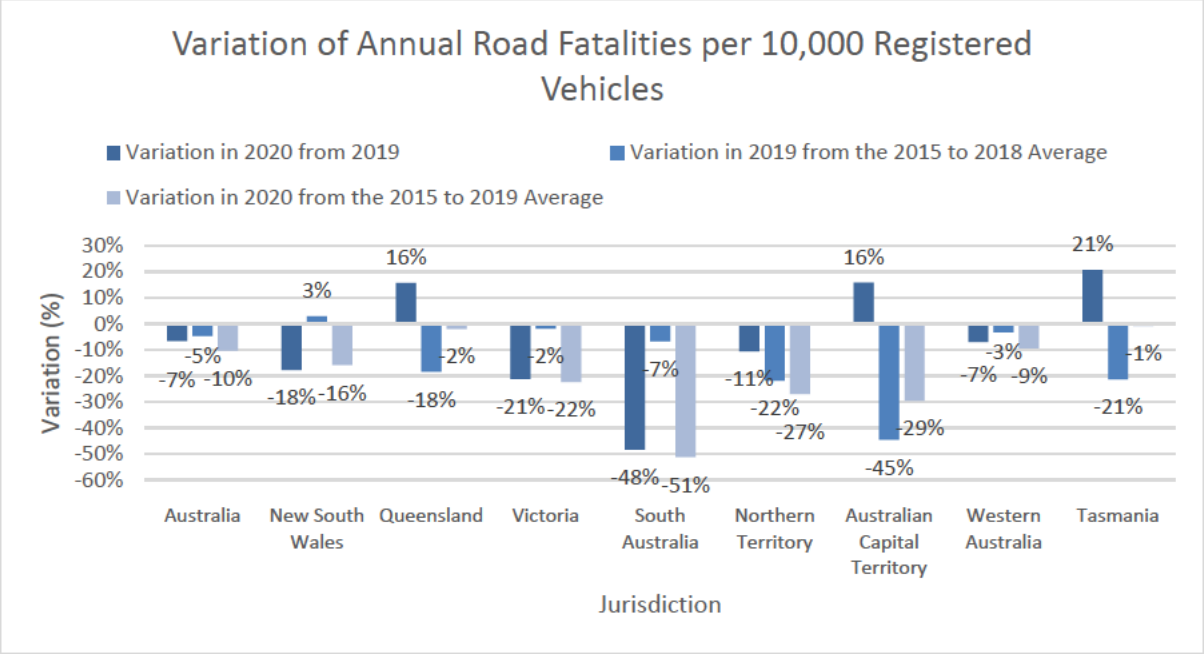

Figure 20: Variation of Annual Road Fatalities per 10,000 Registered Vehicles and Jurisdiction (Bureau of Infrastructure and Transport Research Economics 2022)

Figure 21 illustrates road fatalities per 100,000 population by jurisdiction, showcasing a pattern similar to Figure 19. The undergraduate research dissertation will provide a further in-depth analysis and discussion of the road fatalities for each jurisdiction during 2020 compared to prior years.

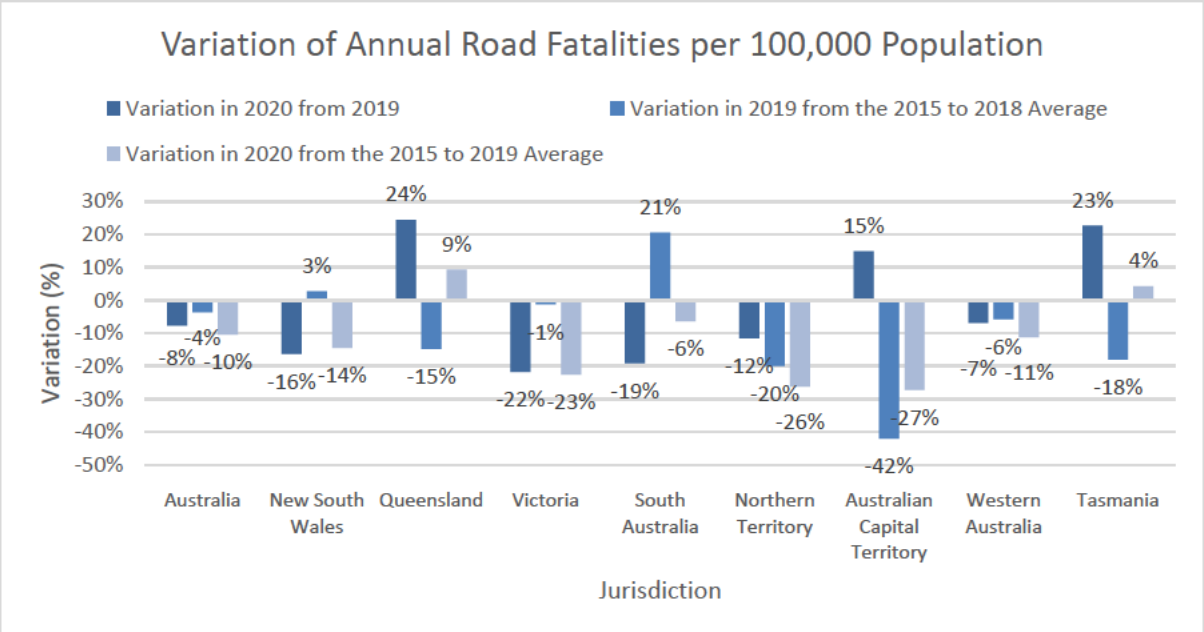

Figure 21: Variation of Annual Road Fatalities per 100,000 Population and Jurisdiction (Bureau of Infrastructure and Transport Research Economics 2022)

With the strict lockdown orders and restrictions that changed the movement of people and goods on Australian roads at the end of March 2020, a noticeable reduction in road fatalities is evident from April to June, as shown in Figure 22. The decline in road fatalities aligns with the implementation of stay-at-home orders nationwide, during which traffic decreased on average by 20% across all states and territories (Catchpole et al. 2020). Subsequently, as lockdown orders were lifted, traffic volumes returned to pre-COVID-19 levels. It is crucial to acknowledge the broader socioeconomic impacts that COVID-19 exerted throughout the remainder of the year.

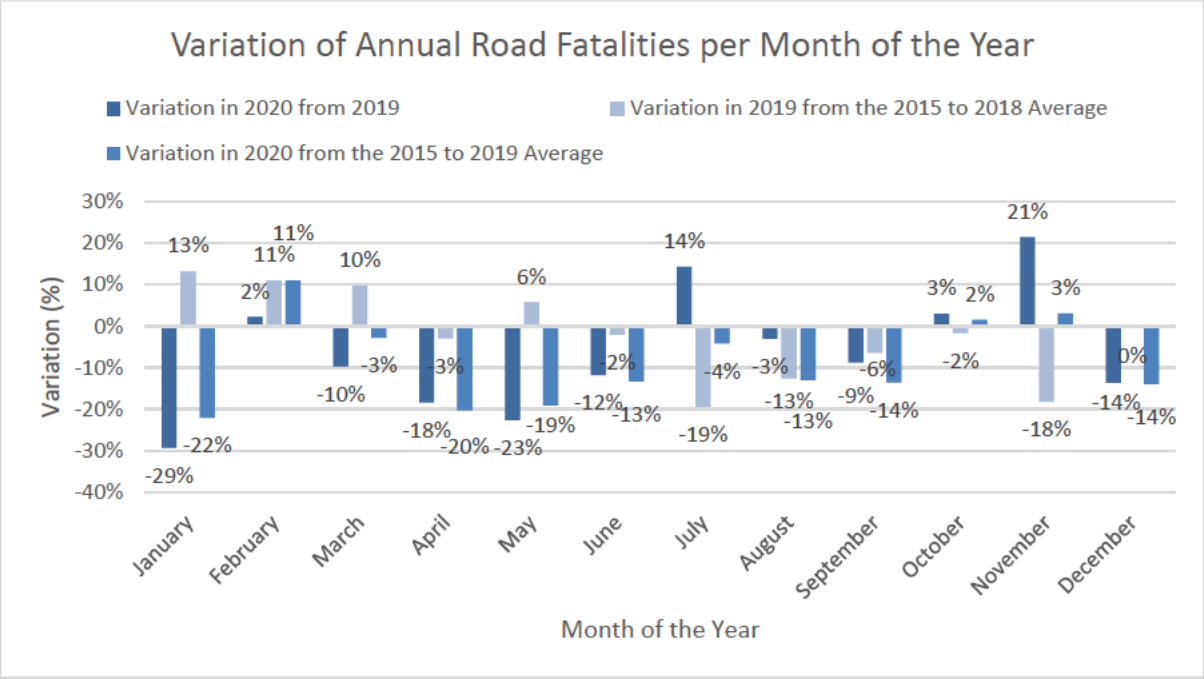

Figure 22: Variation of Annual Road Fatalities per Month of the Year (Bureau of Infrastructure and Transport Research Economics 2023)

- In April 2020, there were 80 road fatalities that occurred in Australia. This was 18 (18%) less than 2019 and 20 (20%) less than the 2015 to 2019 average. In comparison, in April 2019, Australia experienced 3 (3%) less road fatalities than the 2015 to 2018 average.
- In May 2020, there were 82 road fatalities that occurred in Australia. This was 24 (23%) less than 2019 and 19 (19%) less than the 2015 to 2019 average. In comparison, in May 2019, Australia experienced 6 (6%) more road fatalities than the 2015 to 2018 average.

- In November 2020, there were 102 road fatalities that occurred in Australia. This was 18 (21%) more than 2019 and 3 (3%) more than the 2015 to 2019 average. In comparison, in November 2019, Australia experienced 19 (18%) less road fatalities than the 2015 to 2018 average.

The significant reduction of road fatalities in April and May 2020 was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19 averaging about 20% across all states and territories. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.

The significant increase of road fatalities in November 2020 was likely due to the following factors.

- Following the relaxation of COVID-19 restrictions, an increased surge of non-essential travel would likely occur with individuals visiting family and friends. This would then lead to an increase in traffic volumes and consequently heightening the potential for road crashes.
- During the lockdowns, the reduced traffic on the roads and increased alcohol consumption may have contributed to the emergence of riskier road user behaviours. Furthermore, the persisting stress and anxiety stemming from the pandemic were likely ongoing factors in the continuation of such behaviours which likely increases the likelihood of road crashes.

The decline in road fatalities observed in January 2020, compared to 2019 and the 2015 to 2019 average, is noteworthy. However, it is important to contextualise this reduction within the broader impact COVID-19 had on road fatalities. Notably, this decrease in January occurred before COVID-19 lockdowns and restrictions.

Rather than reflecting the influence of COVID-19, it offers a prospective glimpse into the road fatality trends that might have prevailed if the pandemic had not occurred. All future discussions of significant road fatality variations in 2020 from prior years will not discuss the impact in January or February.

With road fatalities during the week, a trend emerges with weekdays having lowered road fatality rates. An exception to this trend is observed on Wednesday, with an increased rate during 2020, as shown in Figure 26.

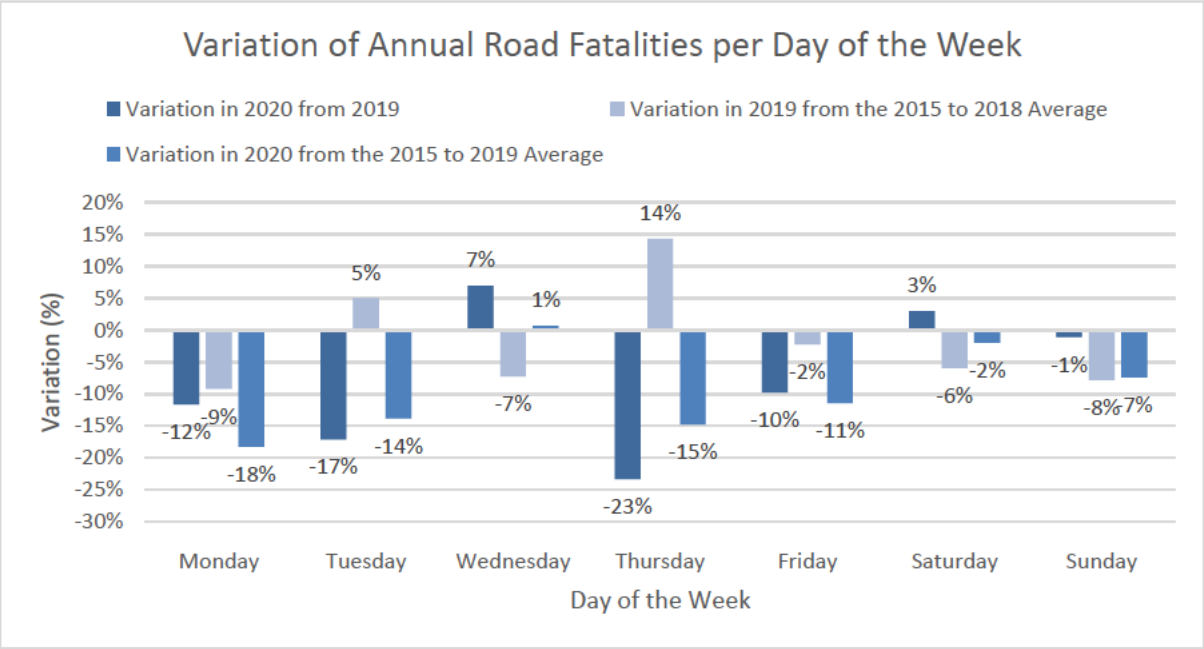

Figure 23: Variation of Annual Road Fatalities per Day of the Week (Bureau of Infrastructure and Transport Research Economics 2023)

- On Tuesdays during 2020, there were 131 road fatalities that occurred in Australia. This was 27 (17%) less than 2019 and 21 (14%) less than the 2015 to 2019 average. In comparison, on Tuesdays during 2019, Australia experienced 8 (5%) more road fatalities than the 2015 to 2018 average.
- On Thursdays during 2020, there were 135 road fatalities that occurred in Australia. This was 41 (23%) less than 2019 and 23 (15%) less than the 2015 to 2019 average. In comparison, on Thursdays during 2019, Australia experienced 22 (14%) more road fatalities than the 2015 to 2018 average.

The significant reduction of road fatalities in Australia on Tuesdays and Thursdays was likely due to the following factors:

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes.

COVID-19 brought significant changes to the way individuals travelled. Whether it be the reasoning for travel, methods of transportation or distance travelled, it all had an impact on road fatalities per road user, as illustrated in Figure 24. The only substantial increase in road fatalities was observed from motorcycle pillion passengers.

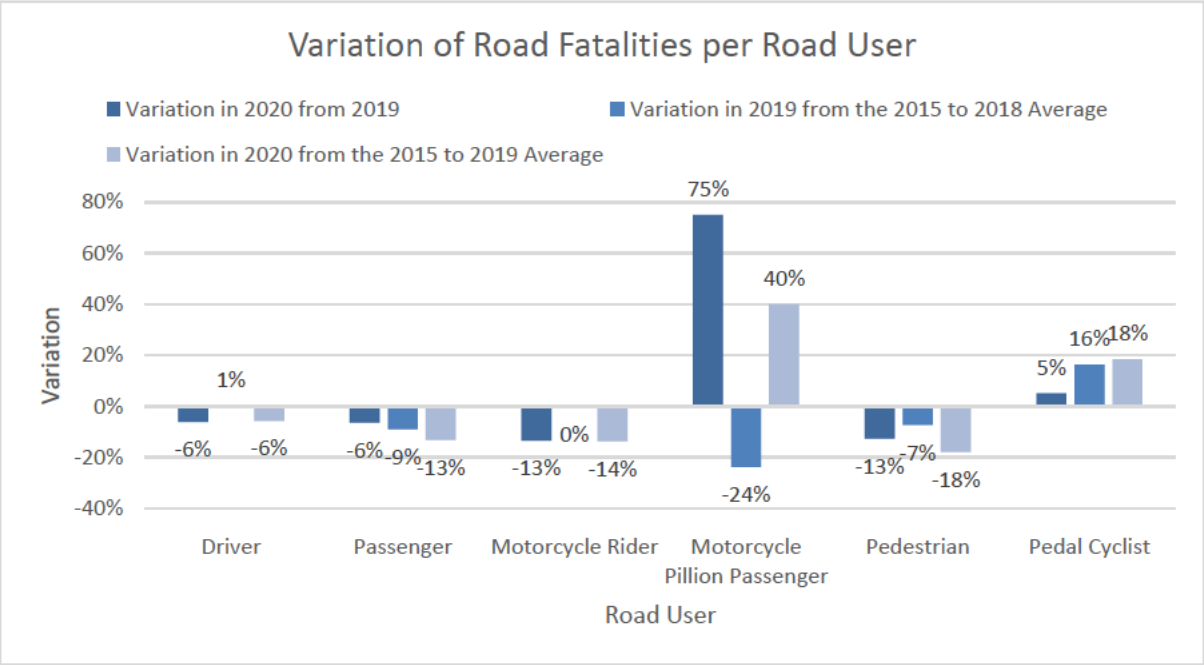

Figure 24: Variation of Road Fatalities per Road User (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there were 7 road fatalities that occurred in Australia from motorcycle pillion passengers. This was 3 (75%) more than 2019 and 2 (40%) more than the 2015 to 2019 average. In comparison, Australia experienced 1 (24%) less road fatality from motorcycle pillion passengers in 2019 than the 2015 to 2018 average.

The significant increase of road fatalities stemming from motorcycle pillion passengers was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19. When fewer vehicles are on the road, some riders tend to engage in more risky behaviour such as speeding and reckless driving. Riskier road user behaviour can increase the likelihood of road crashes, especially those involving motorcycle pillion passengers.
- Motorcycle sales during the pandemic still occurred as individuals would have been seeking alternative modes of transportation or pursue a new interest. This would bring an influx of new inexperienced riders and pillion passengers being involved in a road crash.
- During the initial stages of restrictions from COVID-19, motorcycle training services would have been closed or restricted in some regions. With new inexperienced riders, they would not have been able to receive the same level of training to build motorcycle skills and confidence on the roads as compared to prior years. This would increase the likelihood of inexperienced riders and pillion passengers being involved in a road crash.

Regardless of gender, all Australians experienced the same limiting factors that COVID-19 imposed. In 2020, male road fatalities had a decline in 2020, where historically male road fatalities had steadily increased from previous years. The opposite occurred for females. In 2020, female road fatalities had an increase in 2020, where historically female road fatalities had steadily decreased from previous years. Despite this, there was no significant variation in road fatalities that occurred in 2020 compared to prior years, as depicted by Figure 25.

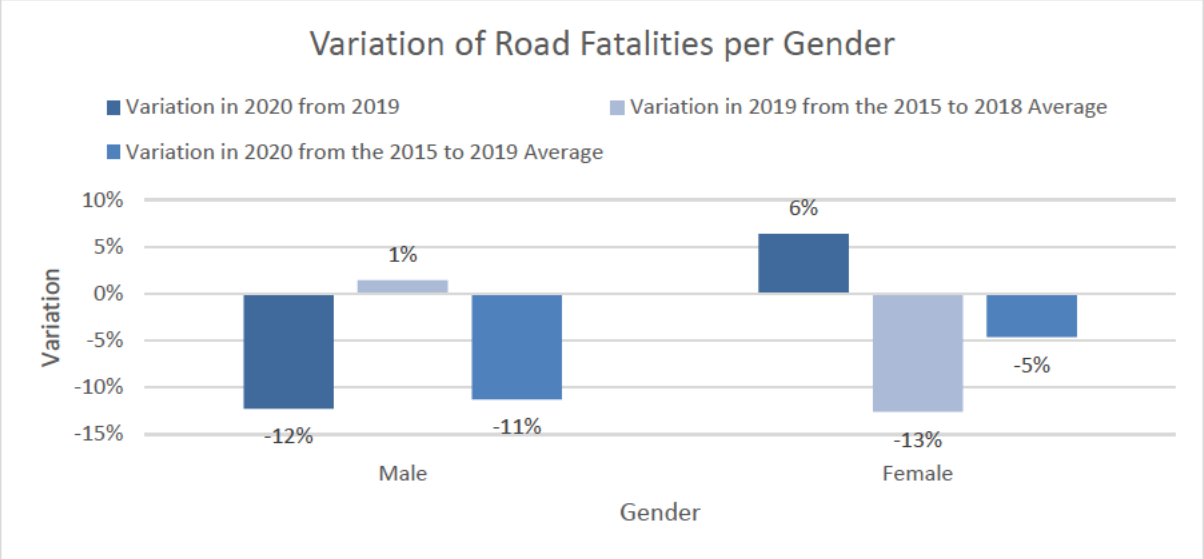

Figure 25: Variation of Road Fatalities per Gender (Bureau of Infrastructure and Transport Research Economics 2023)

Each age group had significant disruptions their usual routines which would have affected their mobility and risk to be involved in a car crash. In Australia, there was a significant increase in road fatalities for individuals aged 0 to 16 years old. In addition, there was a significant decrease in road fatalities for individuals aged over 65 years old.

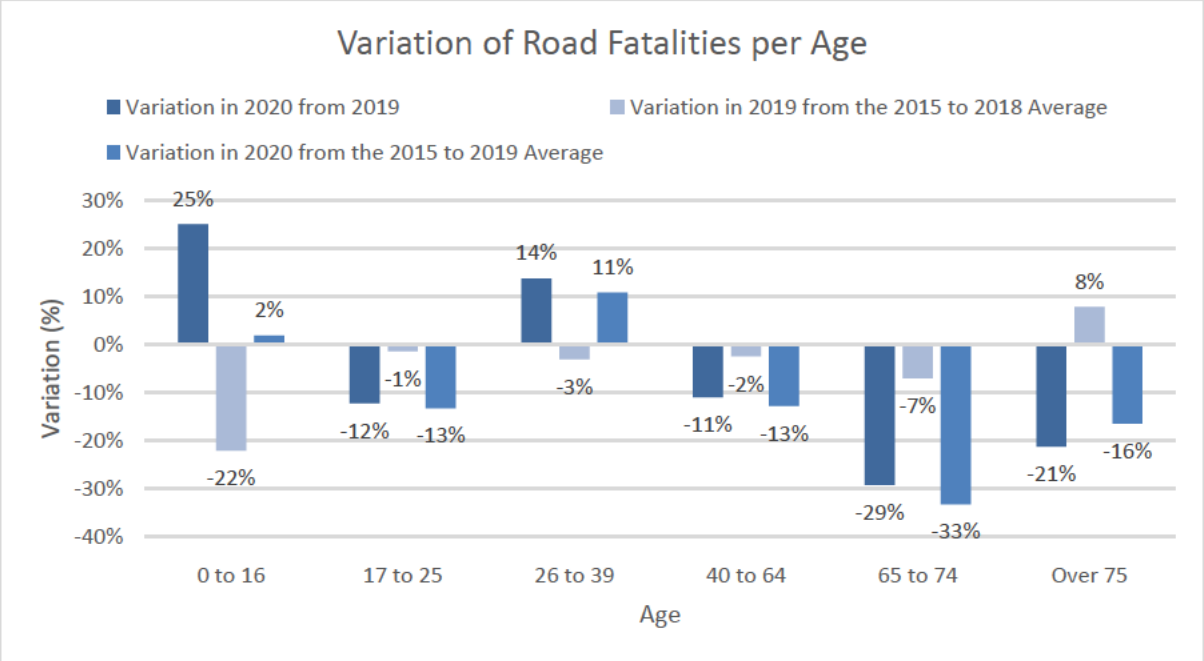

Figure 26: Variation of Road Fatalities per Age (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there were 55 road fatalities from individuals aged 0 to 16 years old in Australia. This was 11 (25%) more than 2019 and 1 (2%) more than the 2015 to 2019 average. In comparison, Australia experienced 13 (22%) less road fatalities from individuals aged 0 to 16 years old in 2019 than the 2015 to 2018 average.

- In 2020, there were 75 road fatalities from individuals aged 65 to 74 years old in Australia. This was 31 (29%) less than 2019 and 37 (33%) less than the 2015 to 2019 average. In comparison, Australia experienced 8 (7%) less road fatalities from individuals aged 65 to 74 years old in 2019 than the 2015 to 2018 average.
- In 2020, there were 133 road fatalities from individuals aged over 75 years old that in Australia. This was 36 (21%) less than 2019 and 26 (16%) less than the 2015 to 2019 average. In comparison, Australia experienced 12 (8%) more road fatalities from individuals aged over 75 years old in 2019 than the 2015 to 2018 average.

The significant increase in road fatalities for individuals aged 0 to 16 years old was likely due to the following factors.

- The restrictions put in place by Governments to reduce the spread of COVID-19 meant that the usual routines for families changed as children transitioned to remote learning and parents worked from home. When children would usually be at school or in after-school activities under direct supervision, children were at home with increased access to roadways, which would increase their likelihood of being involved in car crashes.
- During term 2, when schools transitioned to remote learning and parents worked similarly from home, children would find themselves with increased unsupervised time. The reduced supervision may have enabled children to be near roadways without parents noticing, increasing the likelihood of their involvement in car crashes.
- There was a significant increase in the uptake of bicycle riding during COVID-19. For children, this presented an alternative to indoor activities or public transportation. Increased bicycle riding in children would mean a higher likelihood of being involved in a car crash due to potential lack of experience and cycling infrastructure.
- Travel restrictions throughout Australia meant closing public places like playgrounds and sporting fields. This limiting access would likely mean children would have to play in areas closer to their homes, such as along roadways, increasing their likelihood of being involved in a road crash.

- Children are taught the importance of road safety and safe behaviours near roadways during school. With the significant disruption of the 2020 school year due to COVID-19, it was likely that road safety education was of little importance for schools. Instead, the importance of safe behaviours potentially focused on the safe conduct in mitigating the transmission of COVID-19.

The significant decrease in road fatalities for individuals aged over 65 years old was likely due to the following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant older individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

Throughout Australia, the most significant variation in road fatalities that occurred in 2020 were on roads with a posted speed limit of 40km/hr or 110km/hr, as shown in Figure 27.

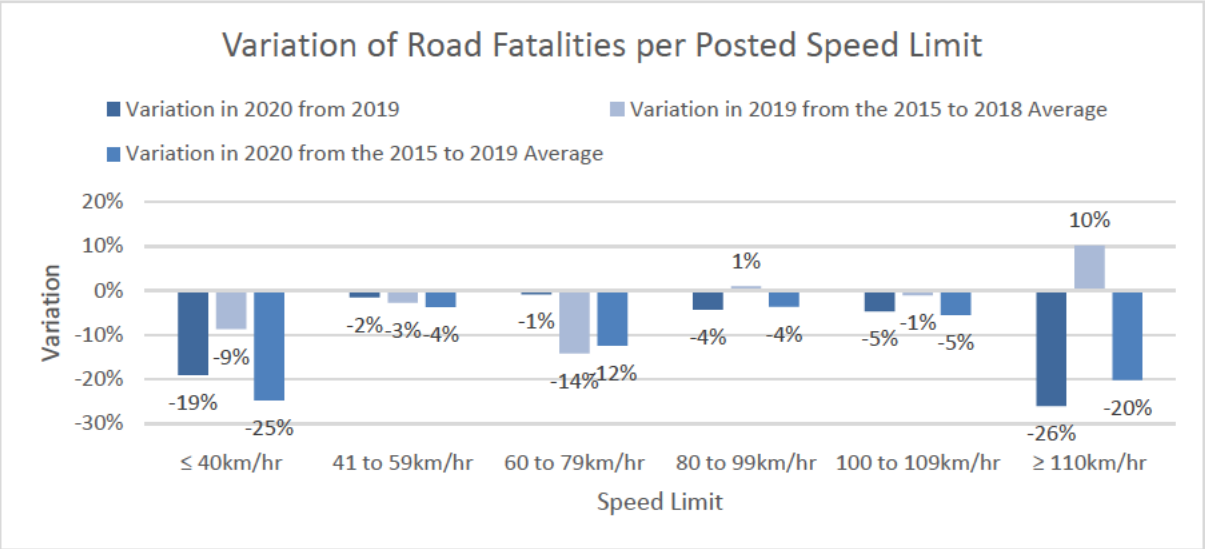

Figure 27: Variation of Road Fatalities per Posted Speed Limit (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there were 17 road fatalities on roads with a posted speed limit of 40km/hr in Australia. This was 4 (19%) less than 2019 and 6 (25%) less than the 2015 to 2019 average. In comparison, Australia experienced 2 (9%) less road fatalities on roads with a posted speed limit of 40km/hr in 2019 than the 2015 to 2018 average.
- In 2020, there were 139 road fatalities on roads with a posted speed limit of 110km/hr in Australia. This was 49 (26%) less than 2019 and 35 (20%) less than the 2015 to 2019 average. In comparison, Australia experienced 17 (10%) more road fatalities on roads with a posted speed limit of 110km/hr in 2019 than the 2015 to 2018 average.

The significant decrease in road fatalities that occurred on roads with a posted speed limit of 40km/hr and 110km/hr was likely due to the following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel outside their suburb, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes.

The strict mobility restrictions that occurred as a result of COVID-19 meant that Australians were travelling very different compared to previous years. Despite the changes in movement, there were less road fatalities from single vehicle crashes and more road fatalities from multiple vehicle crashes, as shown by Figure 28. Although both types of crashes did not significantly change in 2020 from prior years.

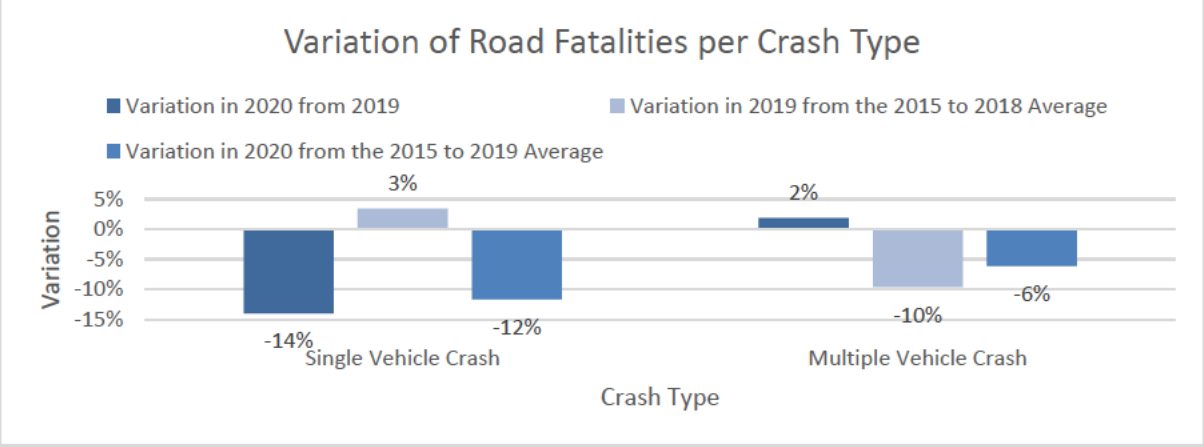

Figure 28: Variation of Road Fatalities per Crash Type (Bureau of Infrastructure and Transport Research Economics 2023)

A significant reduction of road fatalities occurred in remote regions of Australia in 2020 compared to previous years, as shown by Figure 29. Major cities, inner regional and outer regional regions had a decline in road fatalities during 2020. Historically, there was a gradual incline in trend for those regions. Very remote regions had an increase in road fatalities during 2020, which is consistent with the increasing trend from prior years.

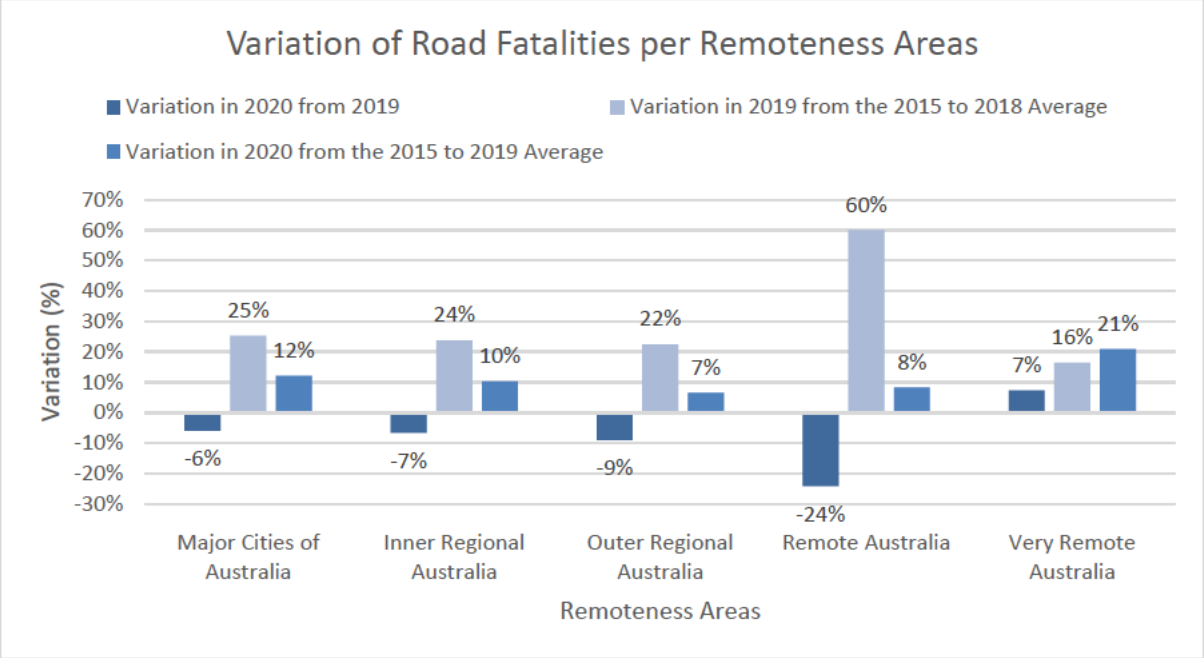

Figure 29: Variation of Road Fatalities per Remoteness Area (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there were 47 road fatalities in remote regions of Australia. This was 15 (24%) less than 2019 and 4 (8%) more than the 2015 to 2019 average. In comparison, remote regions of Australia experienced 23 (60%) more road fatalities in 2019 than the 2015 to 2018 average.

The significant reduction of road fatalities in remote regions of Australia was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in Australia.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips taken and consequently being involved in a road crash.

- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes.

Holiday periods signify a significant period for road fatalities and serious injuries in Australia, as shown in Figure 30. During the Easter period in 2020, which occurred in early April, there was a significant decrease in road fatalities compared to previous years. Alternatively, the Christmas period in late December had significantly increased road fatalities compared to previous years.

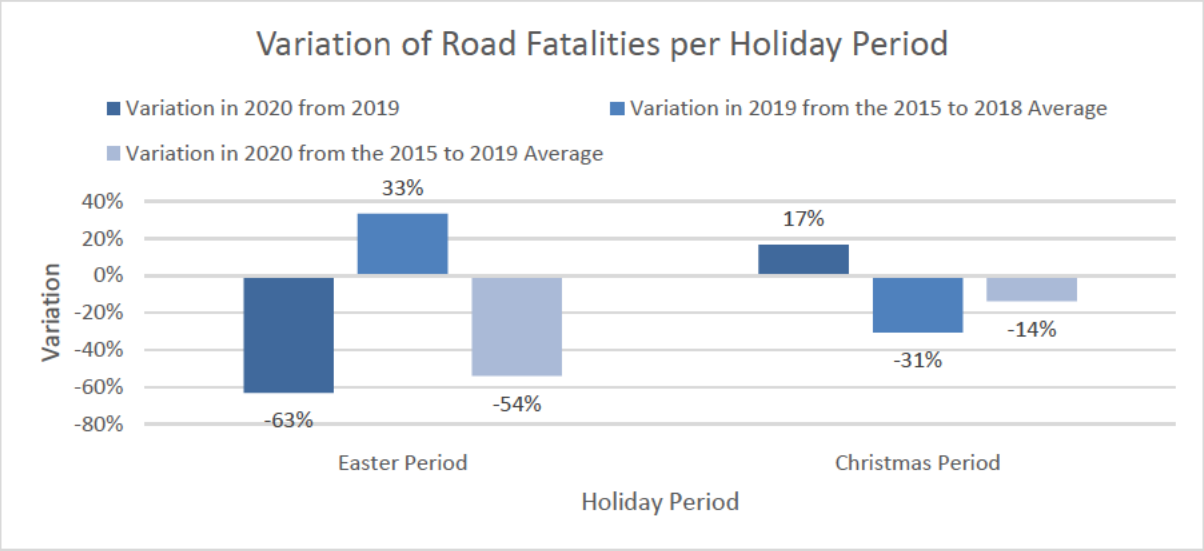

Figure 30: Variation of Road Fatalities per Holiday Period (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there were 7 road fatalities that occurred during the Easter holidays in Australia. This was 12 (63%) less than 2019 and 8 (54%) less than the 2015 to 2019 average. In comparison, Australia experienced 5 (33%) more road fatalities during the Easter holidays in 2019 than the 2015 to 2018 average.
- In 2020, there were 35 road fatalities that occurred during the Christmas holidays in Australia. This was 5 (17%) more than 2019 and 6 (14%) less than the 2015 to 2019 average. In comparison, Australia experienced 13 (31%) less road fatalities during the Christmas holidays in 2019 than the 2015 to 2018 average.

The significant reduction of road fatalities during the Easter holiday period was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes.
- For Easter 2020 only occurred a couple of weeks after the initial COVID-19 restrictions were mandated which would be a high influence in the reduction of road fatalities during the period.

The significant increase of road fatalities during the Christmas holiday period was likely due to the following factors.

- After long periods of lockdowns and restrictions, it would be expected that the pent up demand for individuals to see their friends and families would be significantly increased. This increased travel can result in more vehicles on the roads with a higher risk of a road crash occurring.
- There were reduced traffic volumes for the first three months of COVID-19. When fewer vehicles are on the road, some drivers and riders tend to engage in more risky road behaviours such as speeding and reckless driving. Riskier road user behaviour can increase the likelihood of road crashes.

In summary, significant variations in road fatalities throughout Australia during 2020 are showcased in Table 5.

Significant Increases:	• Month – November • Road User – Motorcycle Pillion Passenger • Age – 0 to 16 years old • Holiday Period - Christmas
Significant Decreases:	• Month – April, May • Day of the Week – Tuesday and Thursday • Age – 65 to 74 years old, over 75 years old • Posted Speed Limit – 40km/hr, 110km/hr • Remoteness Area – Remote Australia • Holiday Period - Easter

Table 5: Summary of Significant Variations of Road Fatalities in Australia

5.2.2 Road Fatalities in New South Wales

As depicted in Figure 31 and Figure 32, there were 284 road fatalities on New South Wales roads in 2020, which was 69 (20%) less than in 2019 and 80 (22%) less than the 2015 to 2019 average. After a comprehensive assessment, it is apparent that COVID-19 had a significant influence on road fatalities in New South Wales. Despite this, further analysis of additional road crash characteristics is still warranted.

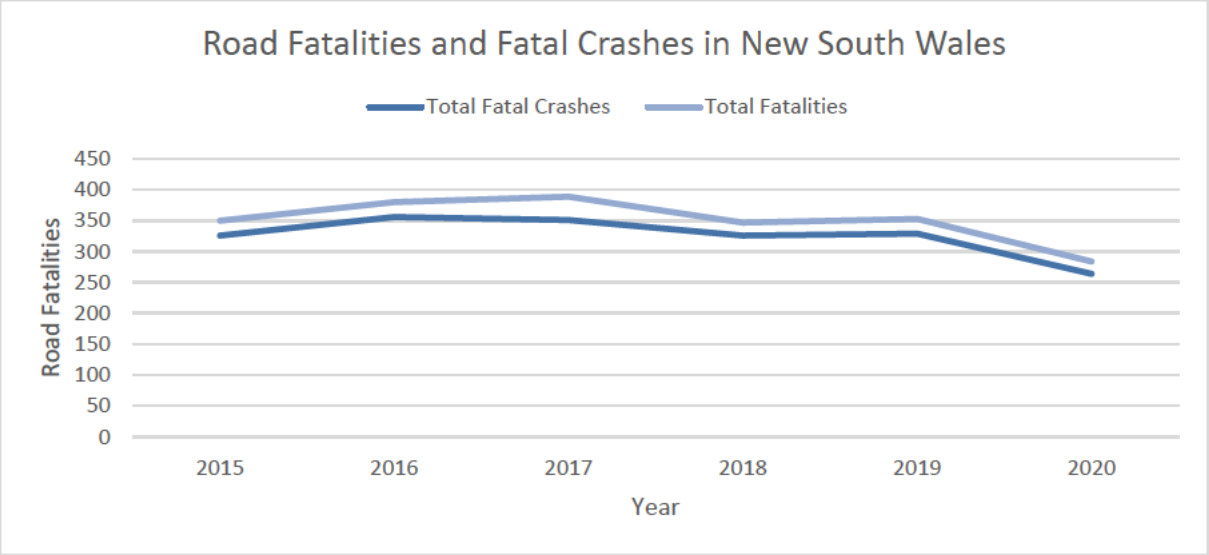

Figure 31: Road Fatalities and Fatal Crashes in New South Wales (Transport for NSW n.d. -a)

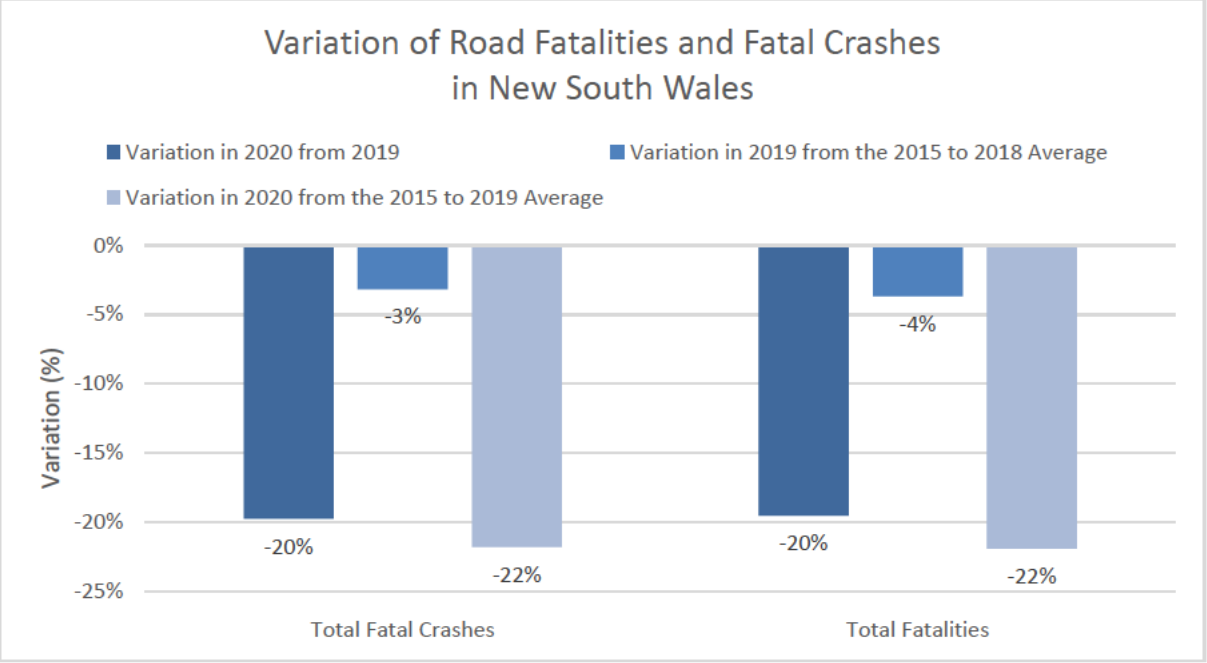

Figure 32: Variation of Road Fatalities and Fatal Crashes in New South Wales (Transport for NSW n.d. -a)

From the announcement of COVID-19 restrictions at the end of March 2020, it is notable that the reduction in road fatalities had a continuous trend throughout the remainder of the year, as shown by Figure 33. The only increased rate of road fatalities in New South Wales occurred in July. This could be due to the significant reduction of road fatalities that occurred in 2019 in comparison to previous years. So, the rate in 2020 is not as significant as a result. However, the July road fatality rates continued a downward trend from the 2015 to 2019 average.

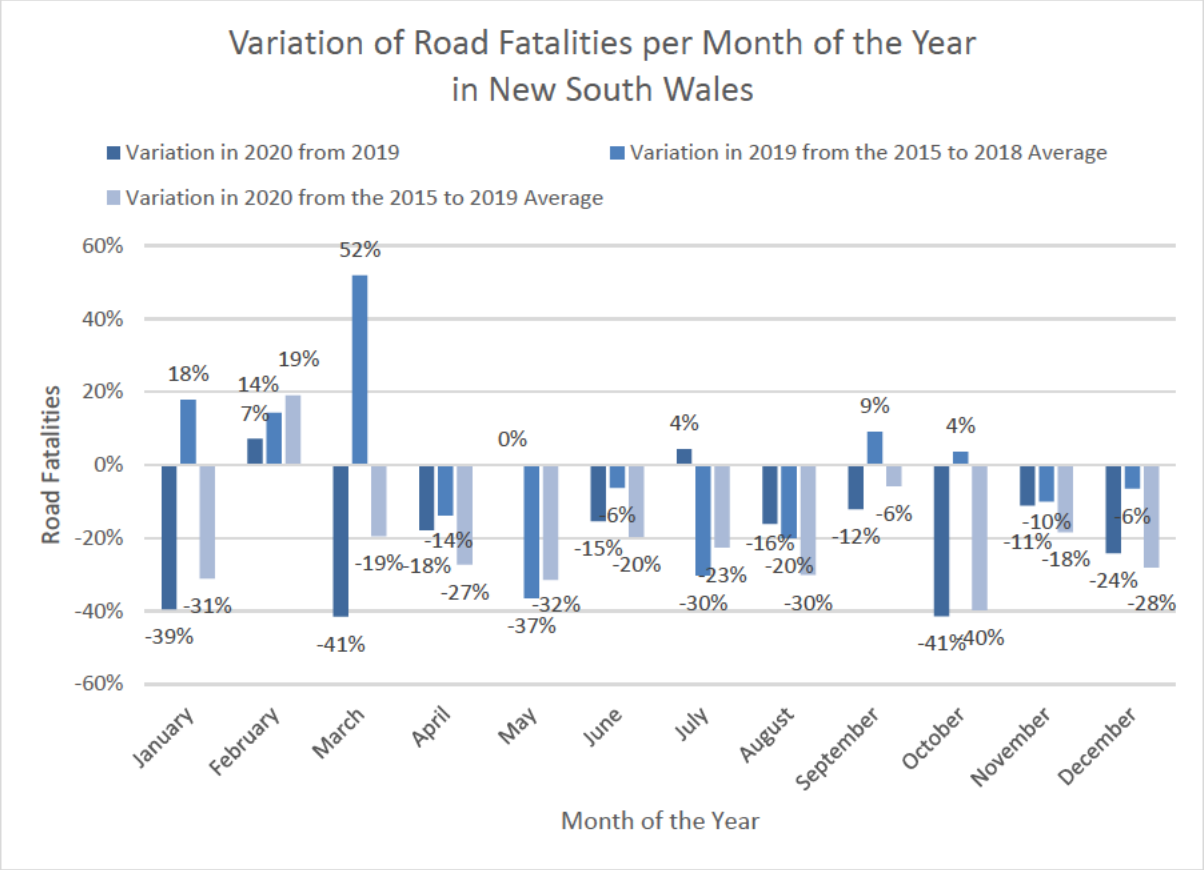

Figure 33: Variation of Road Fatalities per Month of the Year in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

In the variation between 2019 and the 2015 to 2019 average, the subsequent months exhibited significant declines in road fatality rates during 2020 in New South Wales.

- In March 2020, there were 24 road fatalities that occurred in New South Wales. This was 17 (41%) less than 2019 and 6 (19%) less than the 2015 to 2019 average. In comparison, in March 2019, New South Wales experienced 14 (52%) more road fatalities than the 2015 to 2018 average.

- In October 2020, there were 17 road fatalities that occurred in New South Wales. This was 12 (41%) less than 2019 and 11 (40%) less than the 2015 to 2019 average. In comparison, in October 2019, New South Wales experienced 1 (4%) more road fatality than the 2015 to 2018 average.
- In December 2020, there were 22 road fatalities that occurred in New South Wales. This was 7 (24%) less than 2019 and 9 (28%) less than the 2015 to 2019 average. In comparison, in December 2019, New South Wales experienced 2 (6%) less road fatalities than the 2015 to 2018 average.

The continued reduction of road fatalities in New South Wales after the commencement of COVID-19 is likely due to numerous factors. With the lockdowns, stay-at-home orders and travel restrictions the Government of New South Wales put in place during 2020, how individuals travelled significantly changed.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.

With the lockdowns, stay-at-home orders and travel restrictions put in place by the Government of New South Wales during 2020, there were significant impacts on the rate of road fatalities during the week, as shown in Figure 34. Every day of the week had reduced road fatality rates compared to 2019. Although, the most significant reduction in road fatality rates occurred on Tuesday, Thursday and Sunday.

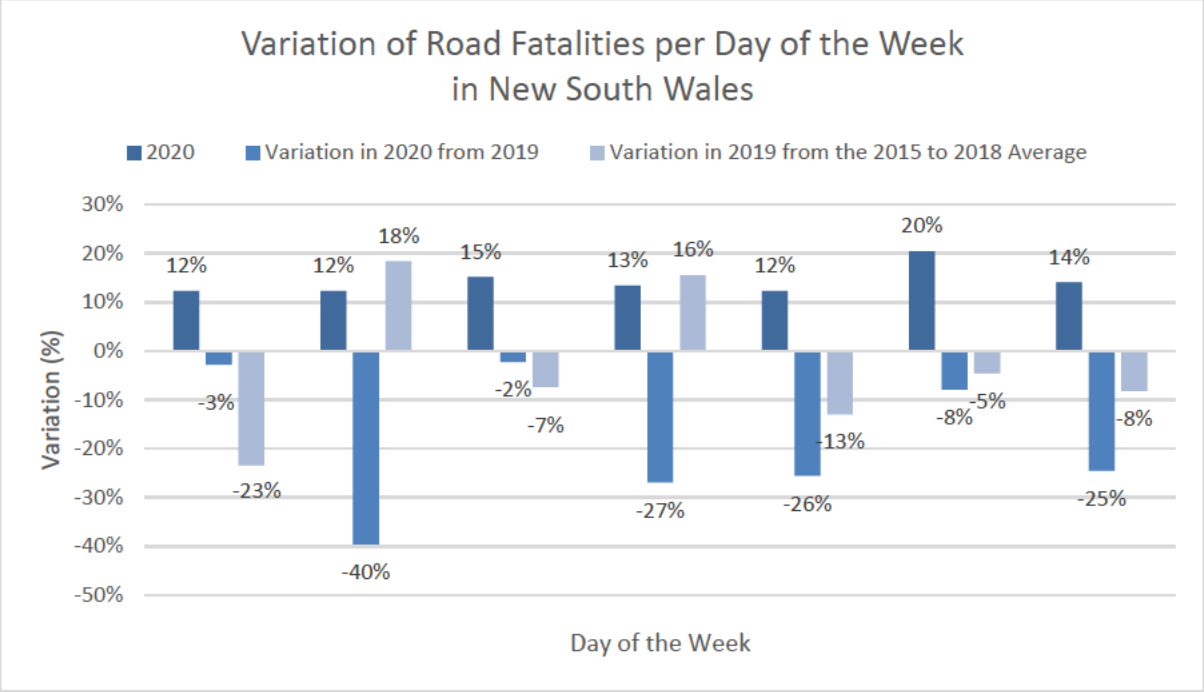

Figure 34: Variation of Road Fatalities per Day of the Week in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

In the variation between 2019 and the 2015 to 2019 average, the subsequent days of the week exhibited significant declines in road fatality rates during 2020 in New South Wales.

- In 2020, there were 35 road fatalities that occurred on Tuesday in New South Wales. This was 23 (40%) less than 2019 and 16 (31%) less than the 2015 to 2019 average. In comparison, on Tuesdays during 2019, New South Wales experienced 9 (18%) more road fatalities than the 2015 to 2018 average.
- In 2020, there were 38 road fatalities that occurred on Thursday in New South Wales. This was 14 (27%) less than 2019 and 8 (18%) less than the 2015 to 2019 average. In comparison, on Thursdays during 2019, New South Wales experienced 7 (16%) more road fatalities than the 2015 to 2018 average.
- In 2020, there were 40 road fatalities that occurred on Sunday in New South Wales. This was 13 (25%) less than 2019 and 17 (30%) less than the 2015 to 2019 average. In comparison, on Sundays during 2019, New South Wales experienced 5 (8%) less road fatalities than the 2015 to 2018 average.

The continued reduction of road fatalities in New South Wales across all days of the week is likely due to numerous factors. With the lockdowns, stay-at-home orders and travel restrictions the Government of New South Wales put in place during 2020, how individuals travelled significantly changed.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes.
- Venues had prevalent closures or limited operating capacity due to COVID-19 restrictions, which meant fewer individuals would attend these venues. Therefore, there would be less opportunity for road crashes relating to alcohol consumption or night time activities, which is prevalent in road crashes on weekends.
- Due to the heightened risk of transmission of COVID-19 during special events such as festivals or sports games, many special events were cancelled or postponed. From the crowd levels, it meant that special events led to increased traffic during the event. The postponement and cancellation of many special events in New South Wales likely led to decreased road crashes.

With the lockdowns, stay-at-home orders and travel restrictions put in place by the Government of New South Wales during 2020, there were significant shifts in road fatalities rates at different times of the day, as shown in Figure 35Figure 34. The most substantial reduction in road fatalities was observed during timeframes when road crashes are statistically more likely to occur, specifically during the early hours and commuting hours.

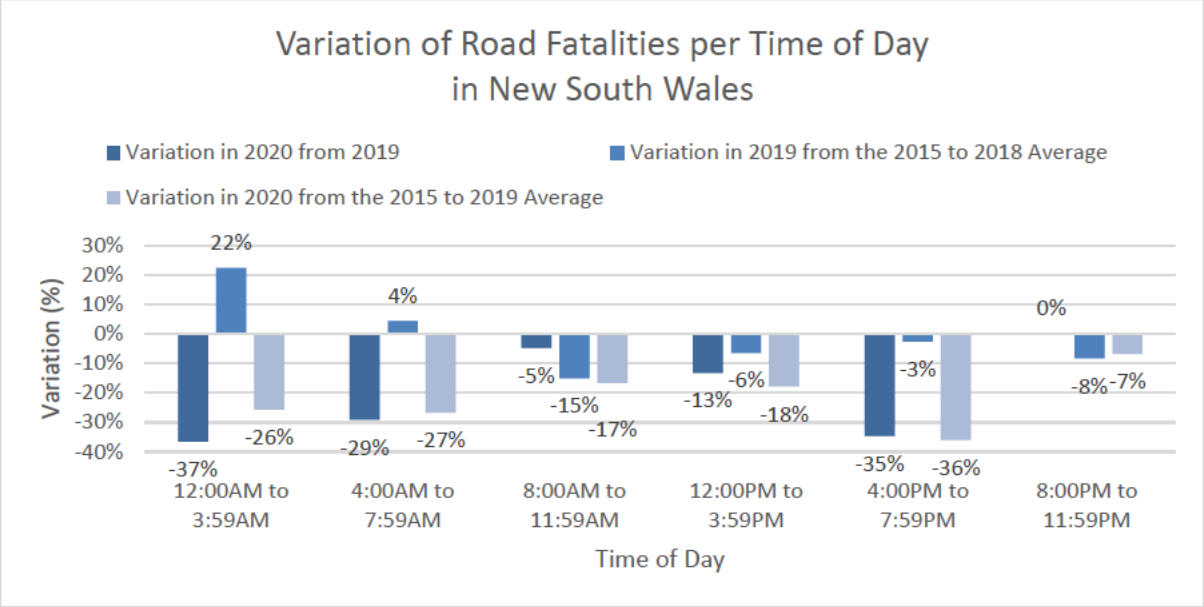

Figure 35: Variation of Road Fatalities per Time of Day in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

In the variation between 2019 and the 2015 to 2019 average, the subsequent times of day exhibited significant declines in road fatality rates during 2020 in New South Wales.

- In 2020, there were 26 road fatalities that occurred during 12:00AM to 3:59AM in New South Wales. This was 15 (37%) less than 2019 and 9 (26%) less than the 2015 to 2019 average. In comparison, during 12:00AM to 3:59AM in 2019, New South Wales experienced 8 (22%) more road fatalities than the 2015 to 2018 average.
- In 2020, there were 34 road fatalities that occurred during 4:00AM to 7:59AM in New South Wales. This was 14 (29%) less than 2019 and 12 (27%) less than the 2015 to 2019 average. In comparison, during 4:00AM to 7:59AM in 2019, New South Wales experienced 2 (4%) more road fatalities than the 2015 to 2018 average.
- In 2020, there were 49 road fatalities that occurred during 4:00PM to 7:59PM in New South Wales. This was 26 (35%) less than 2019 and 28 (36%) less than the 2015 to 2019 average. In comparison, during 4:00PM to 7:59PM in 2019, New South Wales experienced 2 (3%) less road fatalities than the 2015 to 2018 average.

The significant reduction of road fatalities in New South Wales during 12:00AM to 3:59AM, 4:00AM to 7:59AM & 4:00PM to 7:59PM was likely due to following factors.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales. It would mean the likelihood of collisions with other vehicles would decrease.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Venues had prevalent closures or limited operating capacity due to COVID-19 restrictions, which meant fewer individuals would attend these venues. Therefore, there would be less opportunity for road crashes relating to alcohol consumption or night time activities, which is prevalent in road crashes on weekends.
- Due to the heightened risk of transmission of COVID-19 during special events such as festivals or sports games, many special events were cancelled or postponed. From the crowd levels, it meant that special events led to increased traffic during the event. The postponement and cancellation of many special events in New South Wales likely led to decreased road crashes.

COVID-19 brought significant changes to the way individuals travel in New South Wales. Whether it be the reasoning for travel, methods of transportation or distance travelled, it all had a significant impact on road fatalities per road users. The most substantial reduction in road fatalities was observed from drivers, passengers, motorcyclists and motorcycle pillion passengers, as shown in Figure 36.

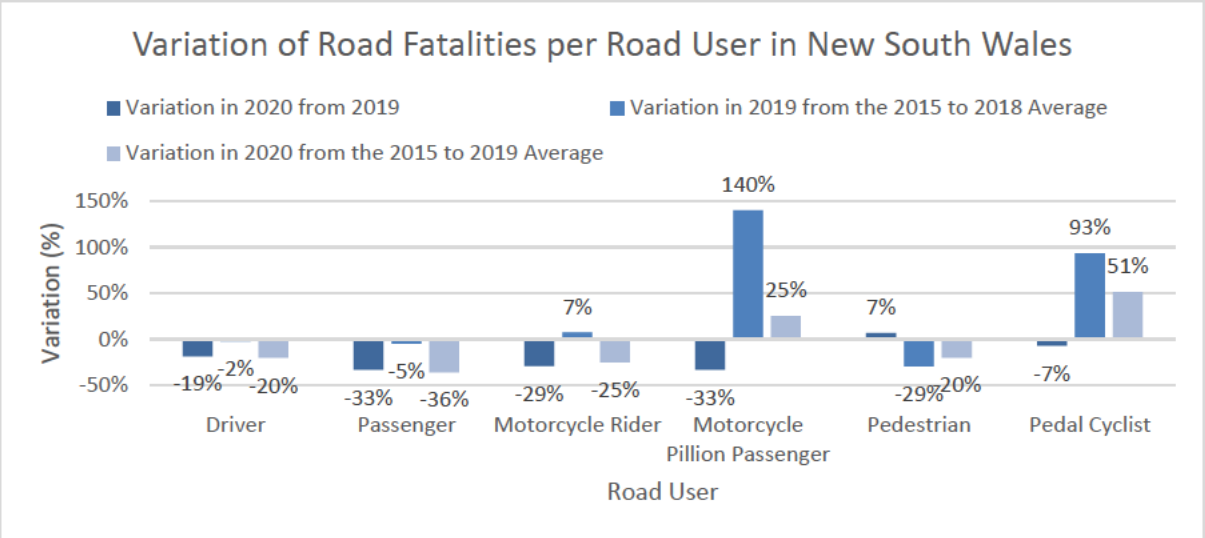

Figure 36: Variation of Road Fatalities per Road User in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

In the variation between 2019 and the 2015 to 2019 average, the subsequent road user exhibited significant declines in road fatality rates during 2020 in New South Wales.

- In 2020, there were 135 road fatalities who were drivers that occurred in New South Wales. This was 31 (19%) less than 2019 and 34 (20%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 4 (2%) less road fatalities who were drivers in 2019 than the 2015 to 2018 average.
- In 2020, there were 40 road fatalities who were passengers that occurred in New South Wales. This was 20 (33%) less than 2019 and 23 (36%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 3 (5%) less road fatalities who were passengers in 2019 than the 2015 to 2018 average.
- In 2020, there were 46 road fatalities who were motorcyclists that occurred in New South Wales. This was 19 (29%) less than 2019 and 15 (25%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 5 (7%) more road fatalities who were motorcyclists in 2019 than the 2015 to 2018 average.
- In 2020, there were 2 road fatalities who were motorcycle pillion passengers that occurred in New South Wales. This was 1 (33%) less than 2019.

The significant reduction of road fatalities in New South Wales for drivers, passengers, motorcyclists and motorcycle pillion passengers was likely due to following factors.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Venues had prevalent closures or limited operating capacity due to COVID-19 restrictions, which meant fewer individuals would attend these venues. Therefore, there would be less opportunity for road crashes relating to alcohol consumption or night time activities, which is prevalent in road crashes on weekends.

- Due to the heightened risk of transmission of COVID-19 during special events such as festivals or sports games, many special events were cancelled or postponed. From the crowd levels, it meant that special events led to increased traffic during the event. The postponement and cancellation of many special events in New South Wales likely led to decreased road crashes.
- To reduce the risk of transmission of COVID-19, social distancing measures were encouraged. Individuals were advised to minimise contact with individuals outside their household. With the reduction of road mobility and the combination of social distancing measures, it would mean that fewer instances of transportation sharing would be occurring and therefore less likely for passengers or motorcycle pillion passengers to be involved in a road crash.
- Due to the stringent messaging of safety measures to the Australian public, it is likely that individuals became more conscious of safety which led to safer driving and riding practices which would reduce the likelihood of being involved in a road crash.

Regardless of gender, all Australians experienced the same limiting factors that COVID-19 imposed. Generally, male drivers are more likely to engage in riskier road user behaviours compared to female drivers. In New South Wales, the most substantial reduction in road fatalities per gender was observed by men, as shown in Figure 37.

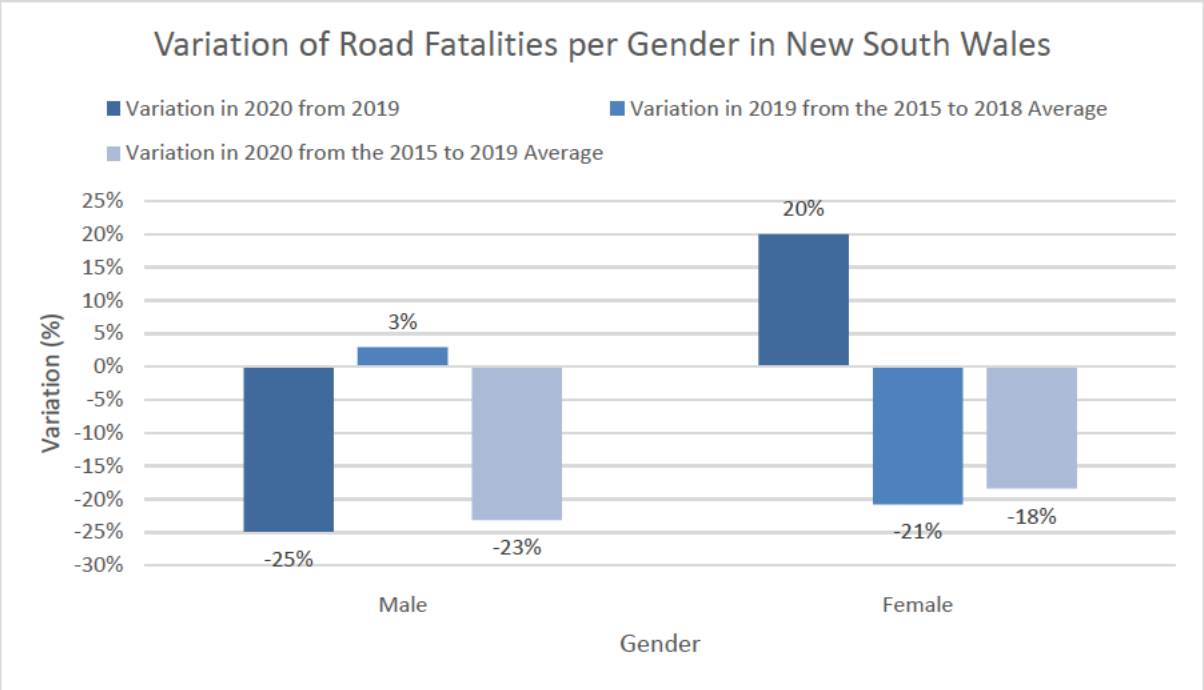

Figure 37: Variation of Road Fatalities per Gender in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

In the variation between 2019 and the 2015 to 2019 average, the male road users exhibited significant declines in road fatality rates during 2020 in New South Wales.

- In 2020, there were 205 male road fatalities that occurred in New South Wales. This was 68 (25%) less than 2019 and 62 (23%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 8 (3%) more male road fatalities in 2019 than the 2015 to 2018 average.

The significant reduction of male road fatalities in New South Wales was likely due to following factors.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Venues had prevalent closures or limited operating capacity due to COVID-19 restrictions, which meant fewer individuals would attend these venues. Therefore, there would be less opportunity for road crashes relating to alcohol consumption or night time activities, which is prevalent in road crashes on weekends.
- Due to the heightened risk of transmission of COVID-19 during special events such as festivals or sports games, many special events were cancelled or postponed. From the crowd levels, it meant that special events led to increased traffic during the event. The postponement and cancellation of many special events in New South Wales likely led to decreased road crashes.

Each age group had significant disruptions to their usual routines which would have affected their mobility and risk to be involved in a road crash. In New South Wales, the most substantial reduction in road fatalities per age was observed in individuals aged less than 16 years old and individuals aged more than 40 years old, as shown in Figure 38.

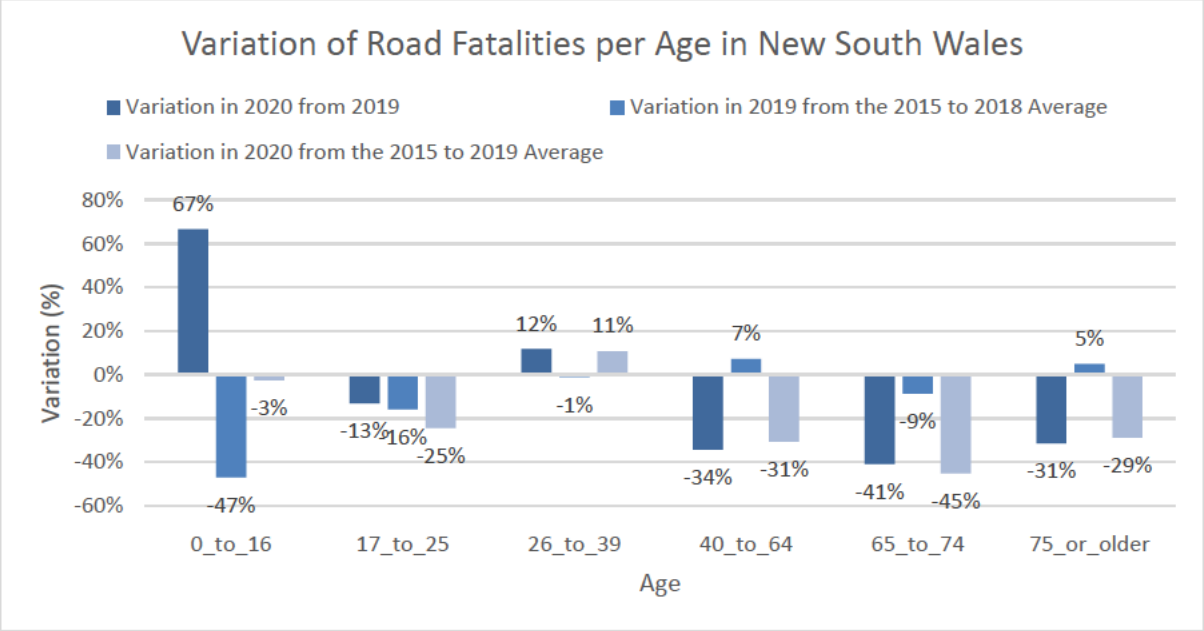

Figure 38: Variation of Road Fatalities per Age in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there were 15 road fatalities involving individuals aged 0 to 16 years old in New South Wales. This was 6 (67%) more than 2019 and then remained consistent with the 2015 to 2019 average. In comparison, New South Wales experienced 8 (47%) less road fatalities involving individuals aged 0 to 16 years old in 2019 than the 2015 to 2018 average.
- In 2020, there were 80 road fatalities involving individuals aged 40 to 64 years old that occurred in New South Wales. This was 42 (34%) less than 2019 and 35 (31%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 8 (7%) more road fatalities involving individuals aged 40 to 64 years old in 2019 than the 2015 to 2018 average.
- In 2020, there were 23 road fatalities involving individuals aged 65 to 74 years old that occurred in New South Wales. This was 16 (41%) less than 2019 and 35 (31%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 4 (9%) less road fatalities involving individuals aged 65 to 74 years old in 2019 than the 2015 to 2018 average.
- In 2020, there were 37 road fatalities involving individuals aged over 75 years old that occurred in New South Wales. This was 17 (31%) less than 2019 and 15 (29%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 3 (5%) more road fatalities involving individuals aged over 75 years old in 2019 than the 2015 to 2018 average.

The significant increase of road fatalities of individuals aged 0 to 16 years old in New South Wales was likely due to following factors.

- The restrictions put in place by Governments to reduce the spread of COVID-19 meant that the usual routines for families changed as children transitioned to remote learning and parents worked from home. When children would usually be at school or in after-school activities under direct supervision, children were at home with increased access to roadways, which would increase their likelihood of being involved in car crashes.
- During term 2, when schools transitioned to remote learning and parents worked similarly from home, children would find themselves with increased unsupervised time. The reduced supervision may have enabled children to be near roadways without parents noticing, increasing the likelihood of their involvement in car crashes.
- There was a significant increase in the uptake of bicycle riding during COVID-19. For children, this presented an alternative to indoor activities or public transportation. Increased bicycle riding in children would mean a higher likelihood of being involved in a car crash due to potential lack of experience and cycling infrastructure.
- Travel restrictions throughout Australia meant closing public places like playgrounds and sporting fields. This limiting access would likely mean children would have to play in areas closer to their homes, such as along roadways, increasing their likelihood of being involved in a road crash.
- Children are taught the importance of road safety and safe behaviours near roadways during school. With the significant disruption of the 2020 school year due to COVID-19, it was likely that road safety education was of little importance for schools. Instead, the importance of safe behaviours shifted to safe conduct in mitigating the transmission of COVID-19.

The significant reduction of road fatalities of individuals aged over 40 years old in New South Wales was likely due to following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.

- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant older individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

In New South Wales, the most substantial reduction in road fatalities per posted speed limit was observed on roads where speeds were either 80 to 99km/hr or 110km/hr, as shown in Figure 39.

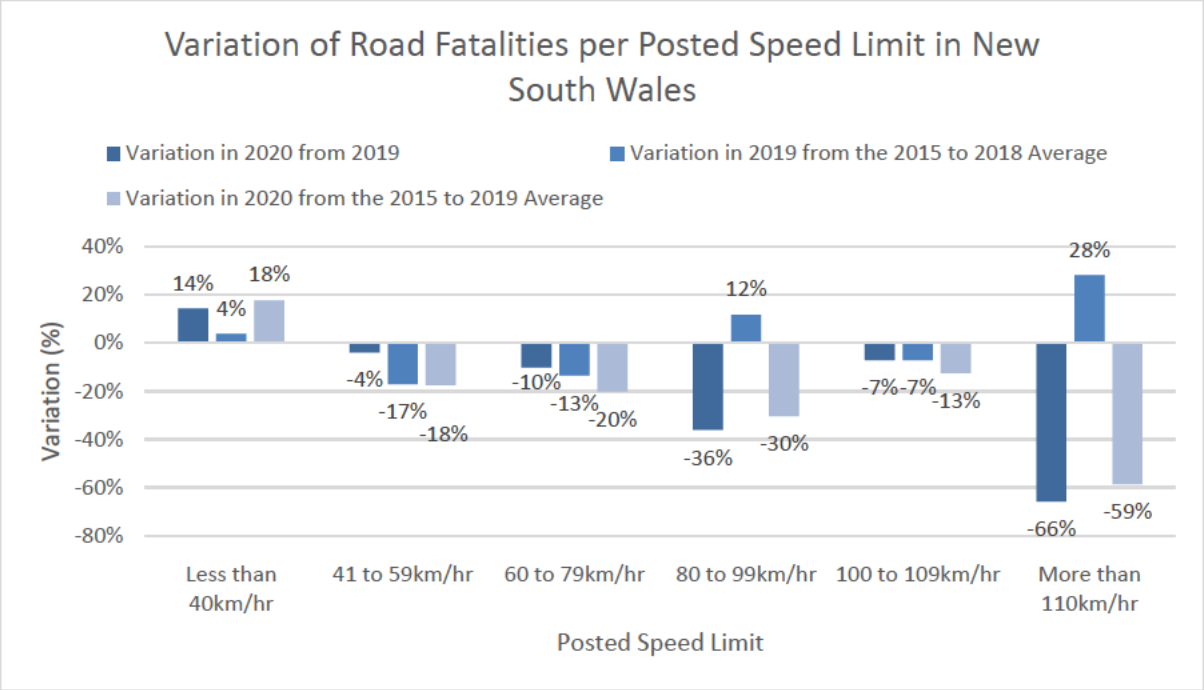

Figure 39: Variation of Road Fatalities per Posted Speed Limit in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there were 46 road fatalities where the posted speed limit was 80 to 99km/hr in New South Wales. This was 26 (36%) less than 2019 and 20 (30%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 8 (12%) more road fatalities where the posted speed limit was 80 to 99km/hr in 2019 than the 2015 to 2018 average.

- In 2020, there were 14 road fatalities where the posted speed limit was 110km/hr in New South Wales. This was 27 (66%) less than 2019 and 20 (59%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 9 (28%) more road fatalities where the posted speed limit was 110km/hr in 2019 than the 2015 to 2018 average.

The significant reduction of road fatalities where the posted speed limit was 80 to 99km/hr or 110km/hr in New South Wales was likely due to following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel outside their suburb, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes.

In New South Wales, the most substantial reduction in road fatalities per crash type was for single vehicle crashes, as shown in Figure 40.

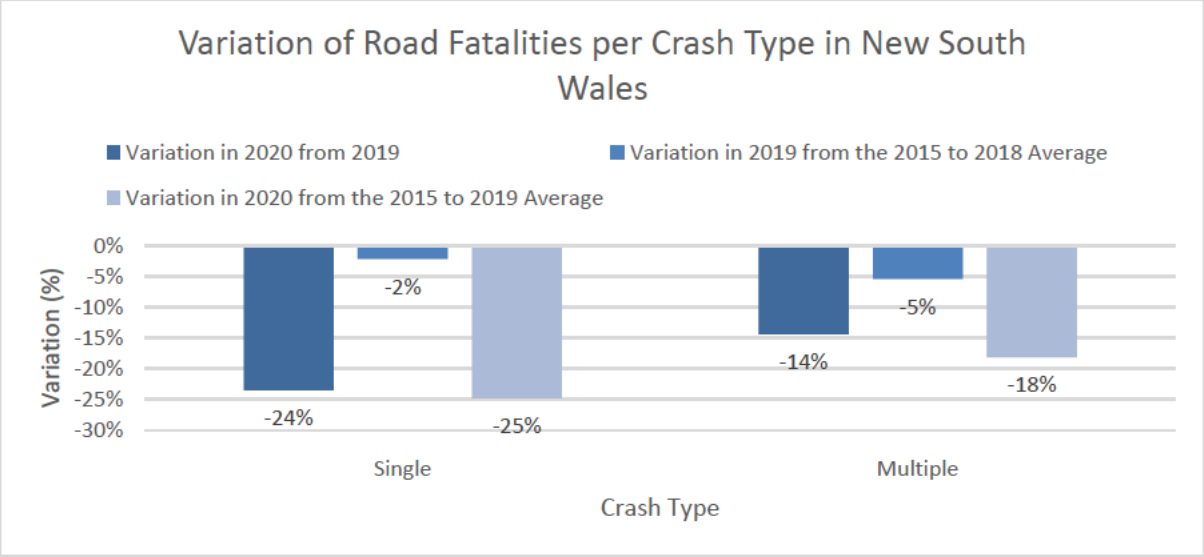

Figure 40: Variation of Road Fatalities per Crash Type in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there were 153 road fatalities resulting from single vehicle crashes in New South Wales. This was 47 (24%) less than 2019 and 51 (25%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 5 (2%) less road fatalities resulting from single vehicle crashes in 2019 than the 2015 to 2018 average.

The significant reduction of road fatalities resulting from single vehicle crashes in New South Wales was likely due to following factors.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips taken and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes.

The most substantial reduction in road fatalities per remoteness area observed in inner regional, outer regional, remote and very remote locations in New South Wales, as shown in Figure 41.

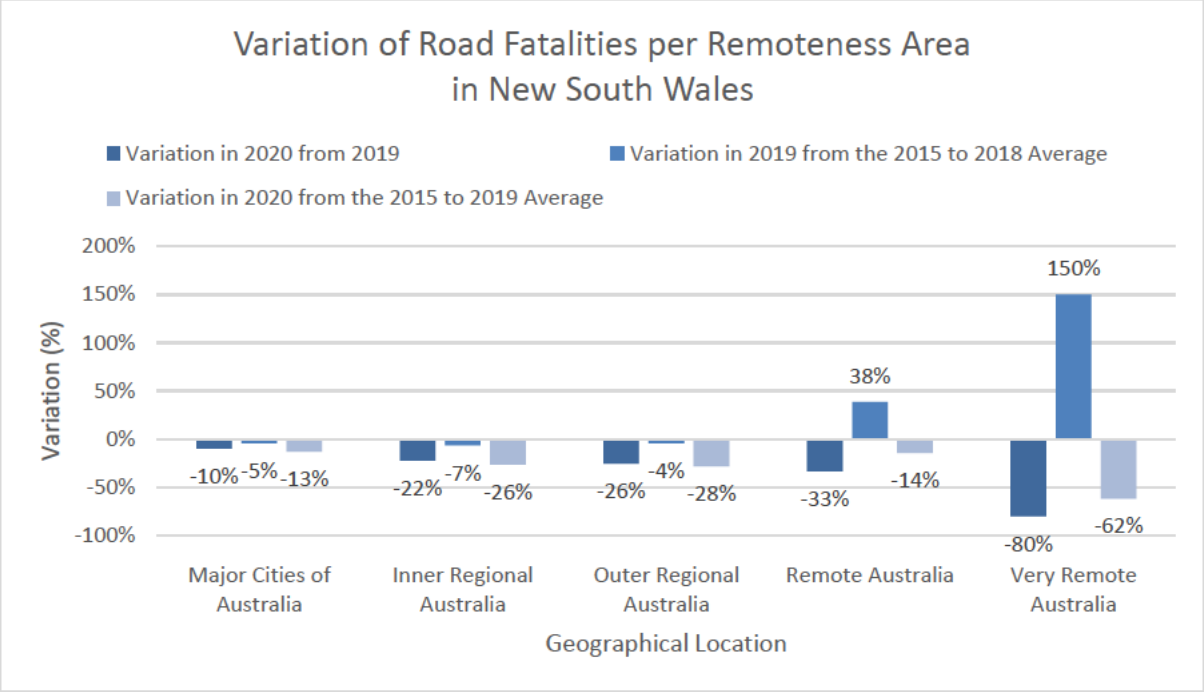

Figure 41: Variation of Road Fatalities per Remoteness Area in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there were 94 road fatalities in the inner regional areas of New South Wales. This was 27 (22%) less than 2019 and 34 (26%) less than the 2015 to 2019 average. In comparison, inner regional areas in New South Wales experienced 9 (7%) less road fatalities in 2019 than the 2015 to 2018 average.
- In 2020, there were 64 road fatalities in the outer regional areas of New South Wales. This was 22 (26%) less than 2019 and 25 (28%) less than the 2015 to 2019 average. In comparison, outer regional areas in New South Wales experienced 4 (4%) less road fatalities in 2019 than the 2015 to 2018 average.
- In 2020, there were 6 road fatalities in remote areas of New South Wales. This was 3 (33%) less than 2019 and 1 (14%) less than the 2015 to 2019 average. In comparison, remote areas in New South Wales experienced 3 (38%) less road fatalities in 2019 than the 2015 to 2018 average.
- In 2020, there were 1 road fatality in very remote areas of New South Wales. This was 4 (80%) less than 2019 and 2 (62%) less than the 2015 to 2019 average. In comparison, inner regional areas in New South Wales experienced 3 (150%) less road fatalities in 2019 than the 2015 to 2018 average.

The significant reduction of road fatalities resulting from single vehicle crashes in New South Wales was likely due to following factors.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips taken and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes.

In New South Wales, the most substantial reduction in road fatalities during the holiday periods observed both Easter and Christmas, as shown in Figure 42.

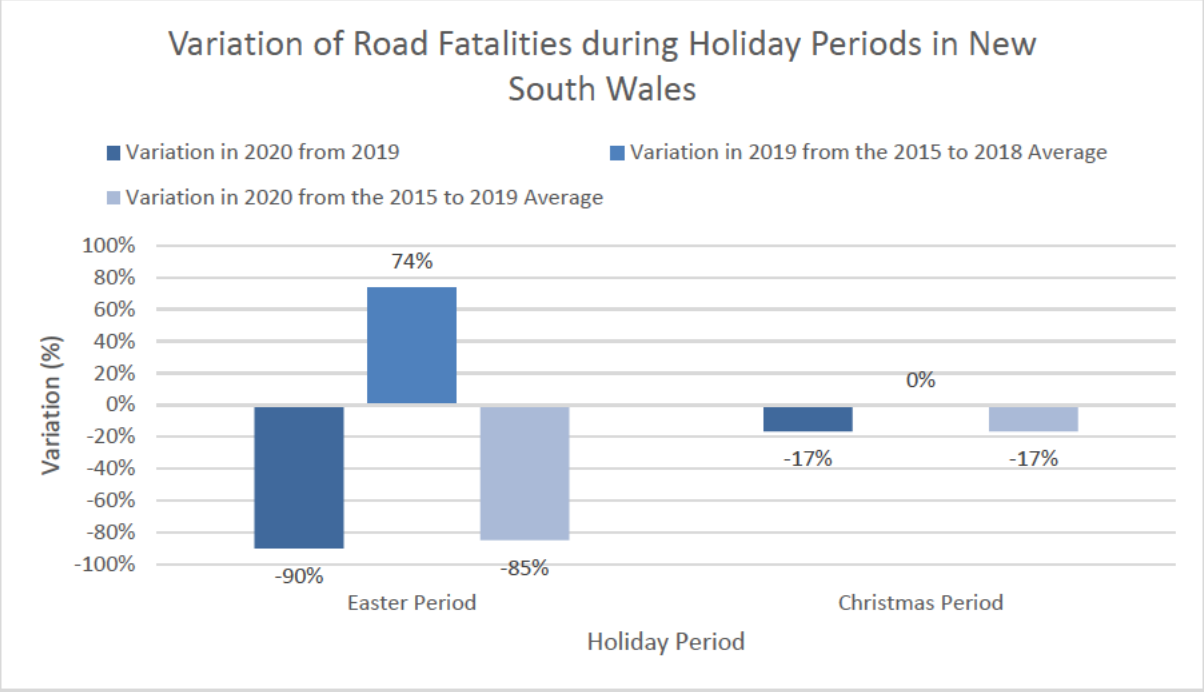

Figure 42: Variation of Road Fatalities during Holiday Periods in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

- In 2020, there was one road fatality during the Easter holiday period in New South Wales. This was nine (90%) less than 2019 and 6 (85%) less than the 2015 to 2019 average. In comparison, New South Wales experienced 4 (74%) more road fatalities during the Easter holiday period in 2019 than the 2015 to 2018 average.
- In 2020, there were 10 road fatalities during the Christmas holiday period in New South Wales. This was 2 (17%) less than 2019 and 2 (17%) less than the 2015 to 2019 average. In comparison, New South Wales had zero variation in road fatalities during the Christmas holiday period in 2019 than the 2015 to 2018 average.

The significant reduction of road fatalities during the Easter and Christmas holiday period in New South Wales was likely due to following factors.

- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.

- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes. For Easter 2020, it occurred only a couple of weeks after the initial COVID-19 restrictions were mandated.
- COVID-19 had a significant impact to the Australian economy which resulted in many individuals being let go of their jobs and families experienced heightened economic hardships. This may have discouraged some individuals and families to travel through the holiday period to save money, which would ultimately decrease the risk of being involved in a road crash.

In summary, significant variations in road fatalities throughout New South Wales during 2020 are showcase in Table 6.

Significant Increases:	• Age – 0 to 16 years old
Significant Decreases:	• Annual Road Fatalities in New South Wales • Month of the Year – March, October, December • Day of the Week – Tuesday, Thursday, Sunday • Time of Day – 12:00AM to 3:59AM, 4:00AM to 7:59AM, 4:00PM to 7:59PM • Road User – Driver, Passenger, Motorcyclist, Motorcycle Pillion Passenger • Gender – Males • Age – 40 to 64 years old, 65 to 74 years old, over 75 years old • Posted Speed Limit: 80 to 99km/hr, 110km/hr • Vehicle Crash Type – Single • Remoteness Area – Inner Regional, Outer Regional, Remote, Very Remote • Holiday Period – Easter, Christmas

Table 6: Summary of Significant Variations of Serious Injuries in New South Wales

5.2.3 *Road Fatalities in Queensland*

As illustrated in Figure 43 and Figure 44, there were 251 road fatality crashes that occurred in Queensland. This was 54 (27%) more than 2019 and 30 (13%) more than the 2015 to 2019 average. Then there were 278 road fatalities that occurred in Queensland. This was 58 (26%) more than 2019 and 37 (15%) more than the 2015 to 2019 average. After a comprehensive assessment, it is apparent that COVID-19 did have a significant influence on road fatalities in Queensland. Additional road crash characteristics were further analysed to determine whether there are any further significant indicators.

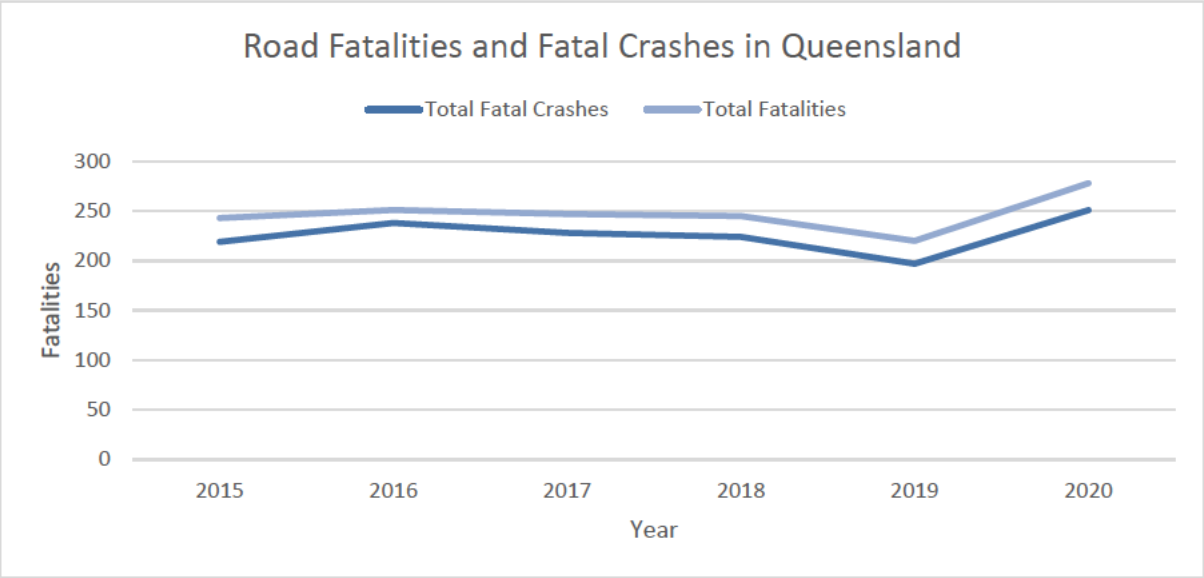

Figure 43: Road Fatalities and Fatal Crashes in Queensland (Department of Transport and Main Roads 2021)

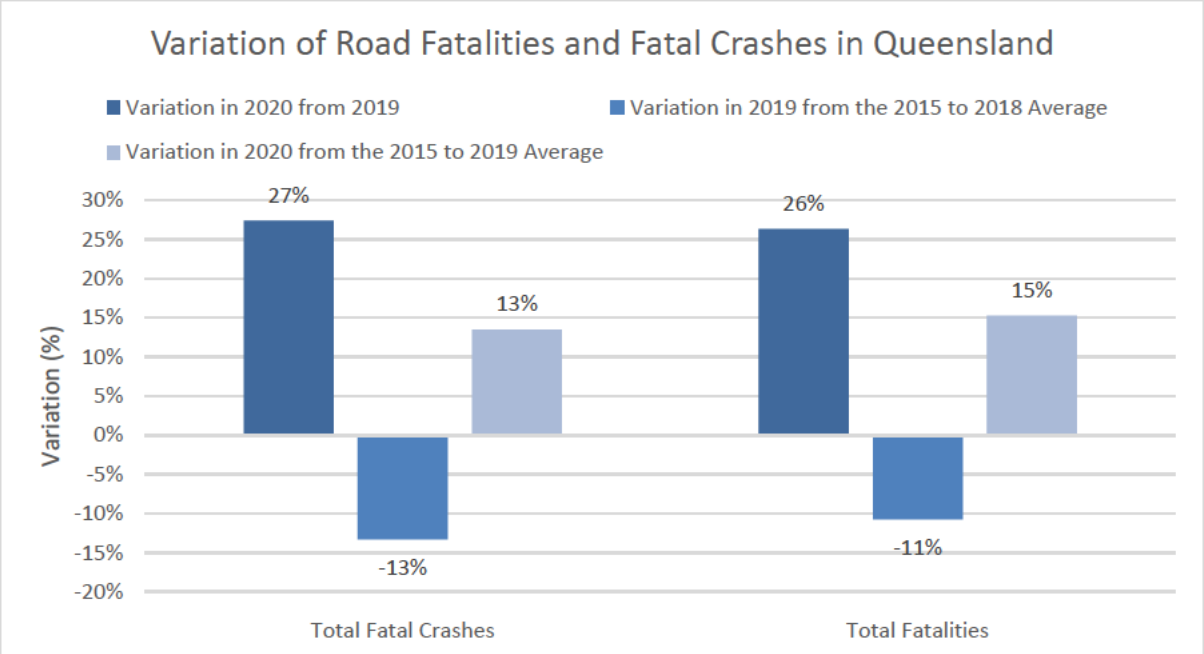

Figure 44: Variation of Road Fatalities and Fatal Crashes in Queensland (Department of Transport and Main Roads 2021)

Figure 45 to Figure 56 showcases the variations between road fatalities that occurred in respect to the different categories in Queensland. Categories include month of the year, day of the week, time of day, road user, gender, age, posted speed limit, crash type, remoteness area, holiday period, risky road user behaviour and licence type.

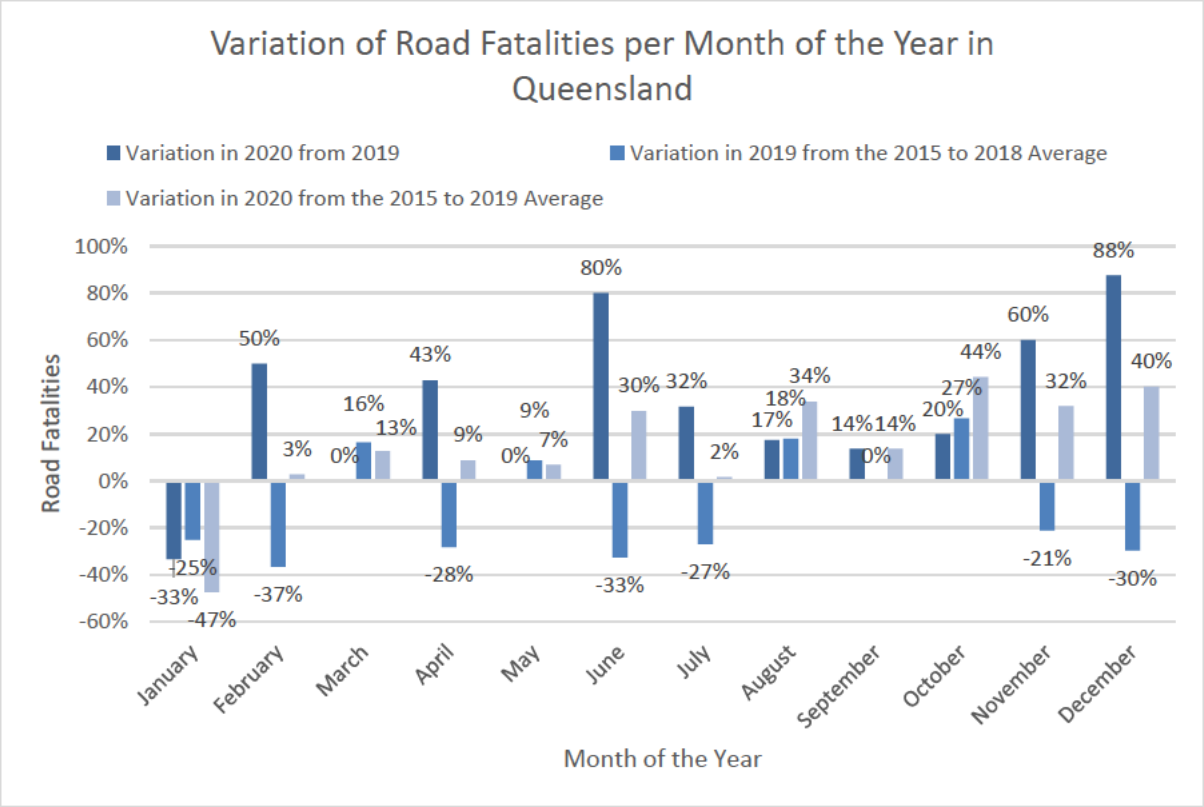

Figure 45: Variation of Road Fatalities per Month of the Year in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

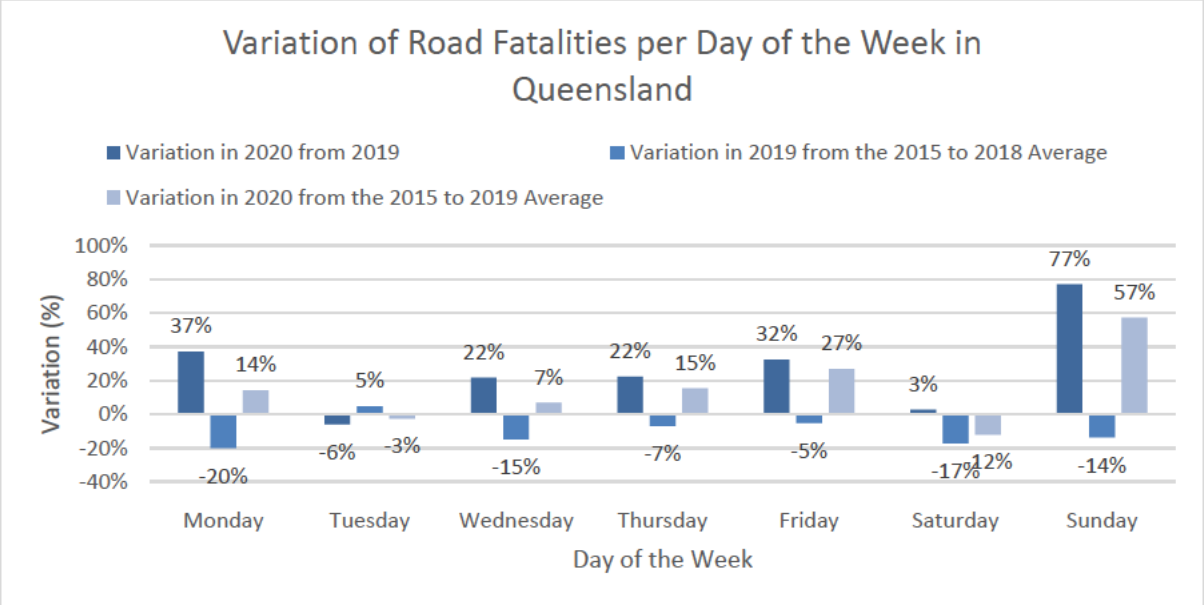

Figure 46: Variation of Road Fatalities per Day of the Week in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

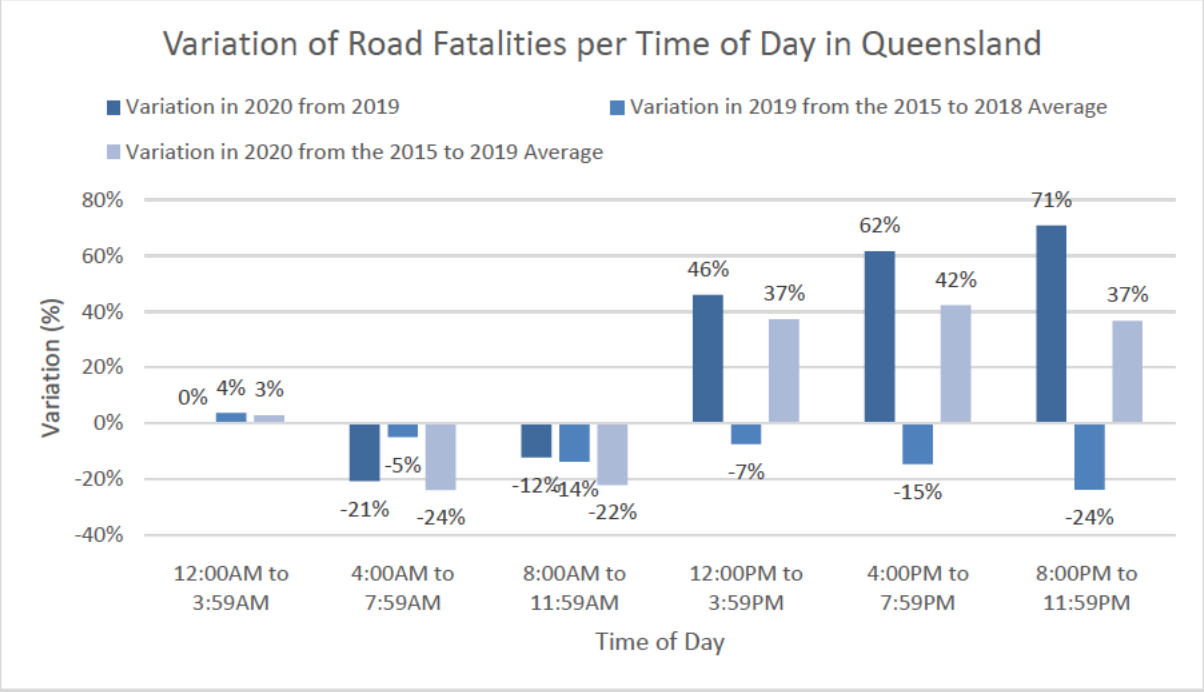

Figure 47: Variation of Road Fatalities per Time of Day in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

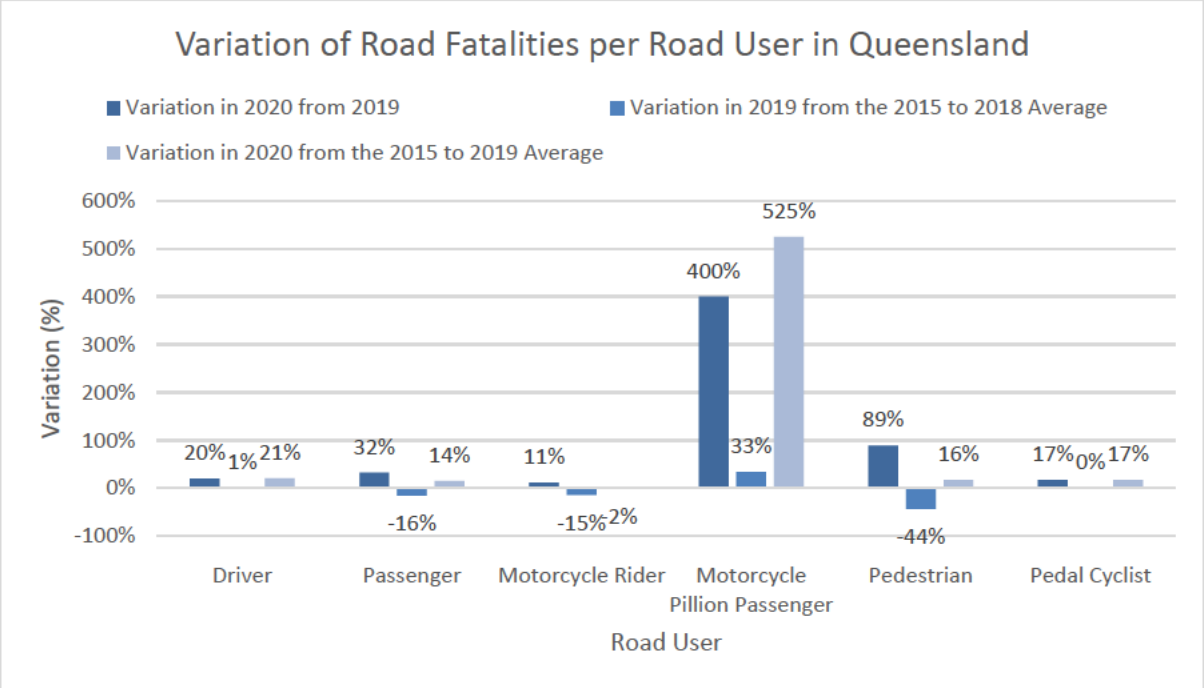

Figure 48: Variation of Road Fatalities per Road User in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

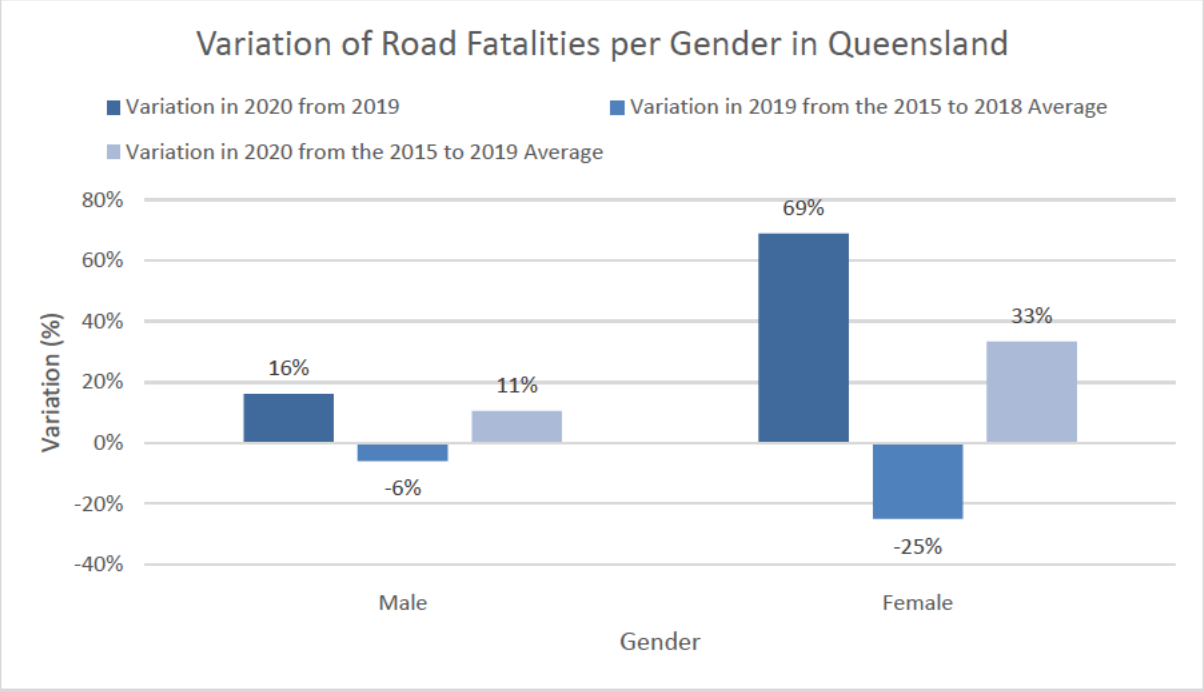

Figure 49: Variation of Road Fatalities per Gender in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

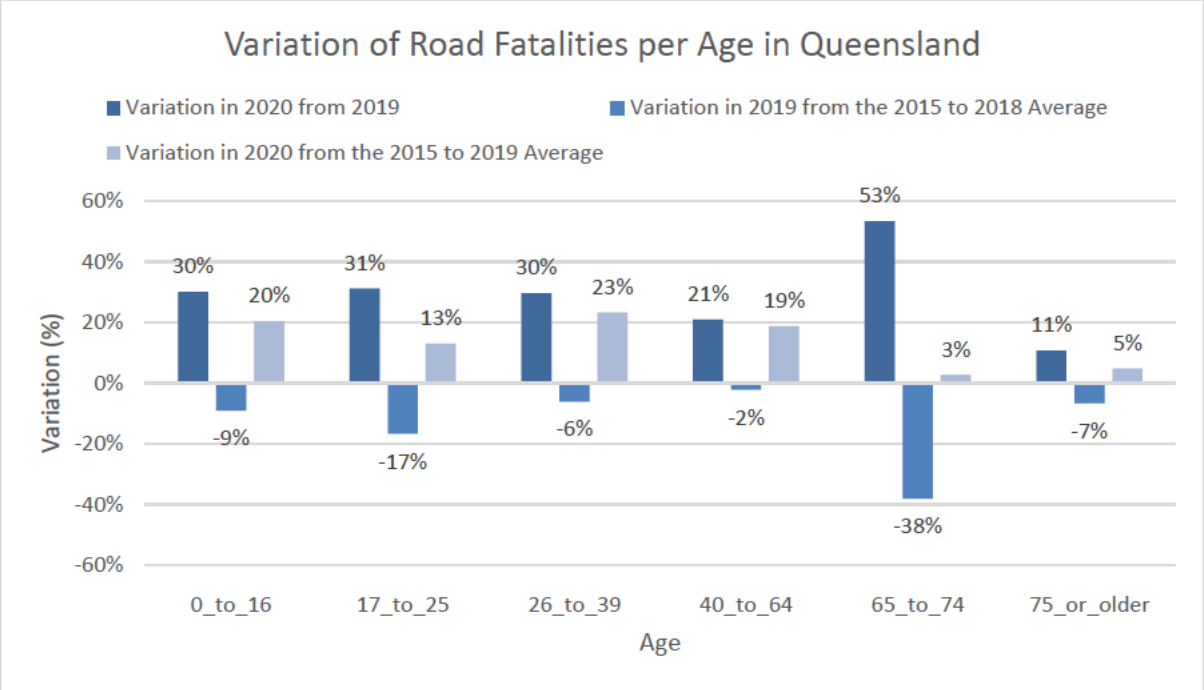

Figure 50: Variation of Road Fatalities per Age in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

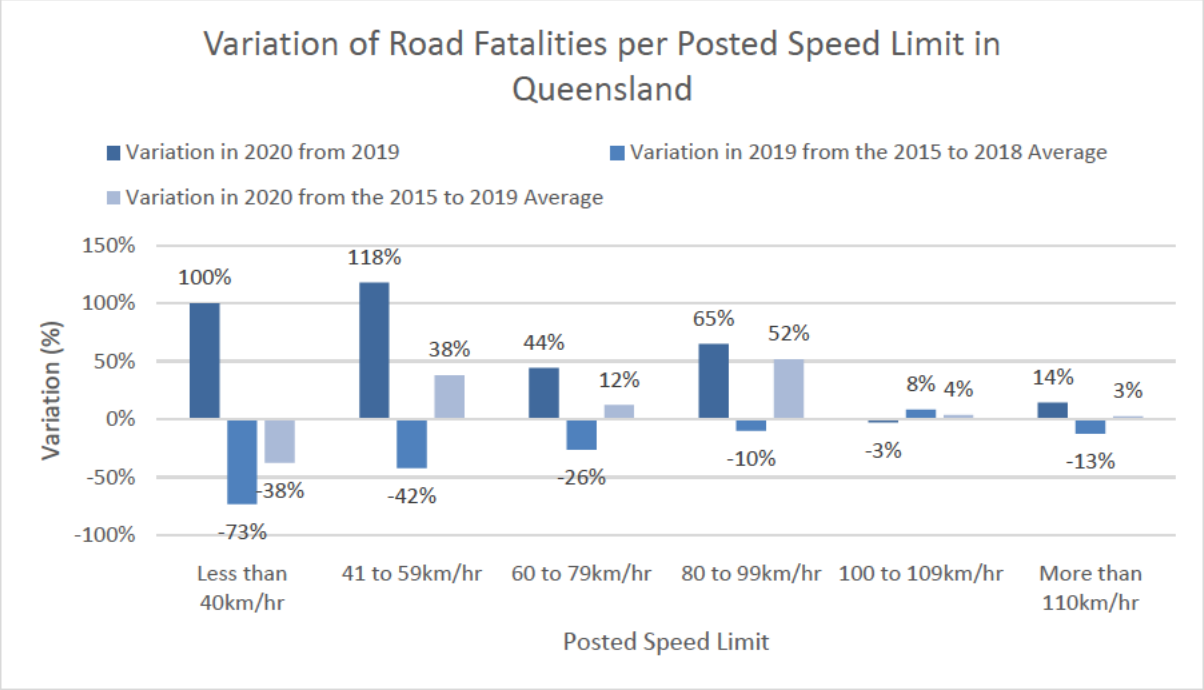

Figure 51: Variation of Road Fatalities per Posted Speed Limit in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

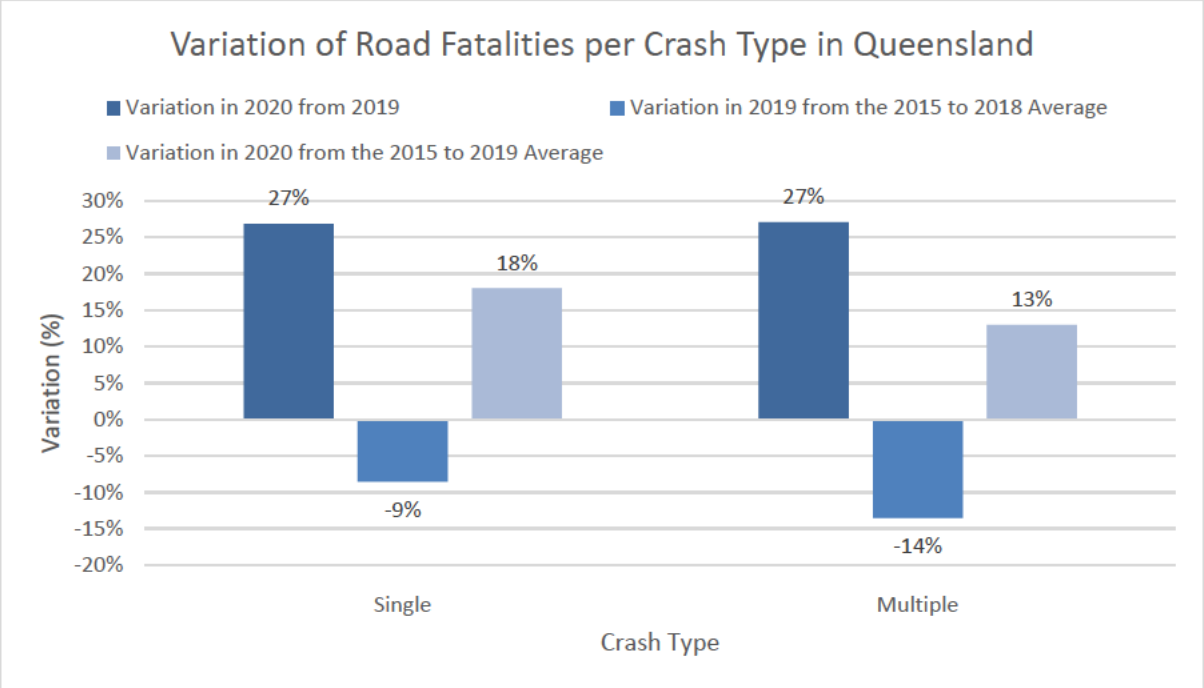

Figure 52: Variation of Road Fatalities per Crash Type in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

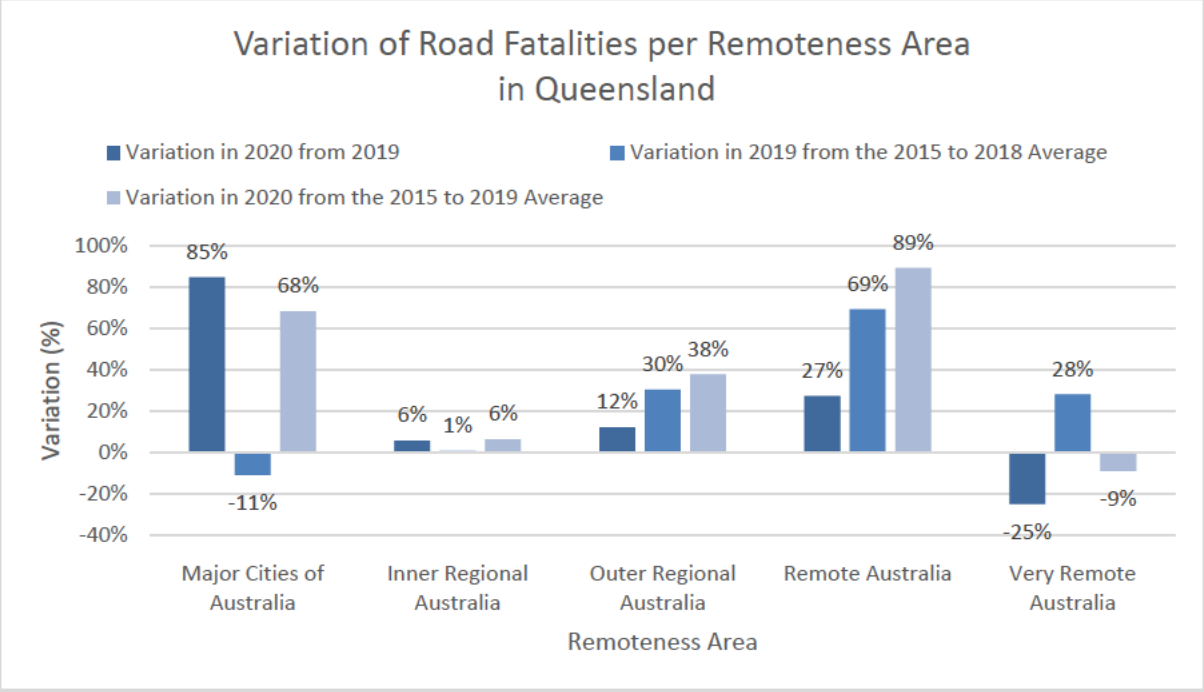

Figure 53: Variation of Road Fatalities per Remoteness Area in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

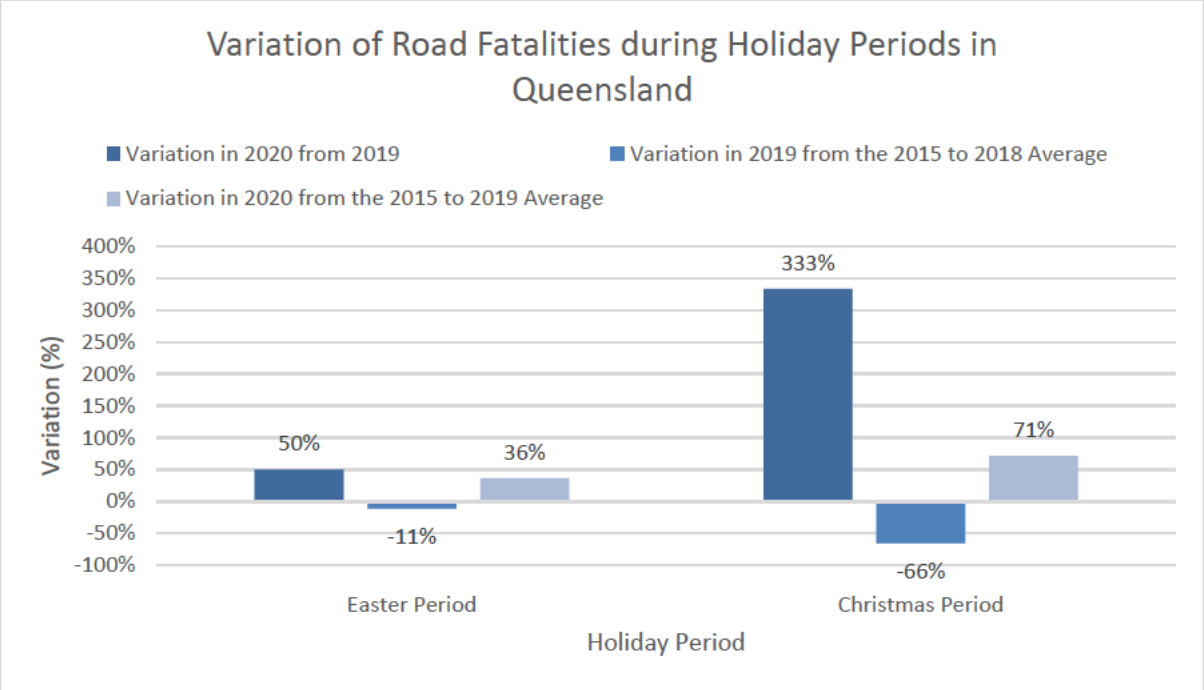

Figure 54: Variation of Road Fatalities during Holiday Periods in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

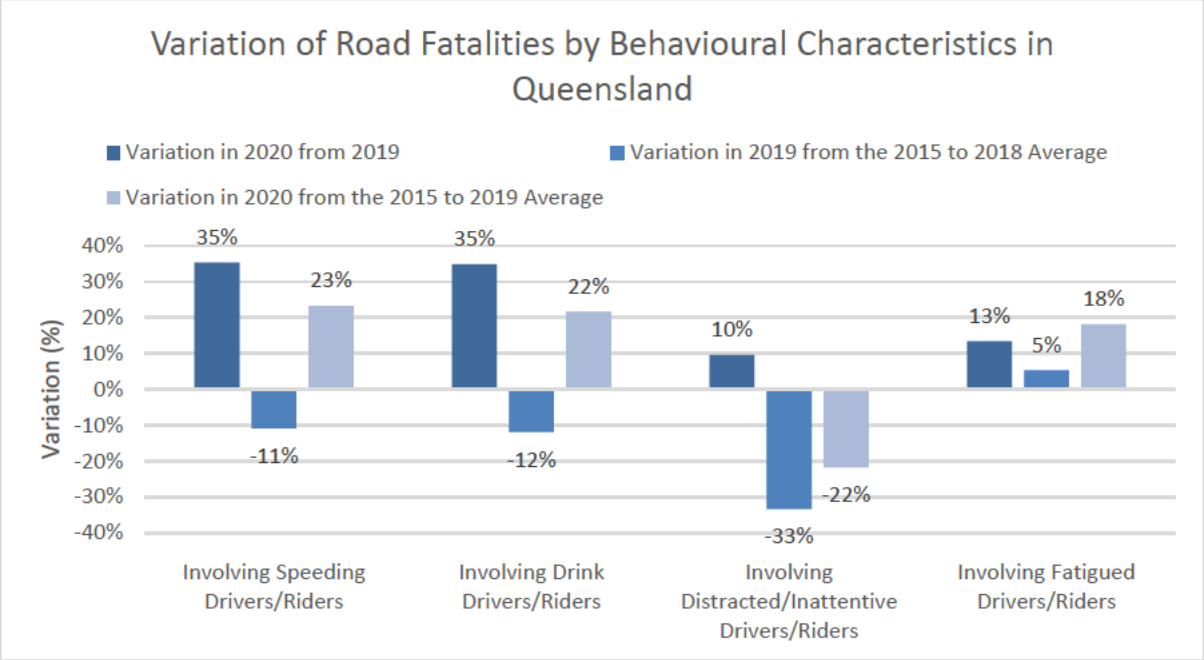

Figure 55: Variation of Road Fatalities by Behavioural Characteristics in Queensland (Department of Transport and Main Roads 2021)

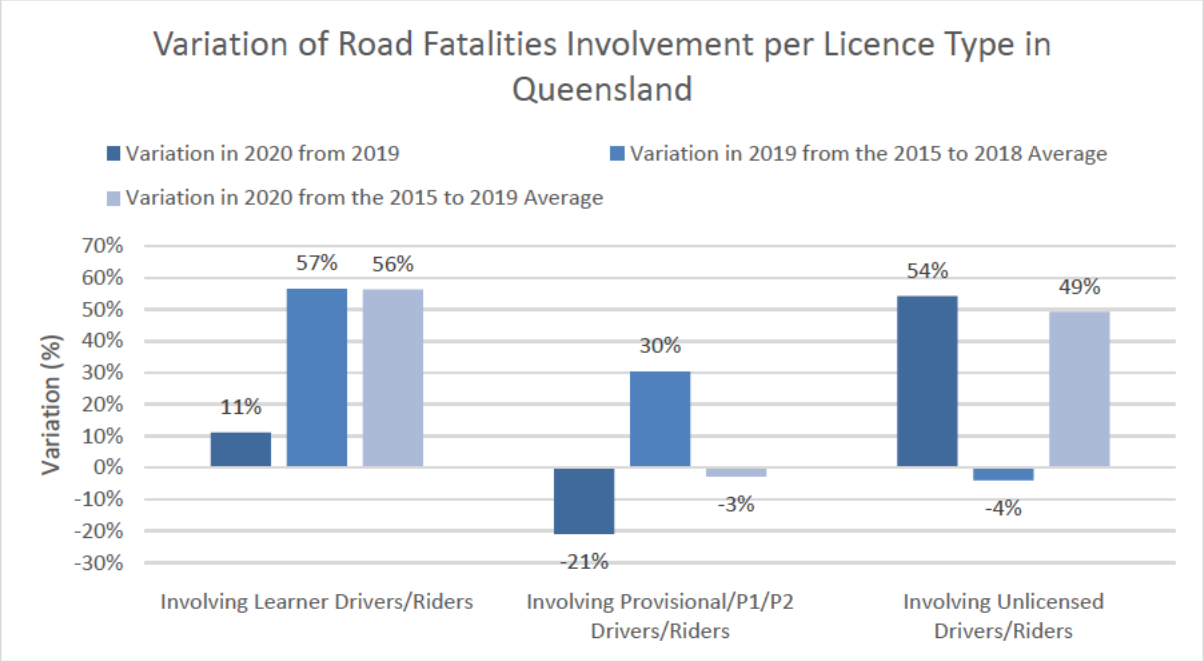

Figure 56: Variation of Road Fatalities Involvement per Licence Type in Queensland (Department of Transport and Main Roads 2021)

The summary of significant variations of road fatalities in Queensland during 2020 is showcased in Table 7.

Significant Increases:	• Annual Serious Injury Casualties and Crashes • Month – April, June, July, August, October, November, December • Day of the Week – Monday, Wednesday, Thursday, Friday, Sunday • Time of Day – 12:00PM to 3:59PM, 4:00PM to 7:59PM, 8:00PM to 11:59PM • Road User – Driver, Passenger, Motorcycle Pillion Passengers, Pedestrians, Pedal Cyclist • Gender – Male, Female • Age – 0 to 16 years old, 17 to 25 years old, 26 to 39 years old, 40 to 64 years old, 65 to 74 years old, over 75 years old • Posted Speed Limit – 40km/hr, 41 to 59km/hr, 60 to 79km/hr, 80 to 99km/hr, 110km/hr • Type of Crash – Single Vehicle Crash, Multiple Vehicle Crash • Remoteness Area – Major Cities, Remote Australia • Holiday Period – Easter, Christmas • Risky Road User Behaviour – Speeding, Drunk Driving • Licence Type – Unlicenced
Significant Decreases:	• Time of Day – 4:00AM to 7:59AM • Remoteness Area - Very Remote Australia

Table 7: Summary of Significant Variations of Road Fatalities in Queensland

In almost every characteristic, road fatalities significantly increased in Queensland. There were only two characteristics that were a significant reduction of road fatalities in Queensland. The significant reductions were road fatalities between 4:00AM to 7:59AM and in very remote regions of Queensland.

When the Queensland border closed on the 26th of March and non-essential travel was actively discouraged, road fatality rates continued to increase. When borders re-opened on the 10th of July, both the following months had significantly increased road fatality rates. This continuation of increased road fatality rates is likely due to the following factors. During the lockdowns, the reduced traffic on the roads and increased alcohol consumption may have contributed to the emergence of riskier road user behaviours. Furthermore, the persisting stress and anxiety stemming from the pandemic were likely ongoing factors in the continuation of such behaviours.

Riskier road user behaviours can be stemmed from multiple factors. Due to the initial strict restrictions relating to travel in Queensland, some individuals may have taken the opportunity to speed to their non-essential destination to ensure they are not caught breaching COVID-19 mandated restrictions. In addition, during reduced traffic volumes, some drivers could increase their speed, perceiving it as less risky without congestion.

Mental health dramatically reduced during COVID-19 with many individuals facing job losses and financial uncertainty. Alcohol consumption is a means of coping in stressful situations for many individuals. As many individuals began to work remotely at home, there would have been ampule reasoning and opportunity for individuals to increase their alcohol consumption. As individuals could not travel to see friends, lockdowns became very lonely. As a result, individuals may have turned to alcohol to fill in time or deal with loneliness. In addition, the lack of daily structure may have led individuals to consume more alcohol at irregular hours.

The COVID-19 pandemic had a notable impact on law enforcement practices with static roadside random breath testing being suspended in March 2020 due to concerns about the transmission of COVID-19. In 2020, random breath tests in Queensland witnessed a 49% reduction compared to 2019, with positive testing results remaining consistent with the rates recorded in 2019 (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023b). Speed infringements issued by police officers in Queensland decreased by 15% in 2020 compared to 2019 (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023b). The reduction in law enforcement meant that individuals were able to violate the traffic laws without being apprehended which could ultimately increase the risk of being involved in a road crash as a consequence.

Ultimately, due to the initial travel restrictions, individuals who had a drinking problem or developed a drinking problem during COVID-19 had reduced access to in-person treatment services such as rehabilitation centres or Alcoholics Anonymous. Reduced access to those treatment services could have worsened individuals drinking problem which may have put them at risk of drink driving and causing a road crash.

Due to COVID-19 lockdowns and restrictions, many individuals took to cycling for transportation, recreational and health advantages throughout 2020. With the significantly increased uptake of cycling due to COVID-19, there would be a larger population of inexperienced riders entering the road environment. With the lack of safe cycling infrastructure, it can increase the likelihood of a road crash occurring.

In addition to cycling, outdoor activities such as walking and jogging also increased in popularity. As individuals were predominantly working from home, this was a chance for them get some fresh air and to safely exercise. This increase in pedestrians near roads was likely.

Interestingly, road fatalities in major cities increased in comparison to previous years. It is expected that reduced traffic on the roads would lead to riskier road user behaviour such as speeding. In addition, due to concerns of COVID-19 transmission from taking public transport, there was an increased number of individuals who took up driving their own vehicle or began carpooling with family, friends or colleagues. This presents a risk for those drivers who are not confident and proficient on major city and inner regional area roads.

Both Easter and Christmas holiday periods saw an increase in road fatality rates. With Queensland under strict restrictions, it is likely due to risky road behaviours that the road fatality rates increased. For the Christmas holiday period, the pent up demand after long periods in lockdown and restrictions meant that individuals wanted to celebrate with family and friends. In addition, the Christmas holiday period also attracts increased fatality rates with increased traffic volumes and riskier road user behaviours such as drink driving.

5.2.4 *Road Fatalities in Victoria*

As illustrated in Figure 57 and Figure 58, there was 211 road fatalities in Victoria during 2020, which was 55 (21%) less than 2019 and 45 (18%) less than the 2015 to 2019 average. There were also 195 road fatality crashes in Victoria during 2020, which was 53 (21%) less than 2019 and 44 (18%) less than the 2015 to 2019 average. After a comprehensive assessment, it is apparent that COVID-19 did have an influence on road fatalities and crashes in Victoria during 2020. Additional road crash characteristics was further analysed to determine if there are any significant indictors.

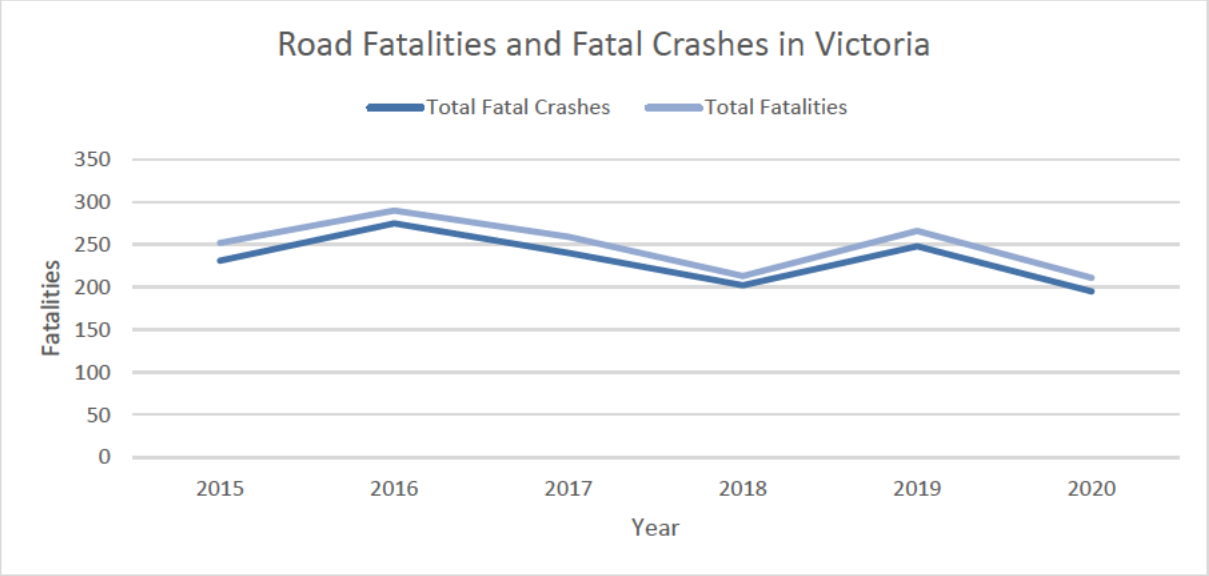

Figure 57: Road Fatalities and Fatal Crashes in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

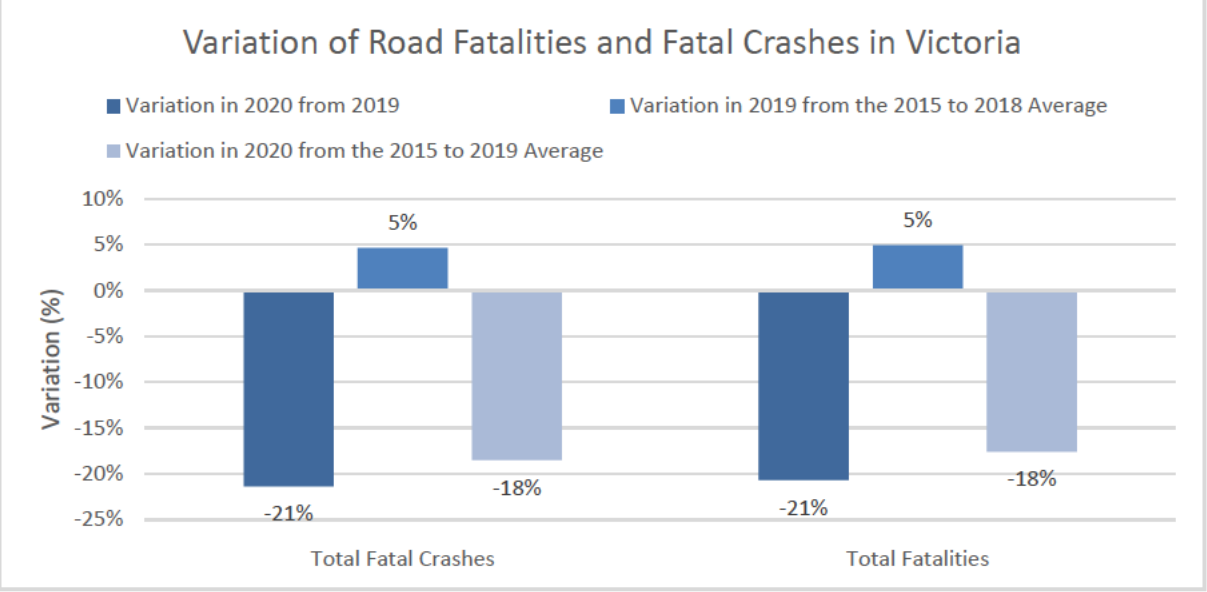

Figure 58: Variation of Road Fatalities and Fatal Crashes in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

Figure 59 to Figure 68 showcases the variations between road fatalities that occurred in respect to the different categories in Victoria. Categories include month of the year, day of the week, time of day, road user, gender, age, posted speed limit, crash type, remoteness area, holiday period,

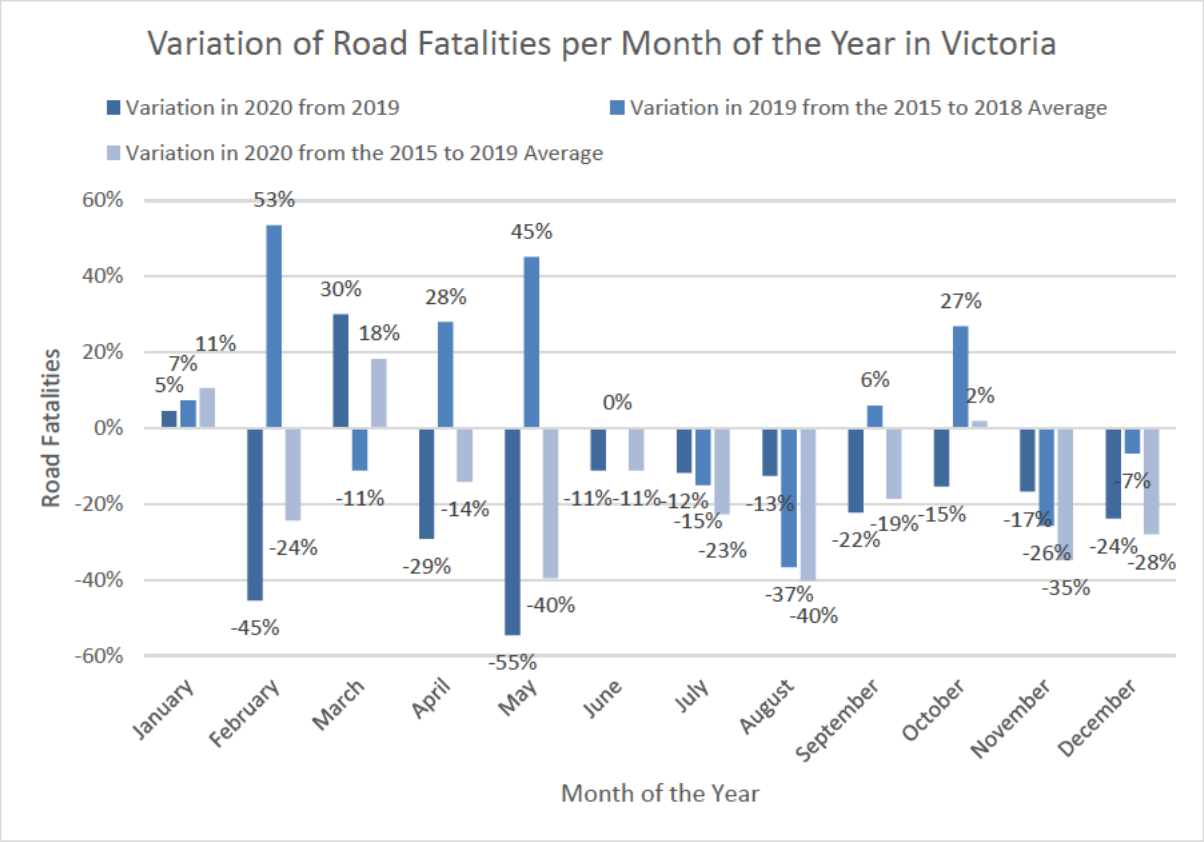

Figure 59: Variation of Road Fatalities per Month of the Year in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

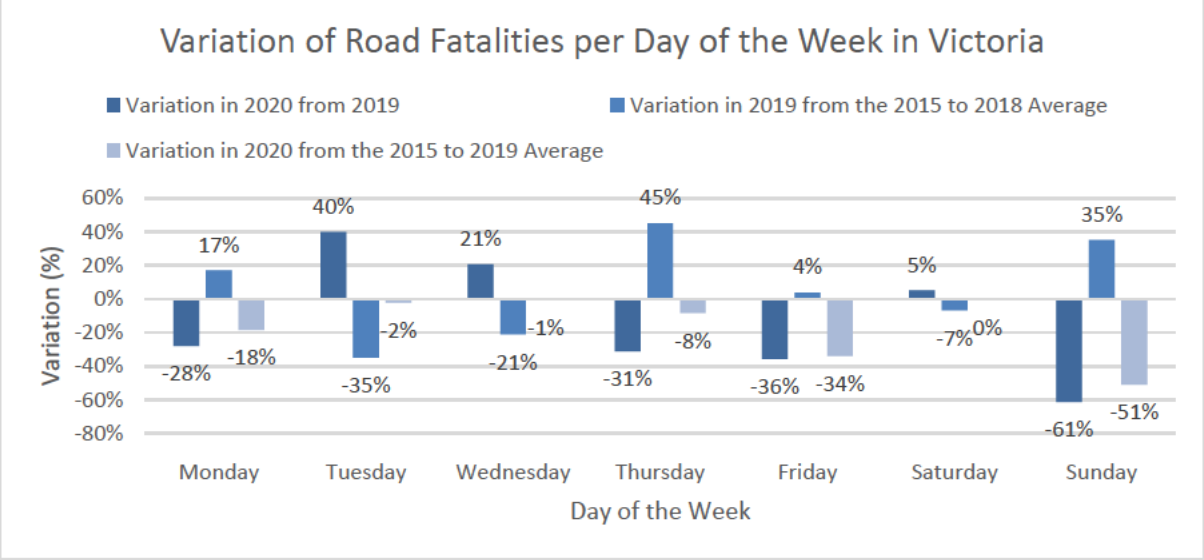

Figure 60: Variation of Road Fatalities per Day of the Week in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

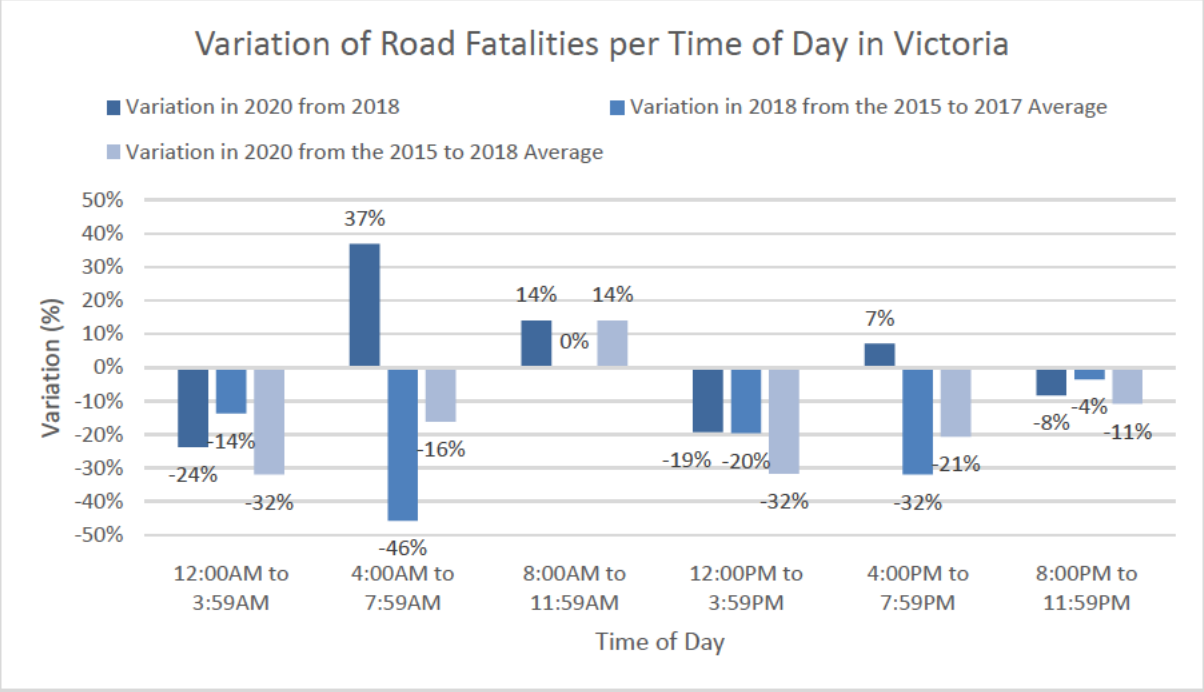

Figure 61: Variation of Road Fatalities per Time of the Day in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

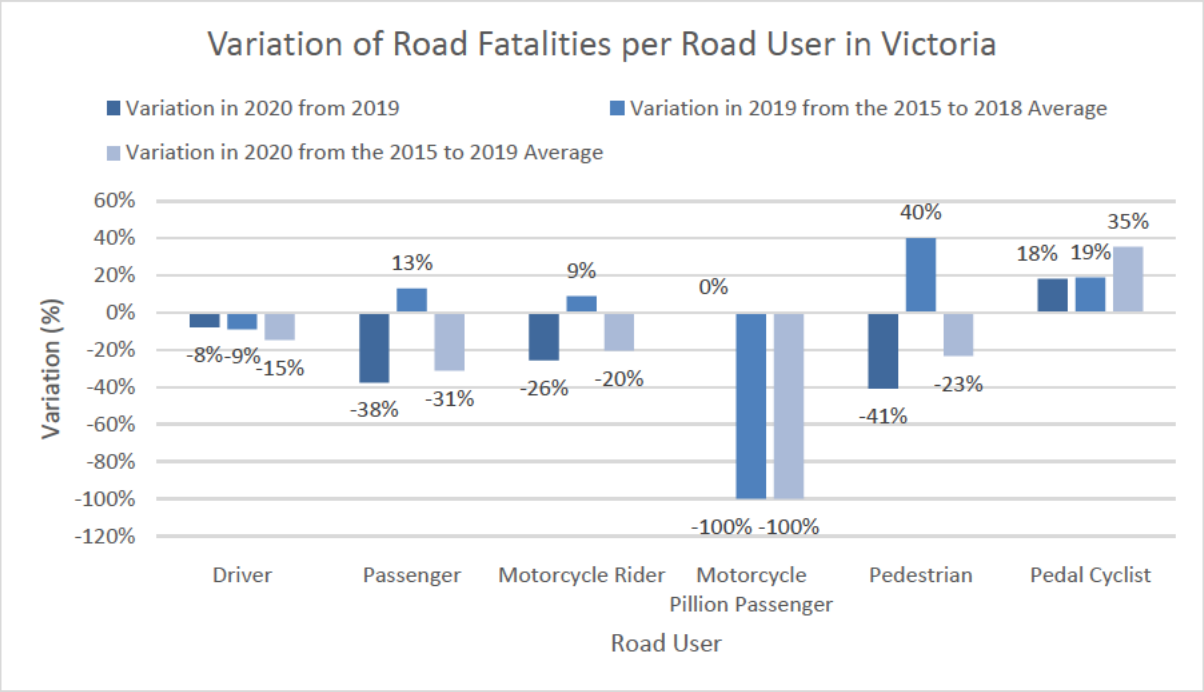

Figure 62: Variation of Road Fatalities per Road User in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

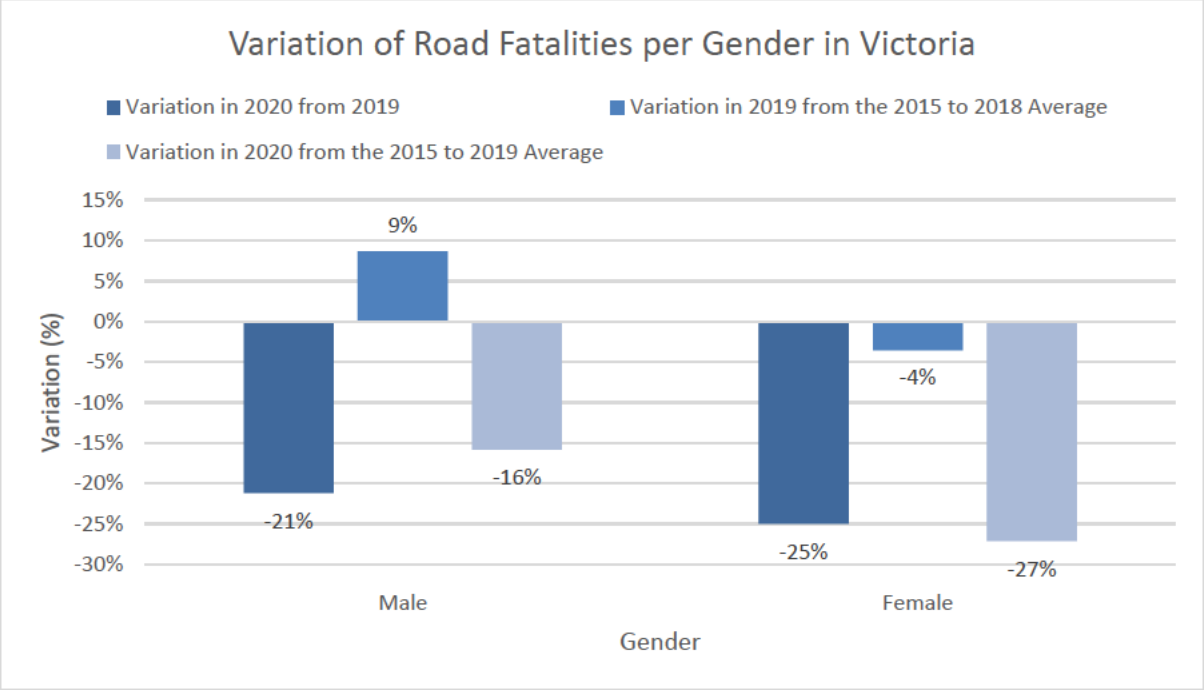

Figure 63: Variation of Road Fatalities per Gender in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

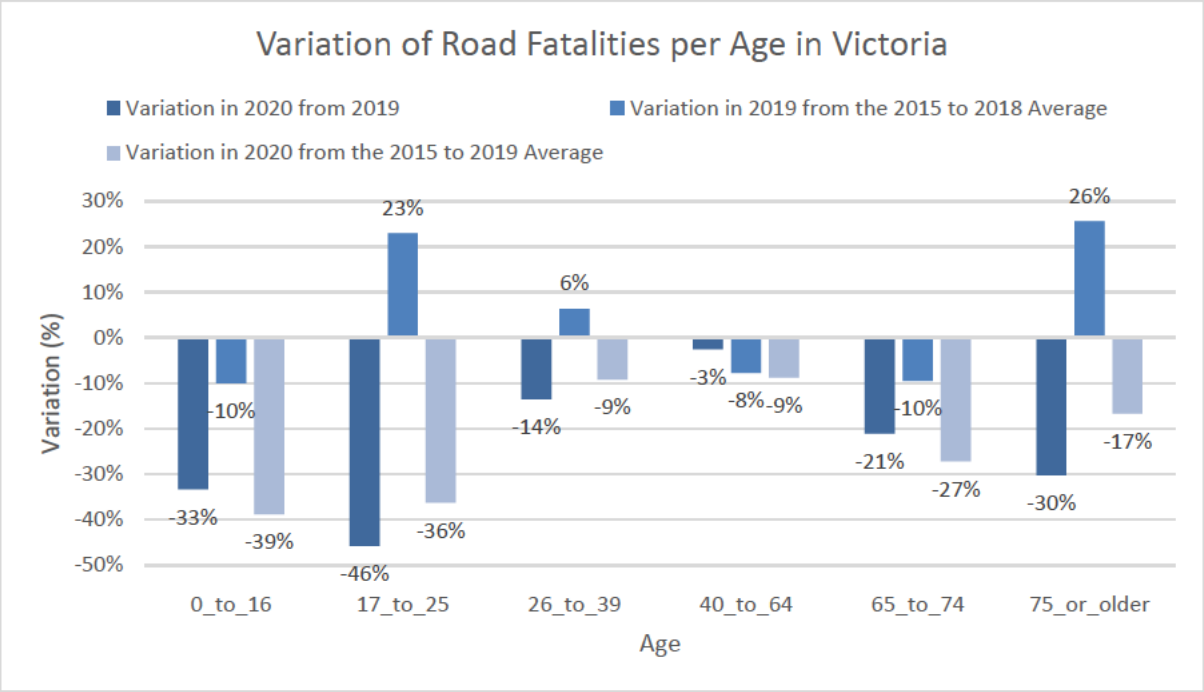

Figure 64: Variation of Road Fatalities per Age in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

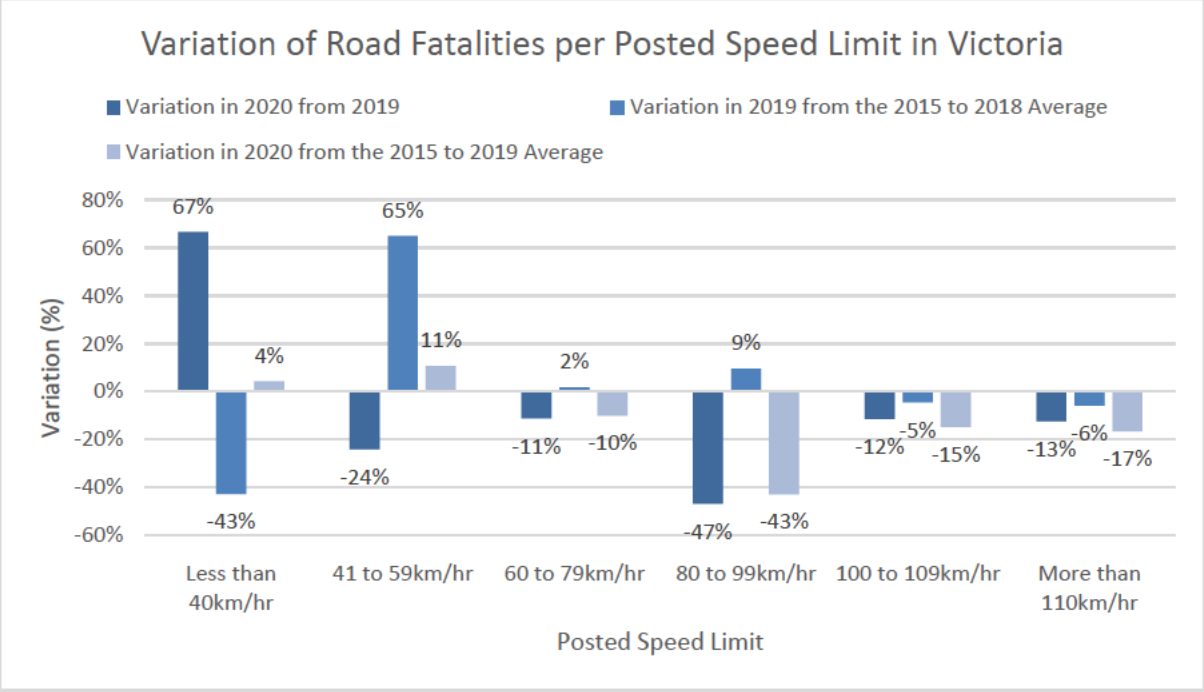

Figure 65: Variation of Road Fatalities per Posted Speed Limit in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

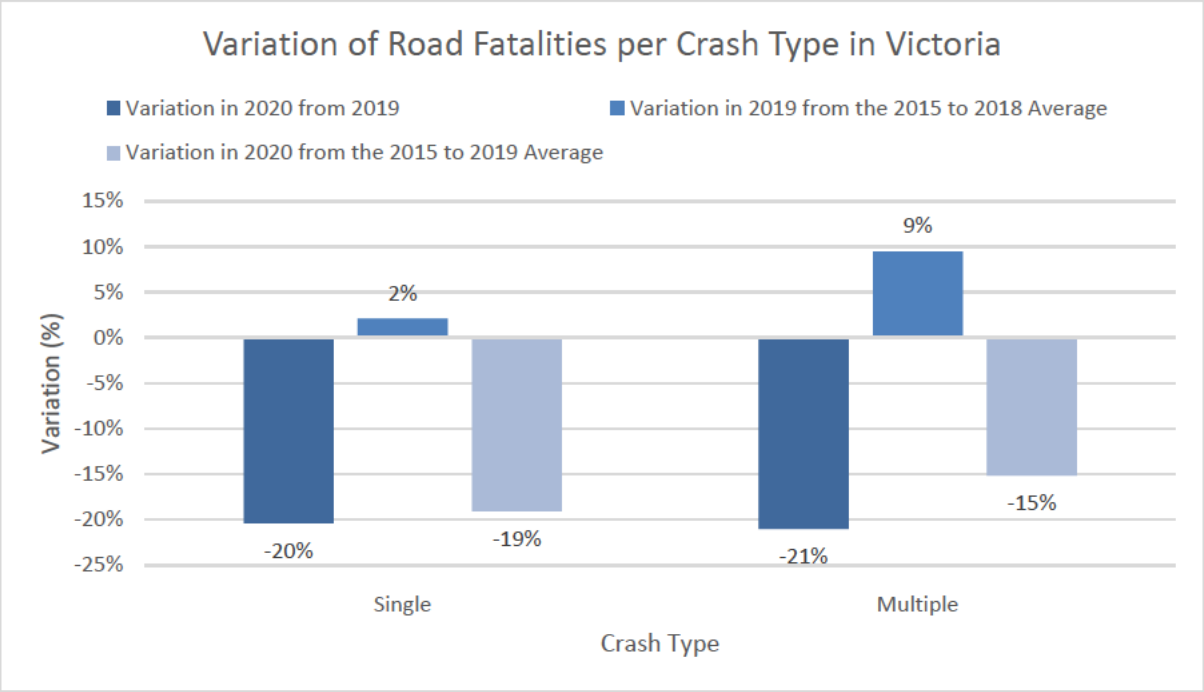

Figure 66: Variation of Road Fatalities per Crash Type in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

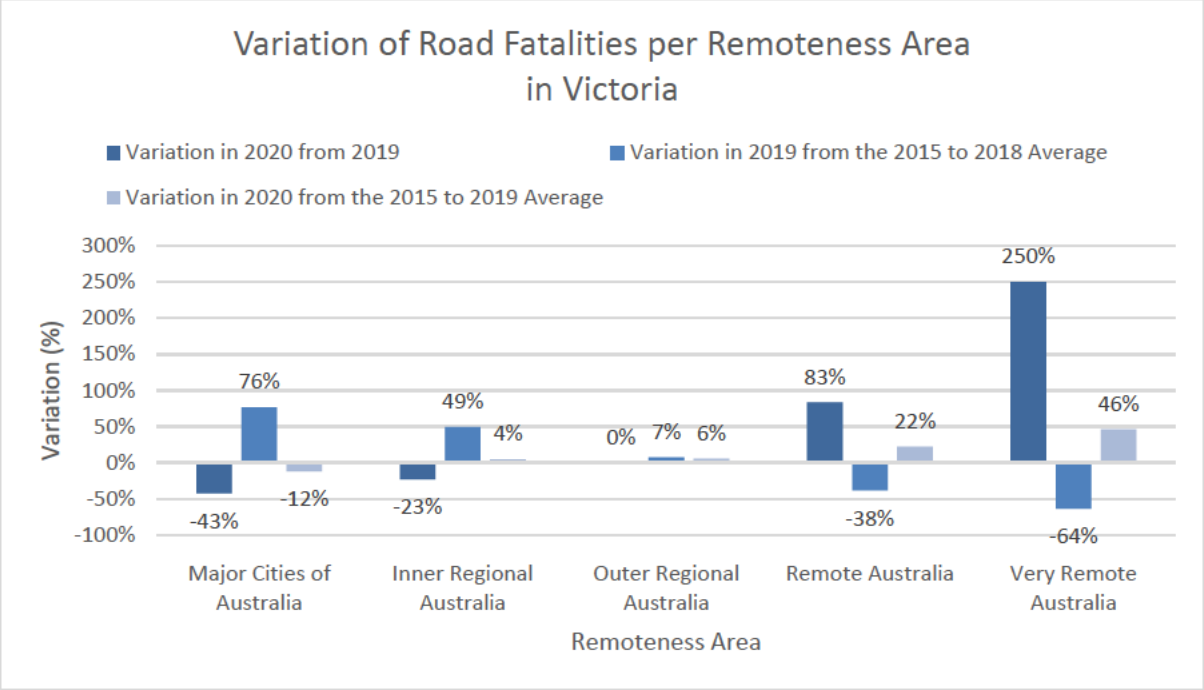

Figure 67: Variation of Road Fatalities per Remoteness Area in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

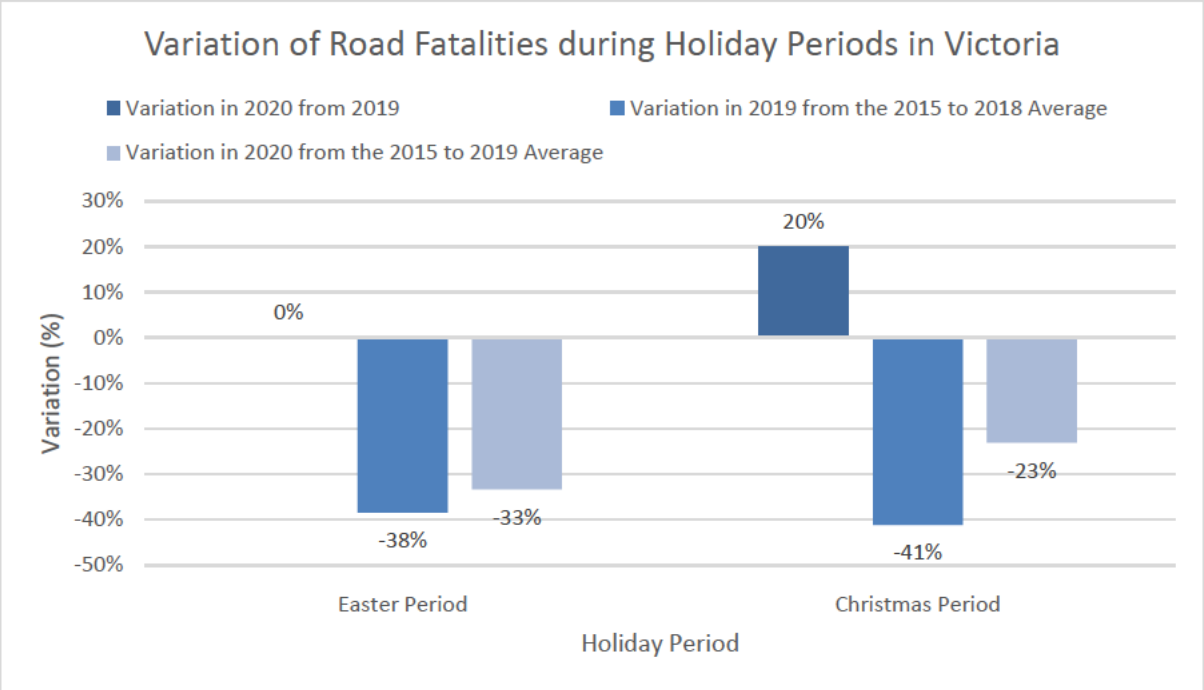

Figure 68: Variation of Road Fatalities during Holiday Periods in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

A summary of significant variations of road fatalities in Victoria during 2020 is showcased in Table 8: Summary of Significant Variations of Road Fatalities in Victoria.

Significant Increases:	• Days of the Week – Tuesday, Wednesday • Time of Day – 4:00AM to 7:59AM • Road User – Pedal Cyclist • Speed – 40km/hr • Remoteness Areas – Remote Australia, Very Remote Australia • Holiday Period – Christmas
Significant Decreases:	• Annual Road Fatalities Casualties and Crashes • Months of the Year – April, May, September, October, November, December • Days of the Week – Monday, Thursday, Friday, Sunday • Time of Day – 12:00AM to 3:59AM, 12:00PM to 3:59PM • Road User – Passenger, Motorcycle Rider, Motorcycle Pillion Passenger, Pedestrian • Gender – Male, Female • Age – aged 0 to 16 years old, 17 to 25 years old, 65 to 74 years old, over 75 years old • Speed – 41 to 59km/hr, 80 to 99km/hr • Crash Type – Single Vehicle Crash, Multiple Vehicle Crash • Remoteness Area – Major Cities, Inner Regional

Table 8: Summary of Significant Variations of Road Fatalities in Victoria

In 2020, Victoria experience two significant lockdown periods. The first lockdown commenced on the 30th of March and went for 43 days. The second lockdown commenced on the 8th of July and went for 111 days. During this time road fatalities significantly decreased. This was likely due to the strict lockdown orders where individuals could only leave their homes for essential reasons only. During the second lockdown, Melbourne in particular, there were schools were closed for an entire term, a five-kilometre travel radius was enforcement from one's place of residence and there were overnight curfews.

With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took.

During this time, many individuals took to cycling for transportation, recreational and health advantages. With the significantly increased uptake of cycling due to COVID-19, there would be a larger population of inexperienced riders entering the road environment. With the lack of safe cycling infrastructure and experience, it can increase the likelihood of a road crash occurring.

Due to the stringent messaging of safety measures to the Australian public, it is likely that individuals became more conscious of their actions which led to safer driving and riding practices which would reduce the likelihood of them being involved being involved in a road crash. Motorcycle riders, motorcycle pillion passengers and pedestrians had a significant decrease in road fatality rates during 2020 in Victoria.

Remote and very remote regions of Victoria saw a significant spike of road fatality rates during 2020. Due to the isolated nature and reduce mobility movements of individuals, if there was an accident, the likelihood of an individual responding to the scene in a promptly manner would be reduced. This is especially important as many remote and very remote regions have limited access to communication services. Due to the nature of the roads, the low traffic encourages risky driving behaviours such as speeding.

Alternatively, in 2020 major cities and inner regional areas had a significant reduction in road fatality rates. This would be predominately due to the significant periods of restrictive lockdowns that Melbourne and highly dense population locations endured. There would be fewer commuters as individuals were working from home, reduced congestion on the roads and individuals only leaving their 5km radius to complete essential duties.

The Christmas holiday period also saw an increase in road fatality rates. This is expected due to the pent up demand after long periods in lockdown and restrictions that individuals wanted to celebrate the holidays with family and friends. In addition, the Christmas holiday period also attracts increased fatality rates with increased traffic volumes and riskier road user behaviours such as drink driving.

5.2.5 Road Fatalities in South Australia

As depicted in Figure 69 and Figure 70, there were 93 road fatalities on South Australia's roads in 2020, which was 21 (18%) less than 2019 and 3 (4%) less than the 2015 to 2019 average. In addition, there were 85 road fatality crashes in South Australia during 2020, which was 25 (23%) less than 2019 and 5 (6%) less than the 2015 to 2019 average. After a comprehensive assessment, it is apparent that COVID-19 had a significant influence on road fatality casualties and crashes in South Australia. Despite this, further analysis of additional road crash characteristics is still warranted.

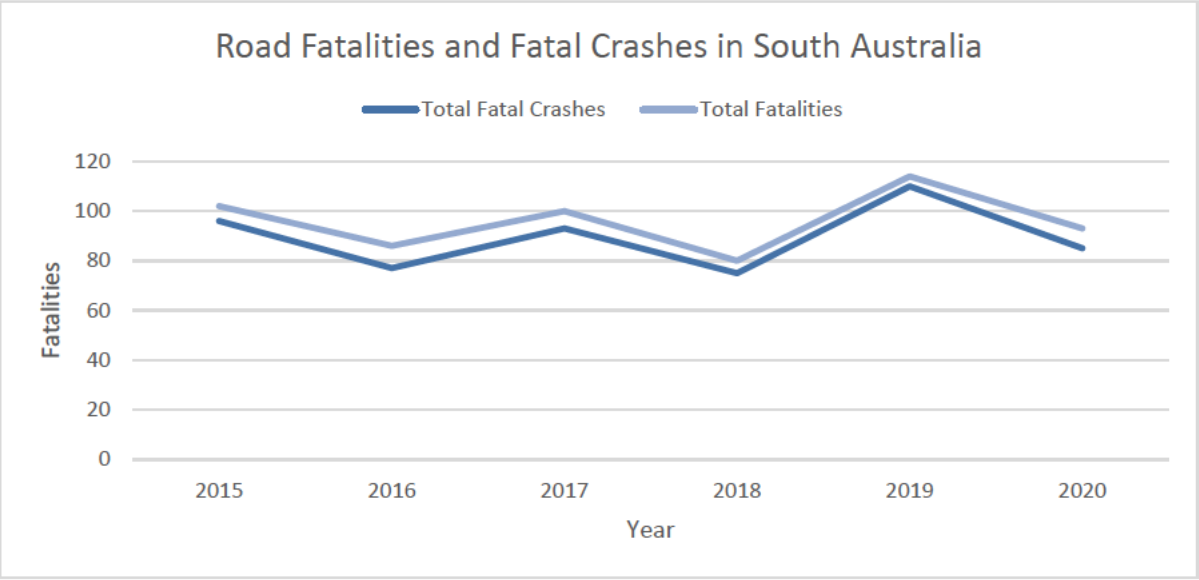

Figure 69: Road Fatalities and Fatal Crashes in South Australia (Department for Infrastructure and Transport n.d.)

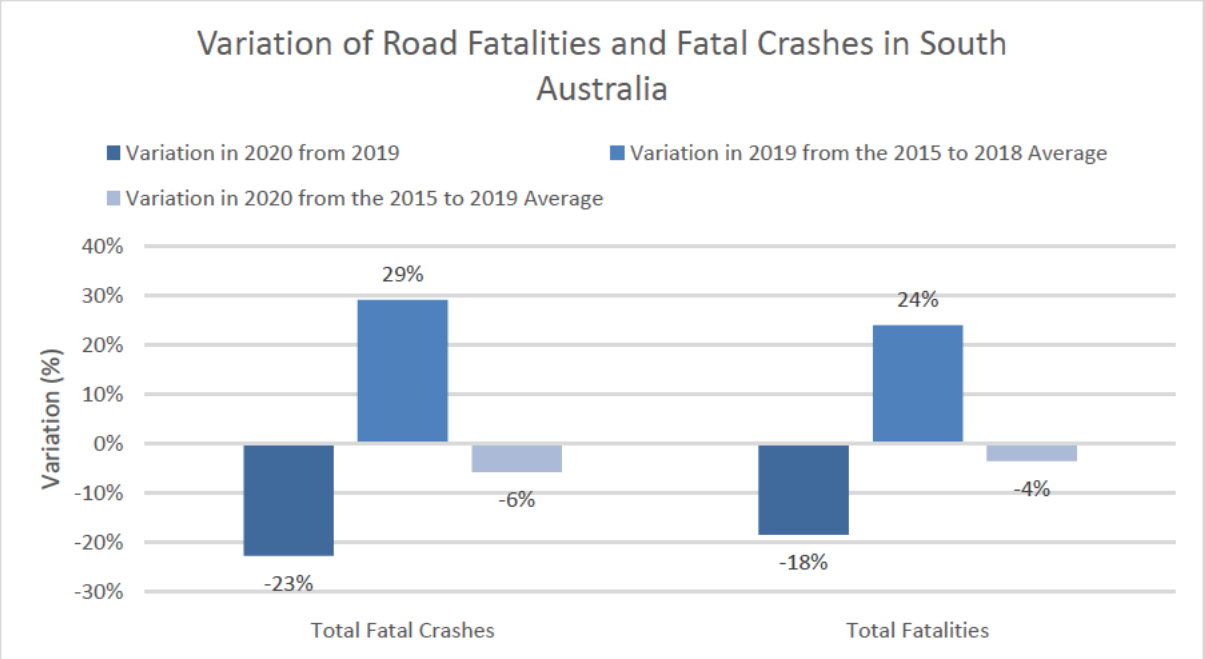

Figure 70: Variation of Road Fatalities and Fatal Crashes in South Australia (Department for Infrastructure and Transport n.d.)

Figure 71 to Figure 80 showcase the variations between the road crash characteristics in South Australia.

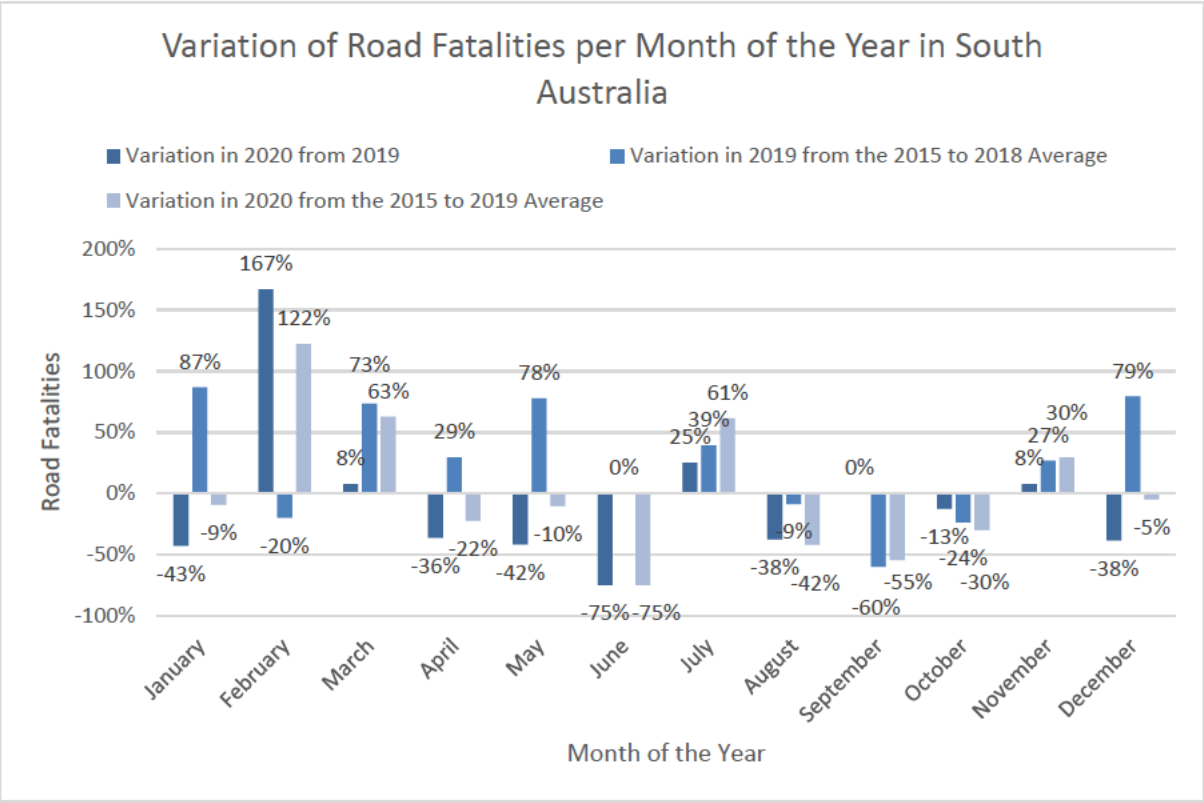

Figure 71: Variation of Road Fatalities per Month of the Year in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

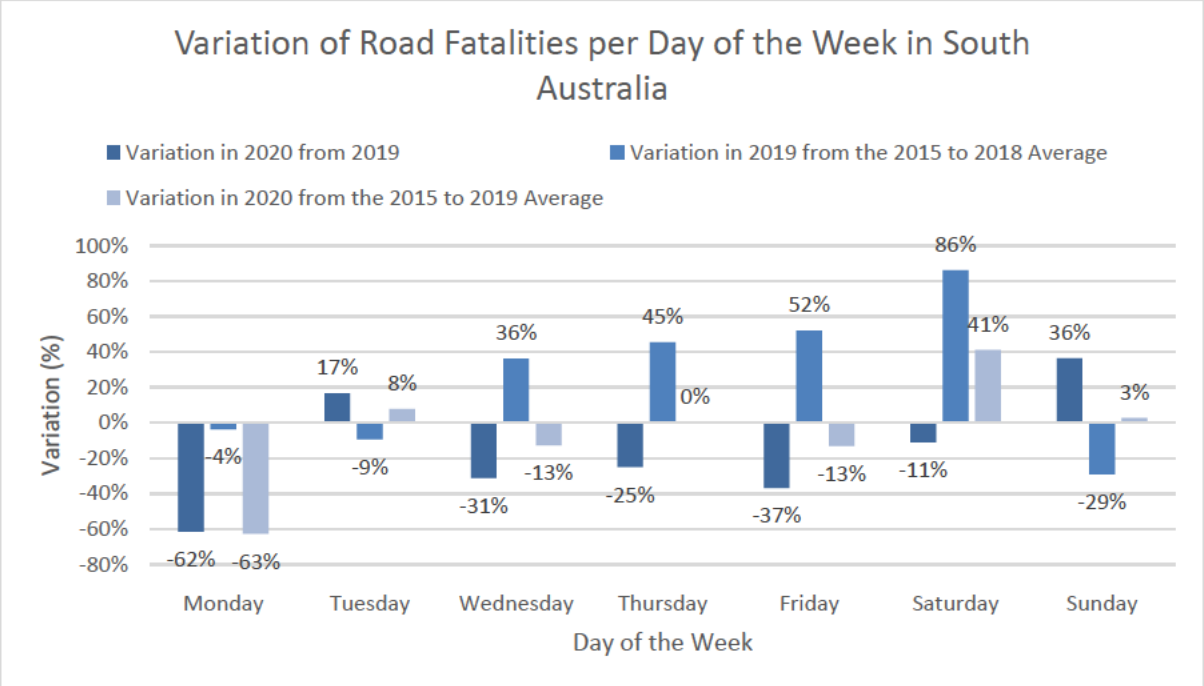

Figure 72: Variation of Road Fatalities per Day of the Week in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

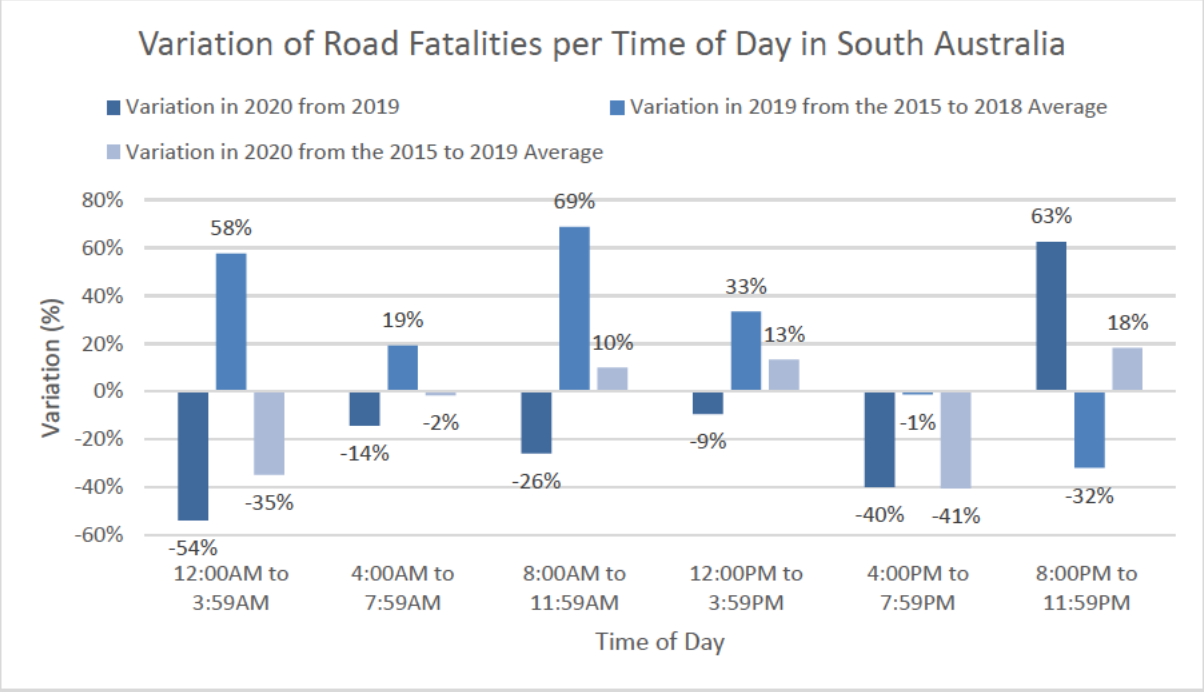

Figure 73: Variation of Road Fatalities per Time of Day in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

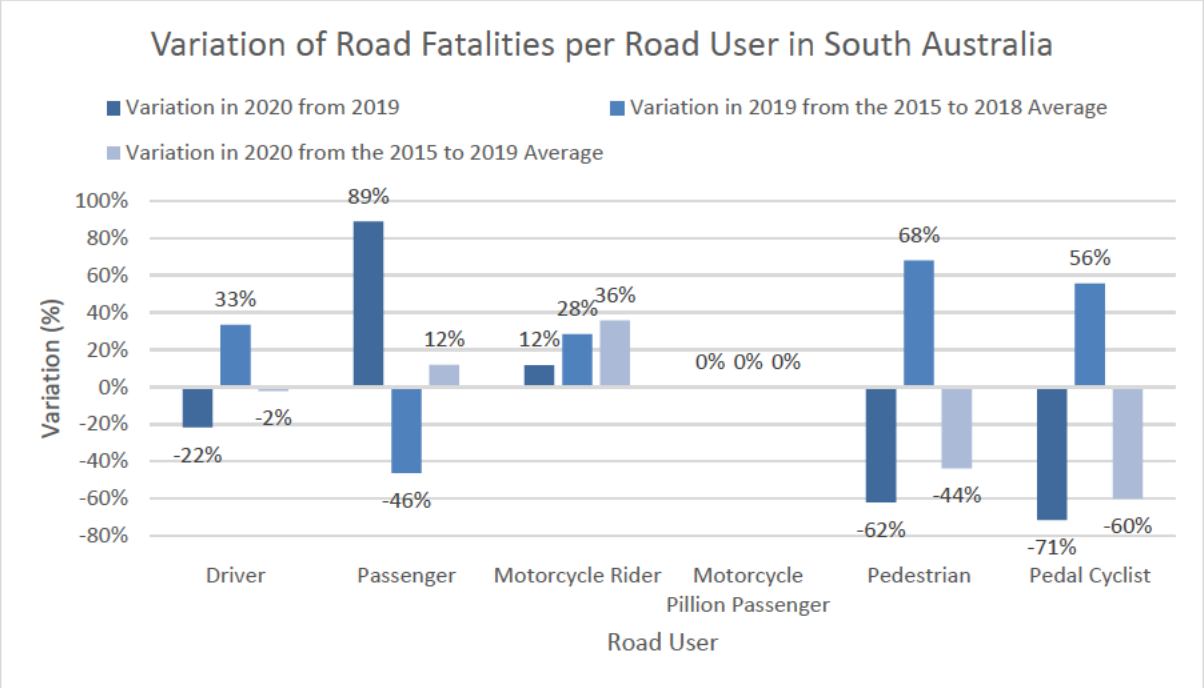

Figure 74: Variation of Road Fatalities per Road User in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

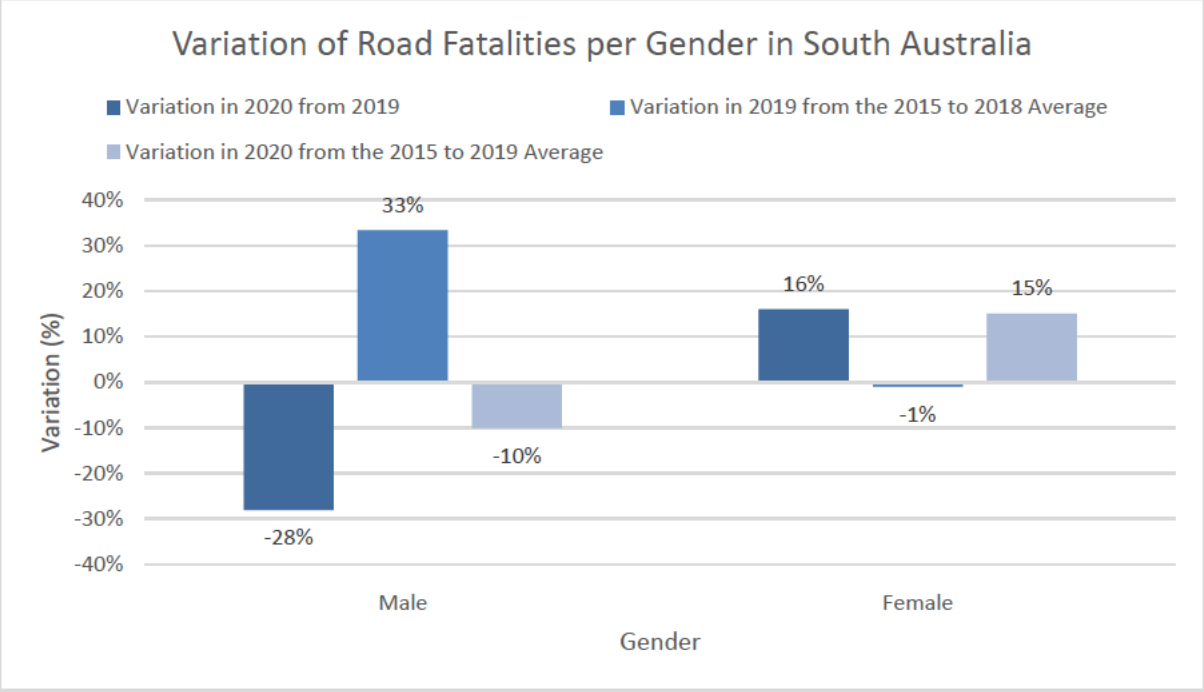

Figure 75: Variation of Road Fatalities per Gender in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

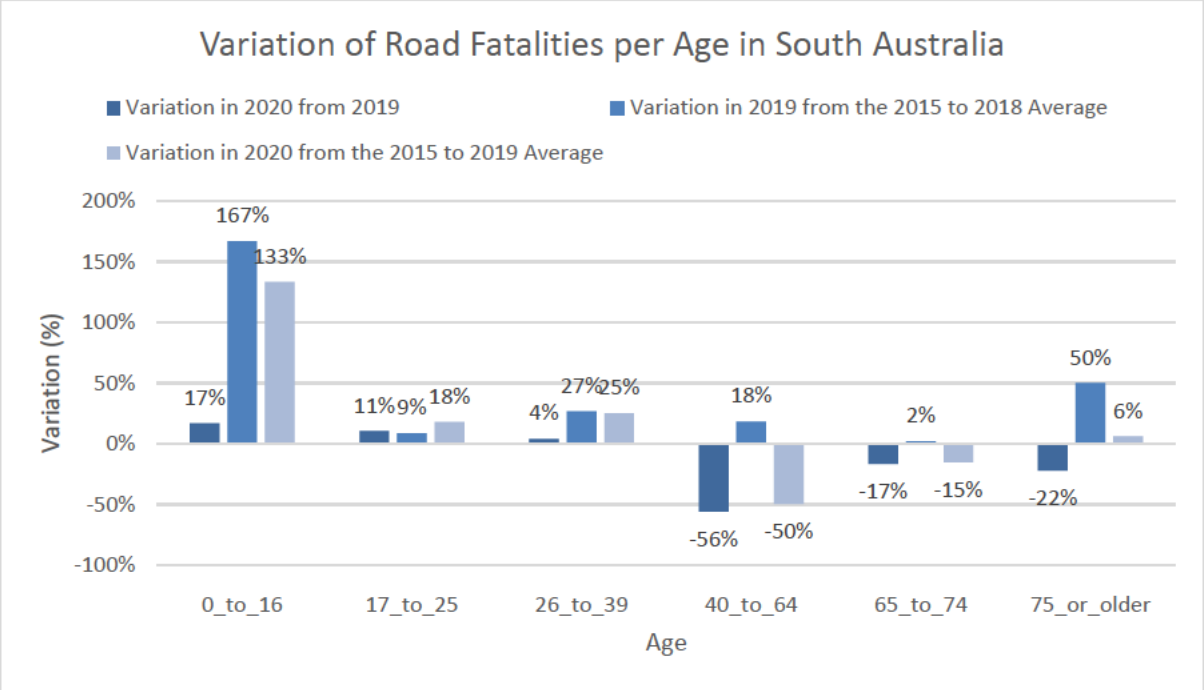

Figure 76: Variation of Road Fatalities per Age in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

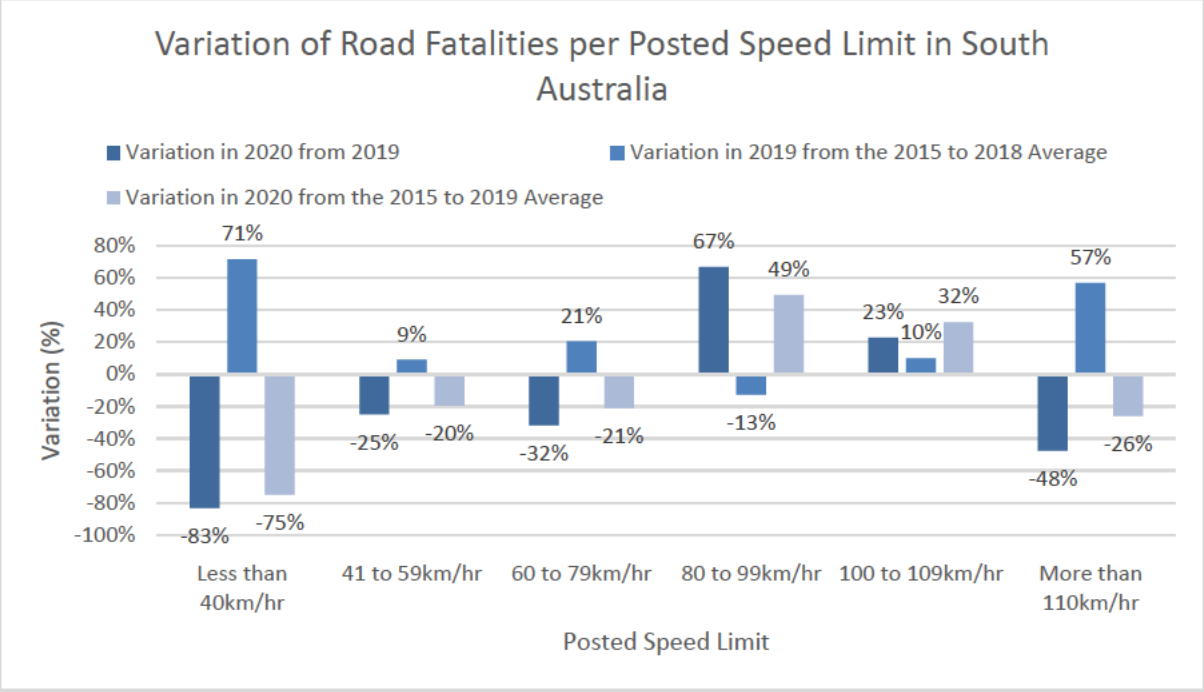

Figure 77: Variation of Road Fatalities per Posted Speed Limit in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

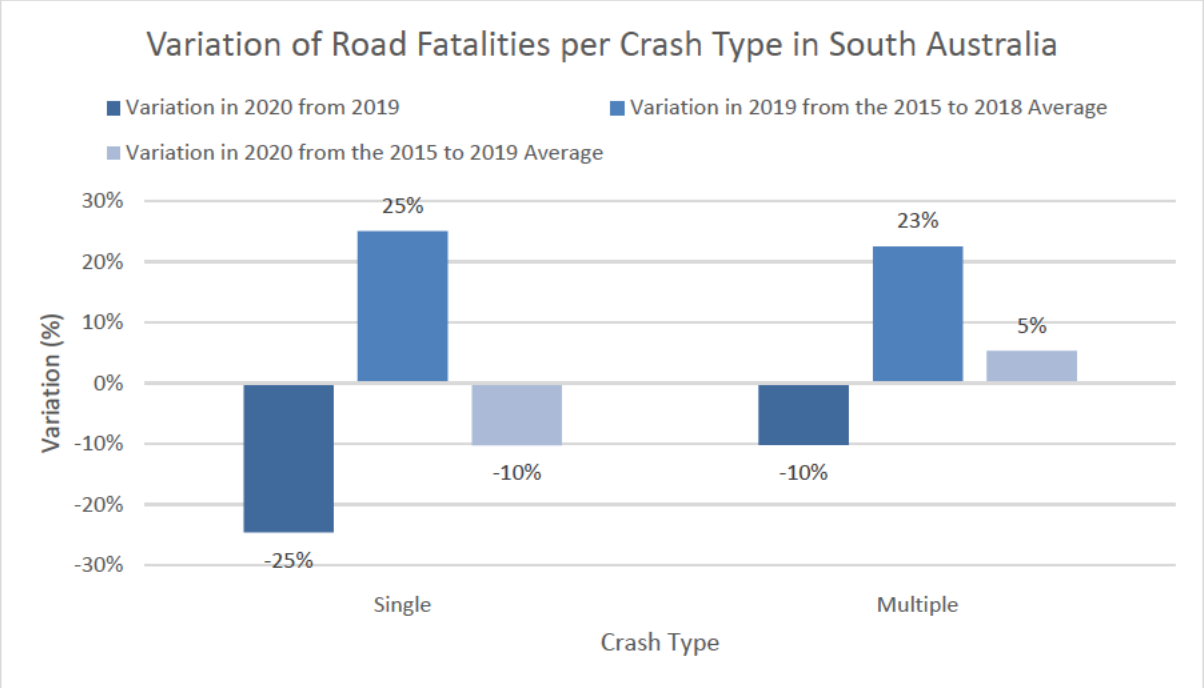

Figure 78: Variation of Road Fatalities per Crash Type in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

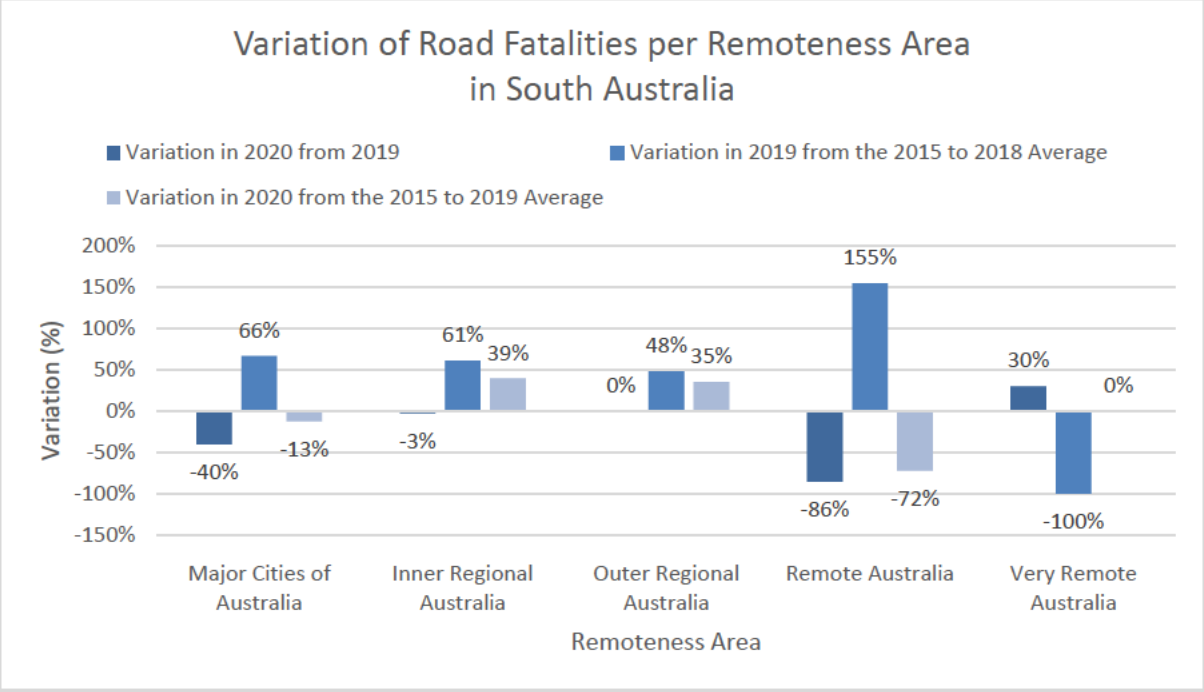

Figure 79: Variation of Road Fatalities per Remoteness Area in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

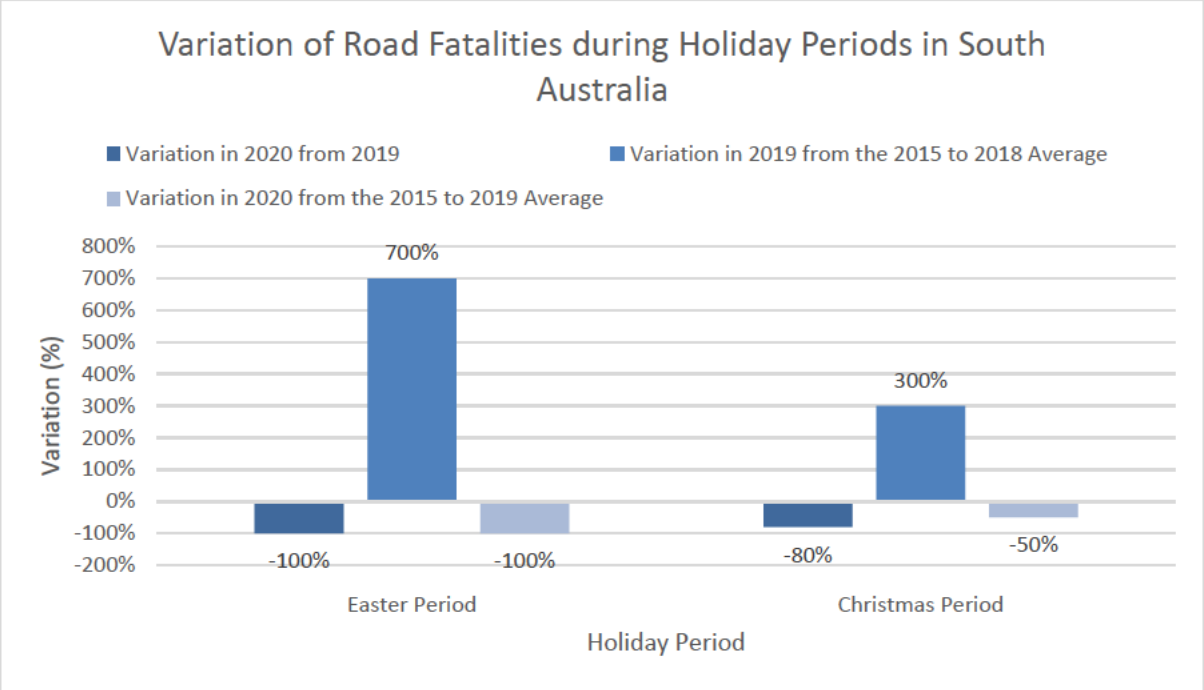

Figure 80: Variation of Road Fatalities during Holiday Periods in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

The summary of significant variations in road fatalities for South Australia during 2020 is showcased in Table 9.

Significant Increases:	• Month of the Year – July • Day of the Week – Tuesday, Sunday • Time of Day – 8:00PM to 11:59PM • Road User – Passenger • Age – 0 to 16 years old • Posted Speed Limit – 80 to 99km/hr
Significant Decreases:	• Annual Road Fatality Casualties and Crashes • Month of the Year – April, May, June, August, September, December • Day of the Week – Monday, Wednesday, Thursday, Friday • Time of Day – 12:00AM to 3:59AM, 8:00AM to 11:59AM, 4:00PM to 7:59PM • Road User – Driver, Pedestrians, Pedal Cyclist • Gender – Male • Age – 40 to 64 years old, 65 to 74 years old, over 75 years old • Posted Speed Limit – 40km/hr, 41 to 59km/hr, 60 to 79km/hr, 110km/hr • Crash Type – Single Vehicle Crash • Remoteness Area – Major Cities of Australia, Remote Australia, Very Remote Australia • Holiday Periods – Easter, Christmas

Table 9: Summary of Significant Variations of Road Fatalities in South Australia

With the Government of South Australia imposing restrictions on the 24th of March 2020 and then easing restrictions on the 8th of May 2020, there was significantly reduced road fatalities that occurred during that time and then for a few months afterwards.

On weekdays, there was a significant decrease in road fatality rates which is likely influenced from the following factors. The increased uptake of workers and students working remotely which means they were not commuting during the week, reduced leisurely travel due to travel restrictions and with the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips taken.

Individuals aged 17 to 25 years old experienced a significant increase in road fatalities compared to previous years. It is expected that many student drivers had a significant disadvantage to learning to drive during COVID-19 than the years prior. In the initial lockdowns, many student drivers, parents and authorities were unsure of the guidelines pertaining to driving lessons. This caused limited training opportunities for student drivers to build up their safe driving skills and confidence on the roads.

With traffic volumes also reduced at the beginning of COVID-19, learner drivers who continued to learn during that time would be accustomed to driving in less congested conditions. When traffic volumes resumed to pre-COVID-19 levels, student drivers may not be adequately prepared for driving in those conditions.

With many driving schools and instructions suspending or limiting their operations, it meant that student drivers had to rely on parental supervision for driving lessons. Depending on the supervisory adult's experience and their own road user behaviour, it may have an impact on the quality of the driving lesson as they would be unable to provide the same level of instruction as a professional or unknowingly provide poor road user behaviour advice to learner drivers.

Individuals aged over 65 years old also saw a significant decline in road fatality rates compared to previous years. This is likely due to the heightened risks associated with being infected with COVID-19, especially for older individuals. Then many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took. In addition, with many recreational and outdoor activities limited it meant that older individuals limited their travel throughout the pandemic.

5.2.6 Road Fatalities in the Northern Territory

As illustrated in Figure 81, there was 31 road fatalities in the Northern Territory during 2020, which was 5 (14%) less than 2019 and 11 (27%) less than the 2015 to 2019 average. After a comprehensive assessment, it is apparent that COVID-19 did not have a significant influence on road fatalities in the Northern Territory. Despite this, further analysis of additional road crash characteristics was still warranted to determine if there are any significant indicators.

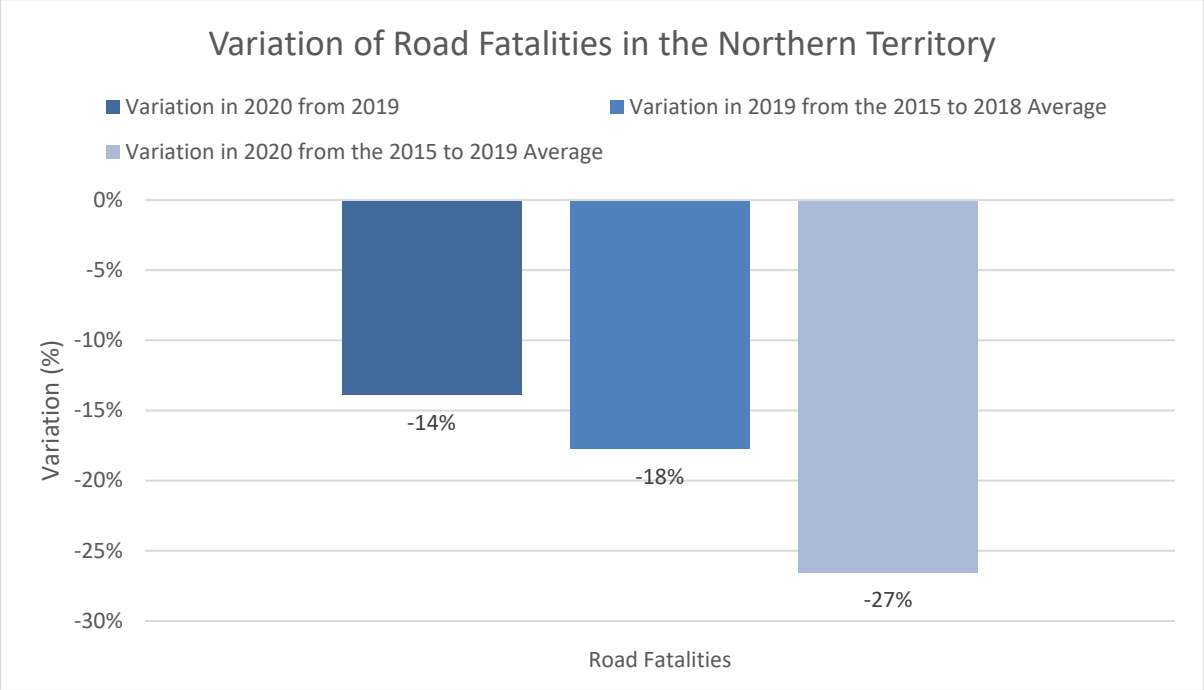

Figure 81: Variation of Road Fatalities in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

Figure 82 to Figure 91 showcases the variations between the road fatalities that occurred in respect the different categories in the Northern Territory. Categories include month of the year, day of the week, time of day, road user, gender, age, posted speed limit, crash type, remoteness area and holiday period.

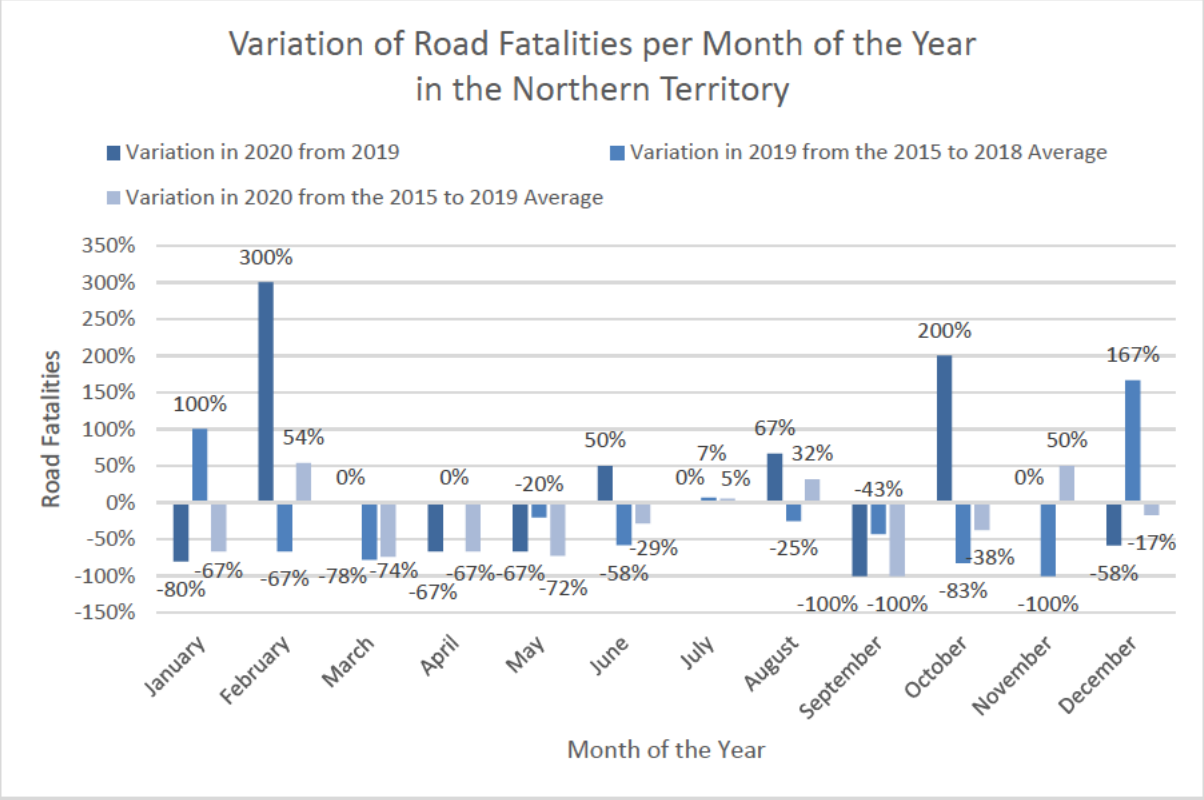

Figure 82: Variation of Road Fatalities per Month of the Year in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

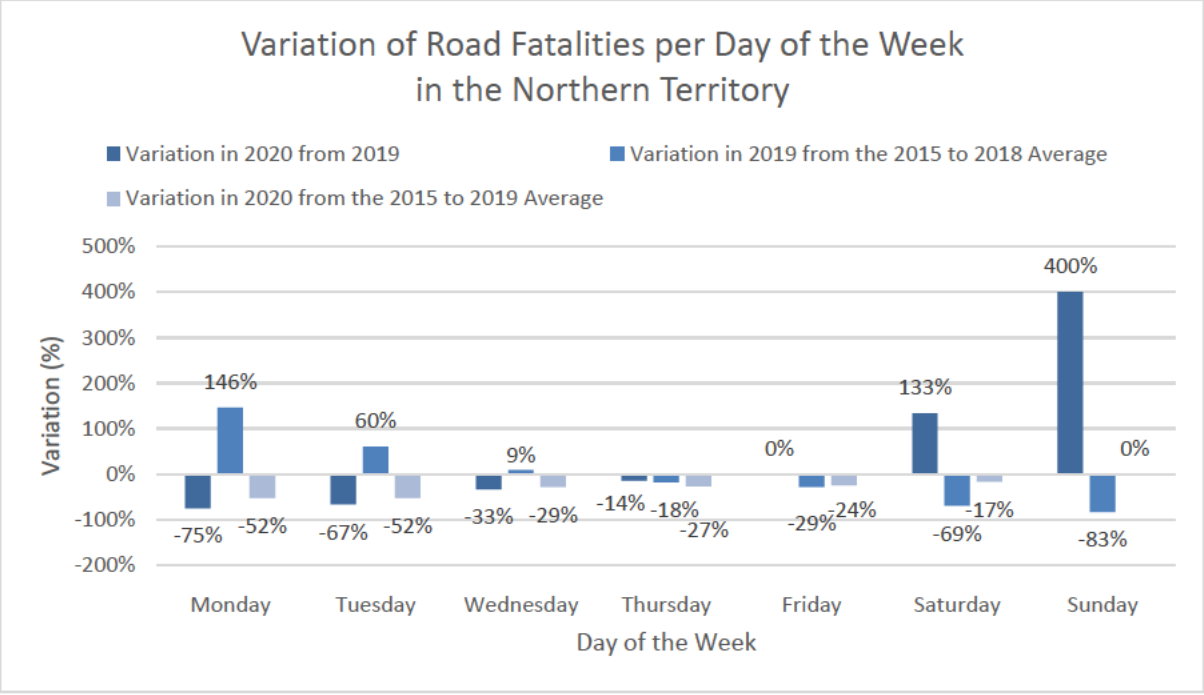

Figure 83: Variation of Road Fatalities per Day of the Week in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

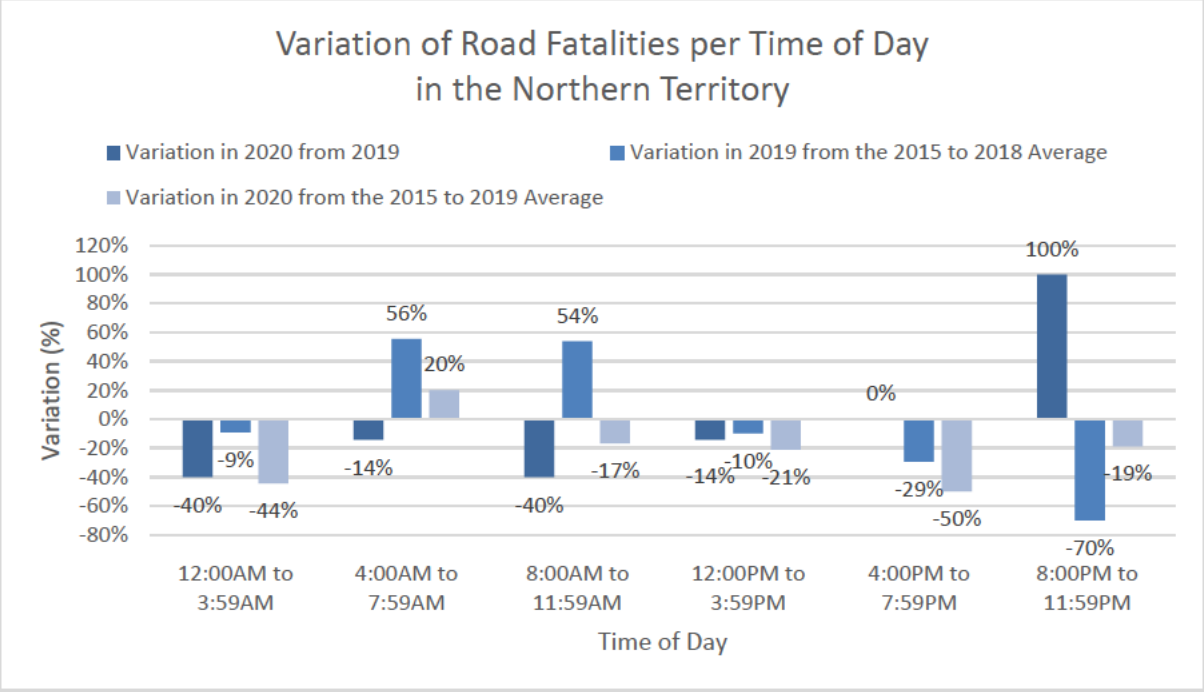

Figure 84: Variation of Road Fatalities per Time of Day in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

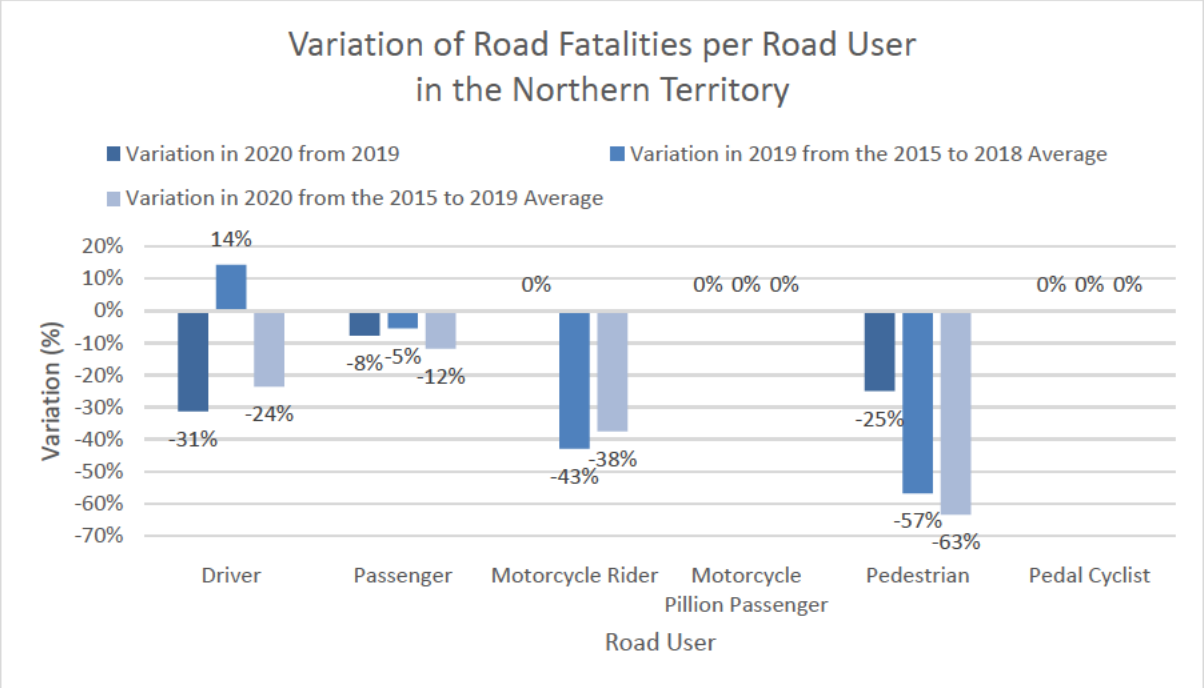

Figure 85: Variation of Road Fatalities per Road User in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

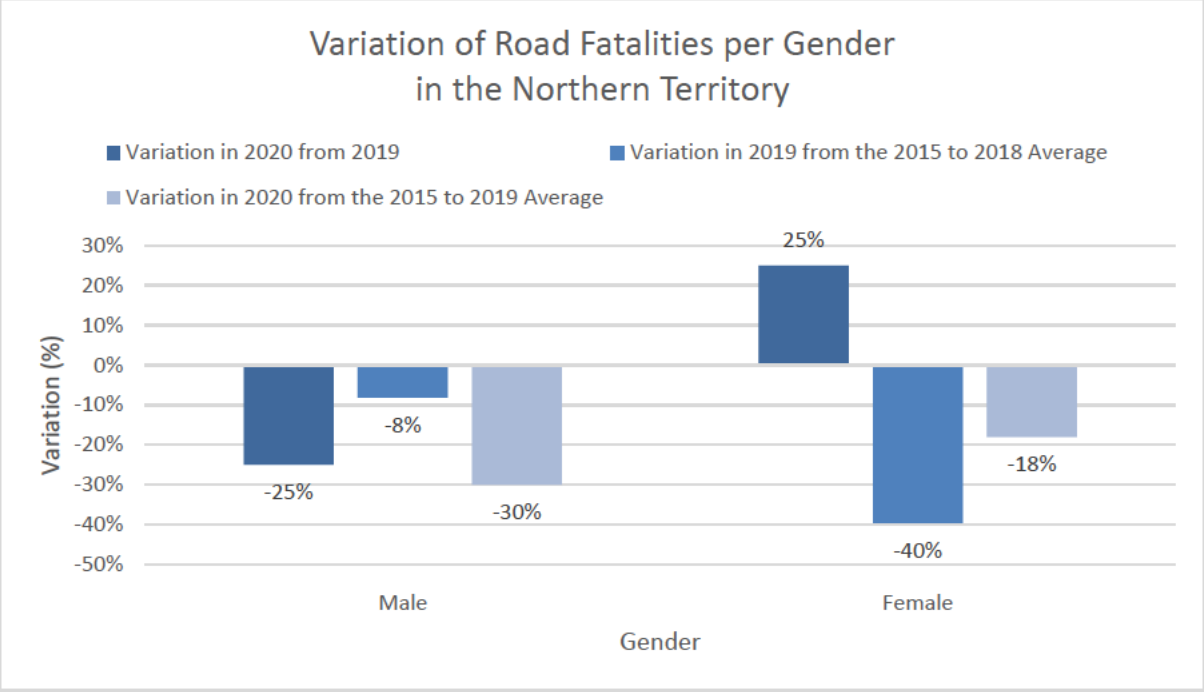

Figure 86: Variation of Road Fatalities per Gender in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

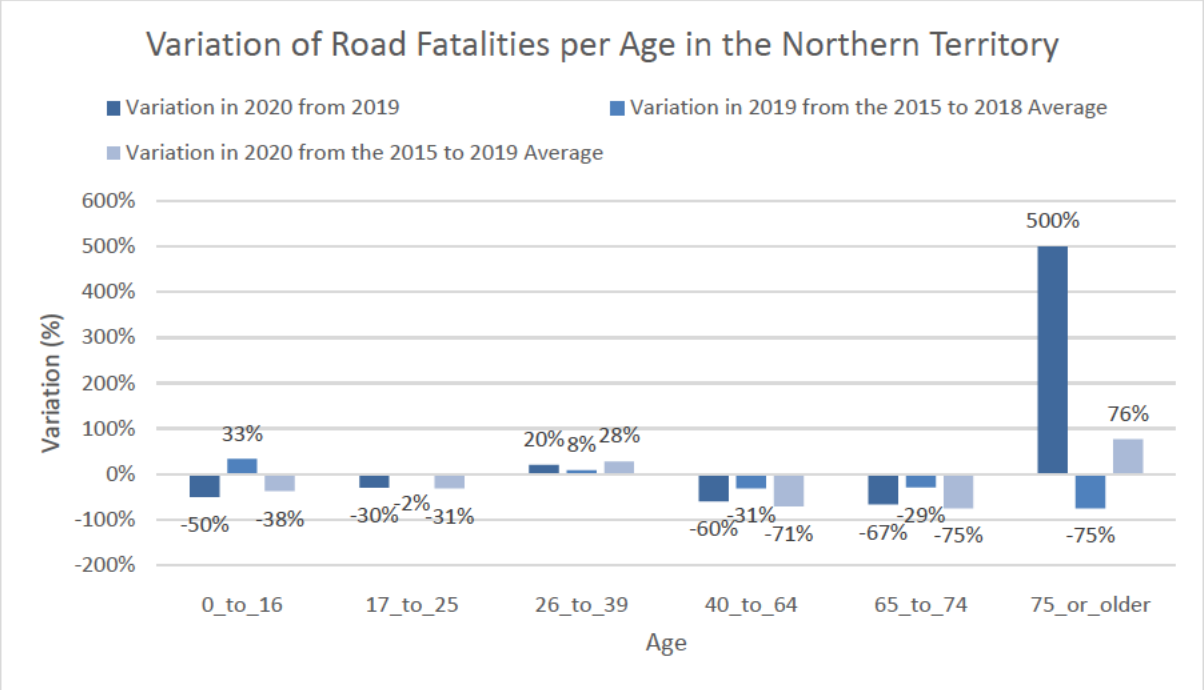

Figure 87: Variation of Road Fatalities per Age in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

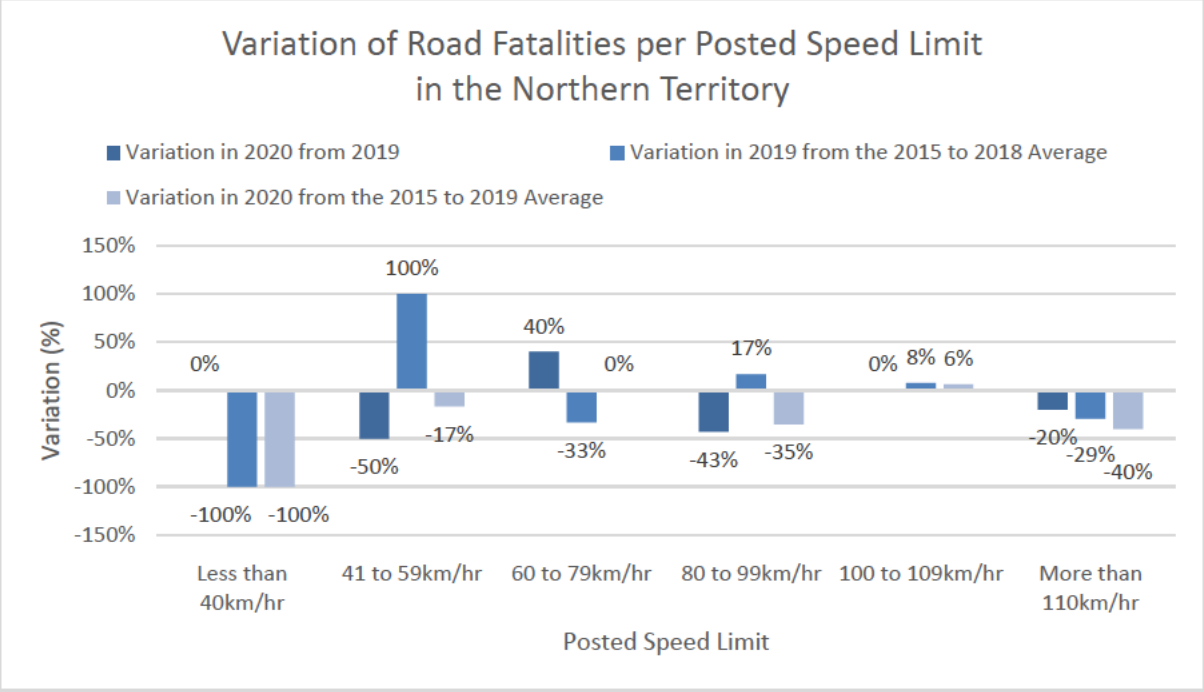

Figure 88: Variation of Road Fatalities per Posted Speed Limit in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

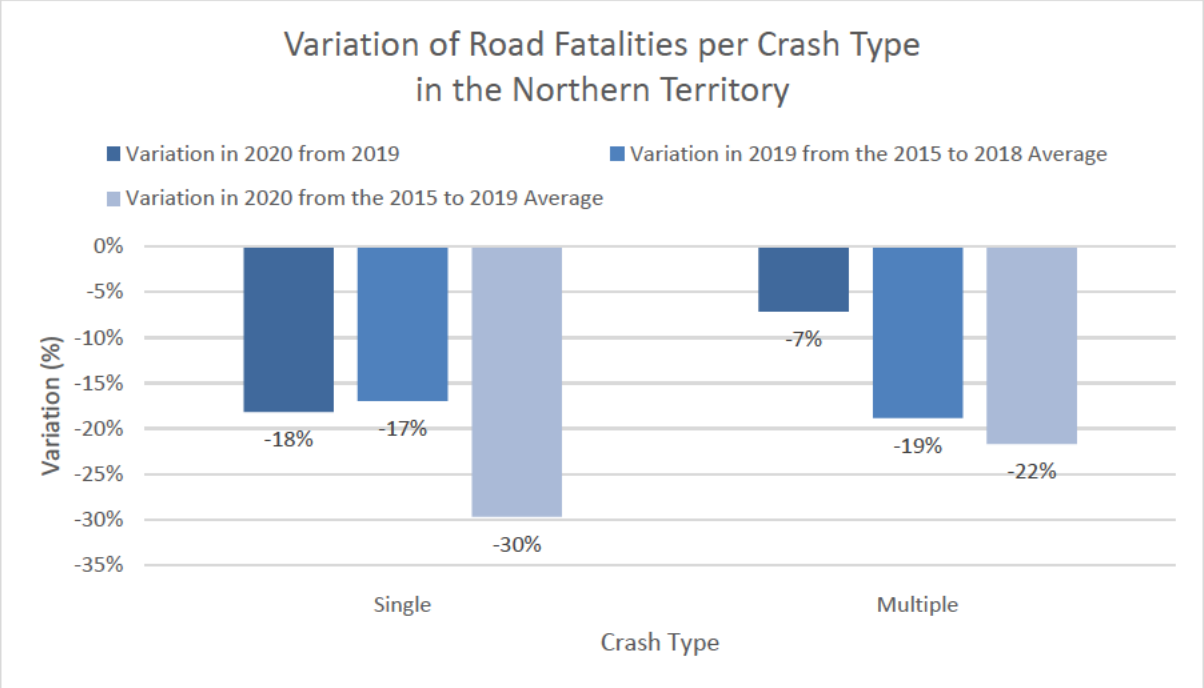

Figure 89: Variation of Road Fatalities per Crash Type in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

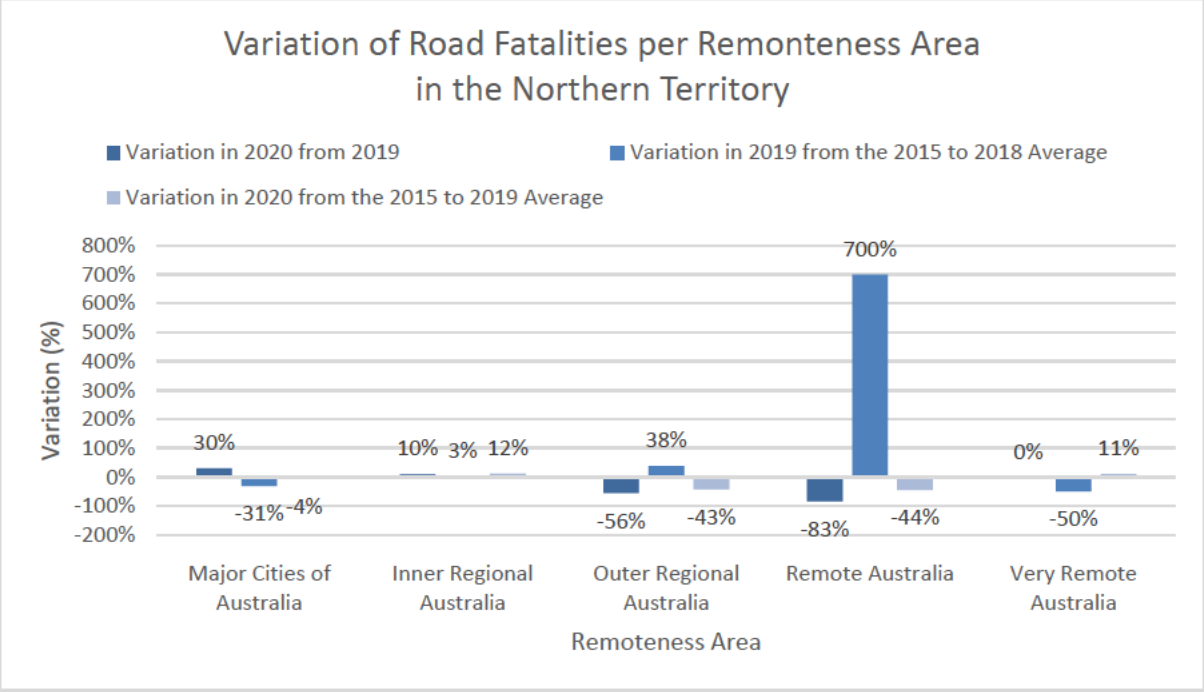

Figure 90: Variation of Road Fatalities per Remoteness Area in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

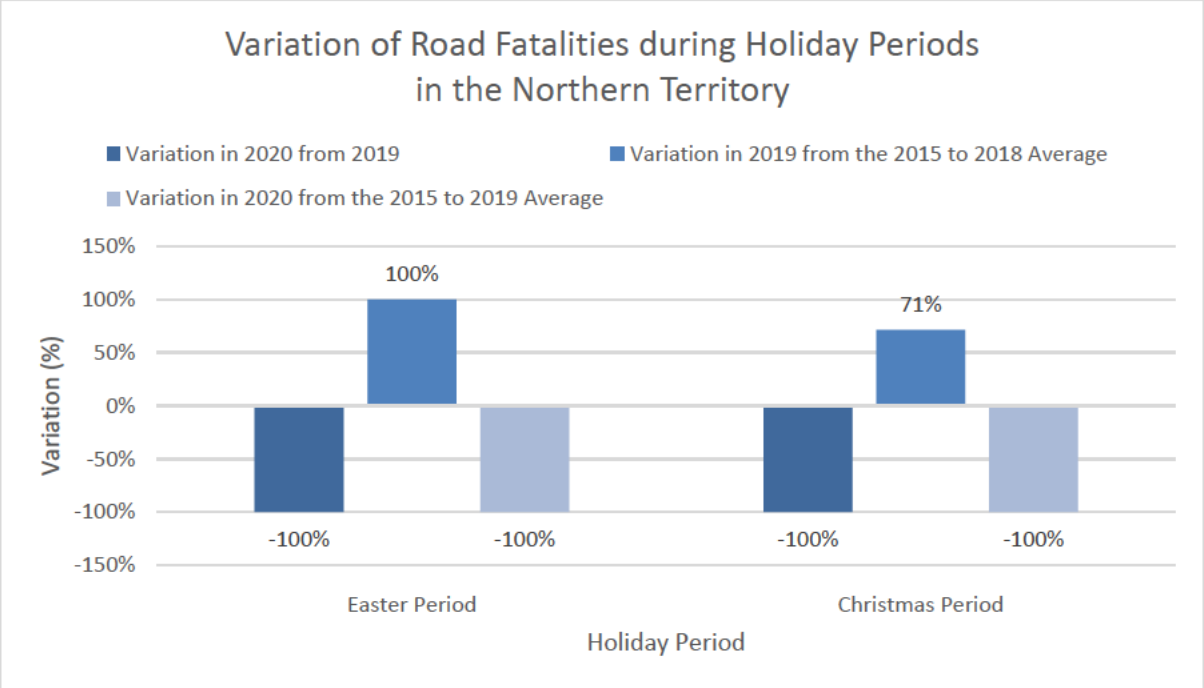

Figure 91: Variation of Road Fatalities during Holiday Periods in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

A summary of significant variations of road fatalities in the Northern Territory during 2020 is showcased in Table 10.

Significant Increases:	• Months of the Year – June, August, October, December • Day of the Week – Saturday, Sunday • Time of Day – 8:00PM to 11:59PM • Gender – Female • Age – 26 to 39 years old, over 75 years old • Posted Speed Limit – 60 to 79km/hr • Remoteness Area – Major Cities
Significant Decreases:	• Months of the Year – April, May, September • Day of the Week – Monday, Tuesday, Wednesday • Time of Day – 12:00PM to 3:59PM, 8:00AM to 11:59AM • Road User – Driver, Motorcycle Rider, Pedestrians • Gender – Male • Age – 0 to 16 years old, 17 to 25 years old, 40 to 64 years old, 65 to 74 years old • Posted Speed Limit – 41 to 59km/hr, 80 to 99 km/hr, 110km/hr • Crash Type – Single Vehicle Crash • Remoteness Area – Outer Regional Australia, Remote Australia • Holiday Period – Easter, Christmas

Table 10: Summary of Significant Variations of Road Fatalities in the Northern Territory

After the Northern Territory imposed strict border controls and non-essential travel was actively discouraged on the 24th of March 2023, road fatalities significantly decreased. This was likely due to increased uptake of workers and students working remotely, reduced leisurely travel due to travel restrictions and with the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took. When COVID-19 restrictions had been reduced and all travel to the 76 Northern Territory remote communities was lifted in early June, road fatalities had a significant increase.

This was likely due to the increased demand to travel and lingering riskier road user behaviours which stemmed from the initial lockdowns where there was reduced traffic on the roads. Individuals would perceive the roadway to be safer than what they really are with reduced traffic volumes. For the remainder of the year, road fatalities per month would be expected to be volatile due to the broader socioeconomic impacts that COVID-19 exerted throughout the remainder of the year.

During the week, there was a significant reduction in road fatalities which would be caused from an increased uptake of workers and students working remotely and the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took.

Due to the stringent messaging of safety measures to the Australian public, it is likely that individuals became more conscious of their actions which led to safer driving and riding practices which would reduce the likelihood of them being involved being involved in a road crash. Drivers, motorcyclists and pedestrians had a significant decrease in road fatality rates during 2020 in the Northern Territory.

In remote and very remote regions of the Northern Territory, there was a significant reduction in road fatality rates compared to prior years. This aligns with the strict lockdowns that occurred in those 76 Northern Territory remote communities. Then there was an increase in road fatalities occurring in major cities. That would have been likely due to the increased travel around the cities as travel to remote regions in the Northern Territory was restricted. In addition, COVID-19 had a major impact on the economy where thousands of individuals lost their jobs and many families experience financial hardship. This may have discouraged some individuals and their families to travel so they could save some money.

5.2.7 Road Fatalities in the Australian Capital Territory

As illustrated in Figure 92 and Figure 93, there were 7 road fatalities in the Australian Capital Territory during 2020, which was 1 (17%) more than 2019 and 2 (22%) less than the 2015 to 2019 average. Then there were 6 road fatality crashes in the Australian Capital Territory during 2020, which was the same as 2019 and 3 (33%) less than the 2015 to 2019 average. The research methodology approach of the undergraduate research dissertation is to complete a quantitative data analysis. Due to the Australian Capital Territory having fatality rates below 10, completing the data analysis would provide a distorted perception of the influence COVID-19 had on road fatalities. To best understand the influence COVID-19 had on road safety in the Australian Capital Territory, an analysis was completed on serious injuries in the Australian Capital Territory during 2020.

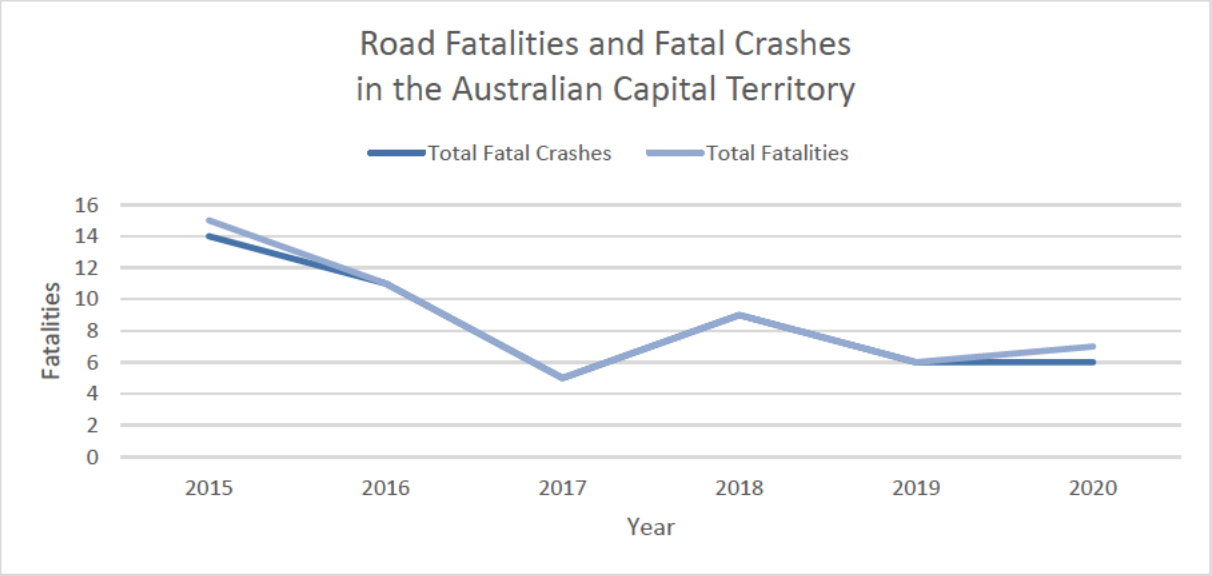

Figure 92: Road Fatalities and Fatal Crashes in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

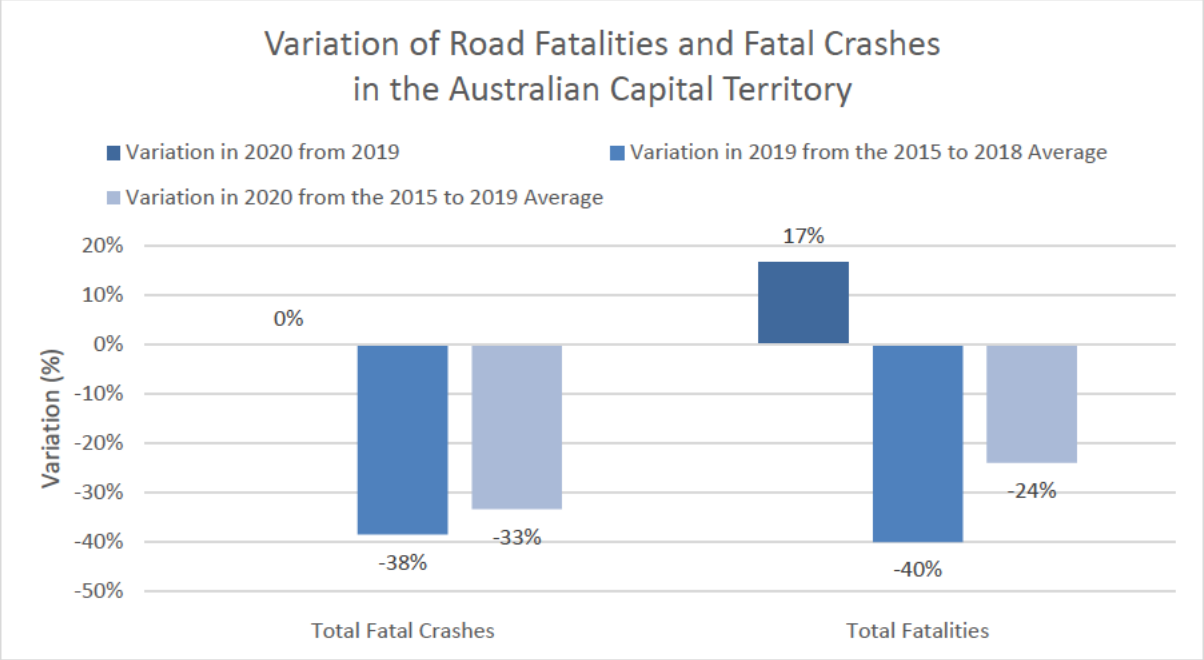

Figure 93: Variation of Road Fatalities and Fatal Crashes in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

Figure 94 to Figure 104 showcases the variations between the road fatalities that occurred in 2020 compared to previous years.

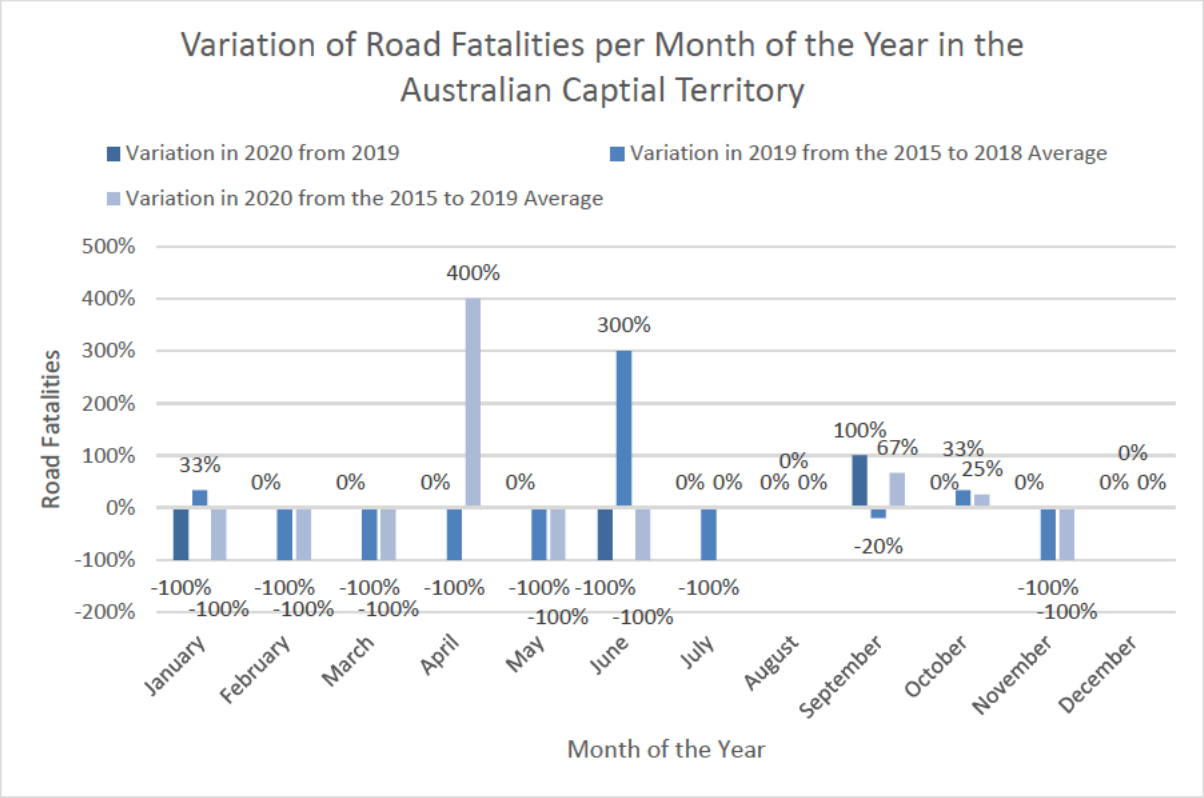

Figure 94: Variation of Road Fatalities per Month in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

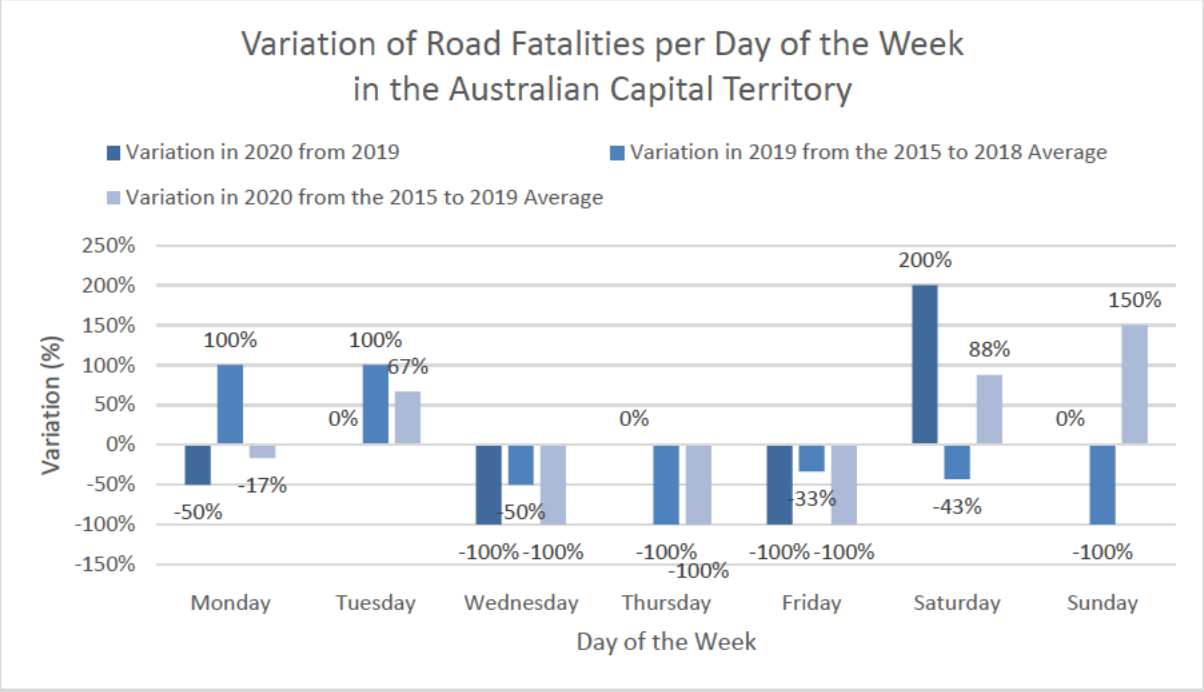

Figure 95: Variation of Road Fatalities per Day of the Week in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

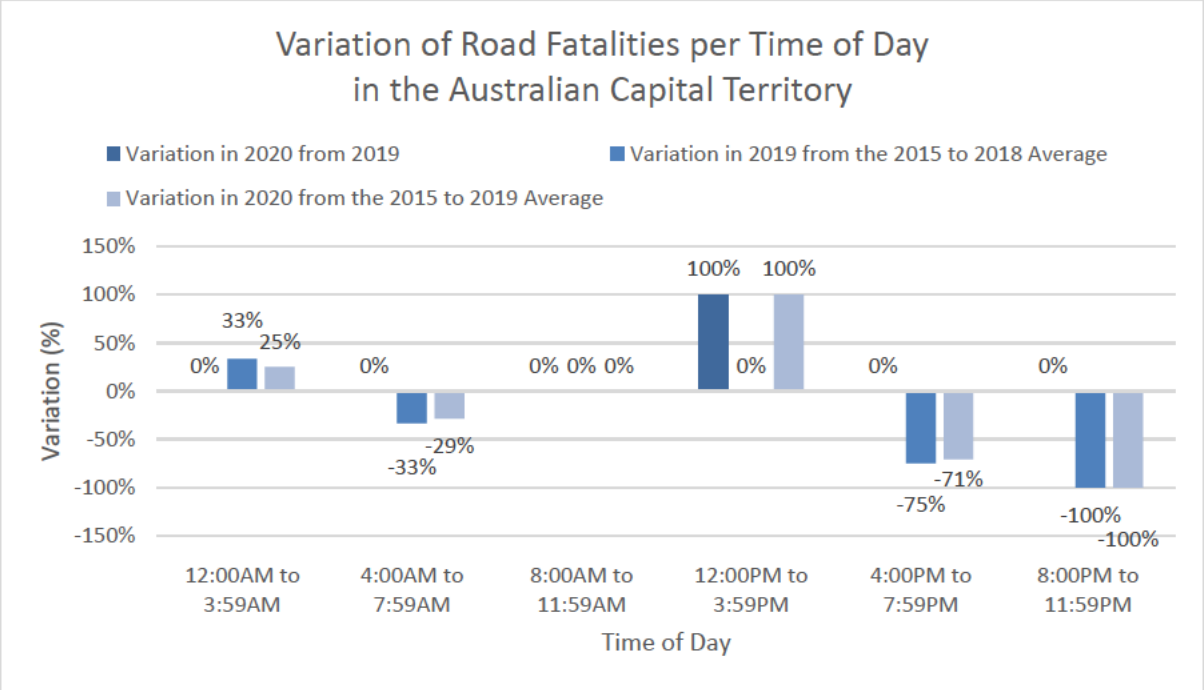

Figure 96: Variation of Road Fatalities per Time of Day in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

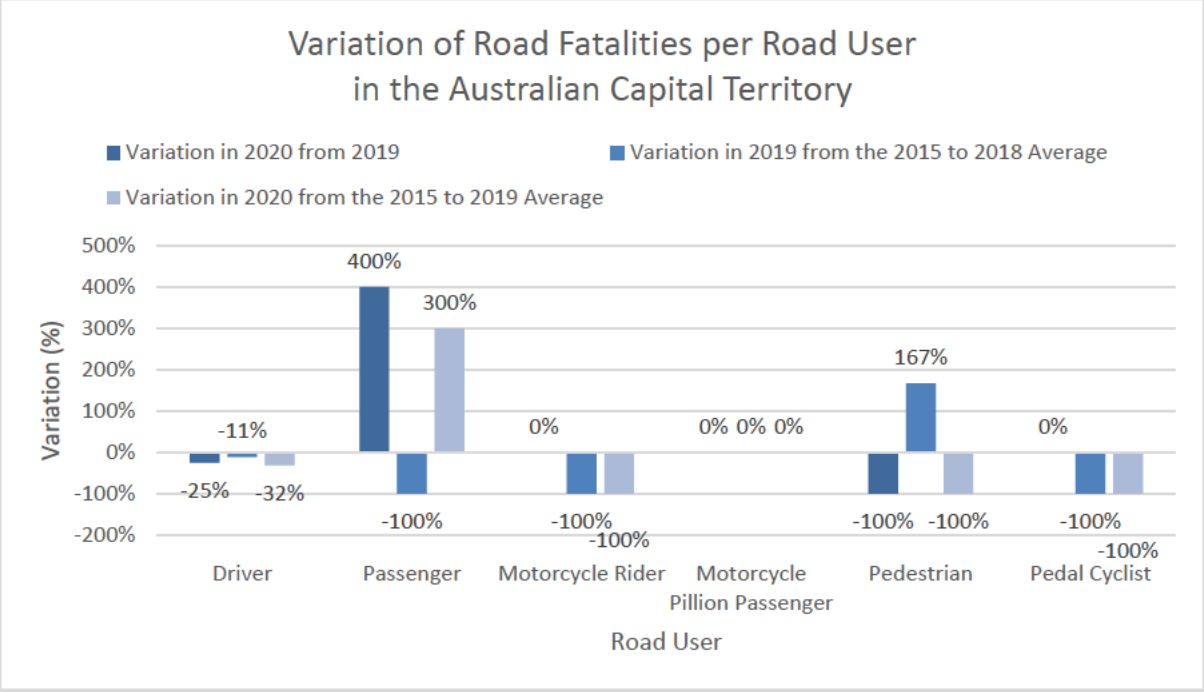

Figure 97: Variation of Road Fatalities per Road User in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

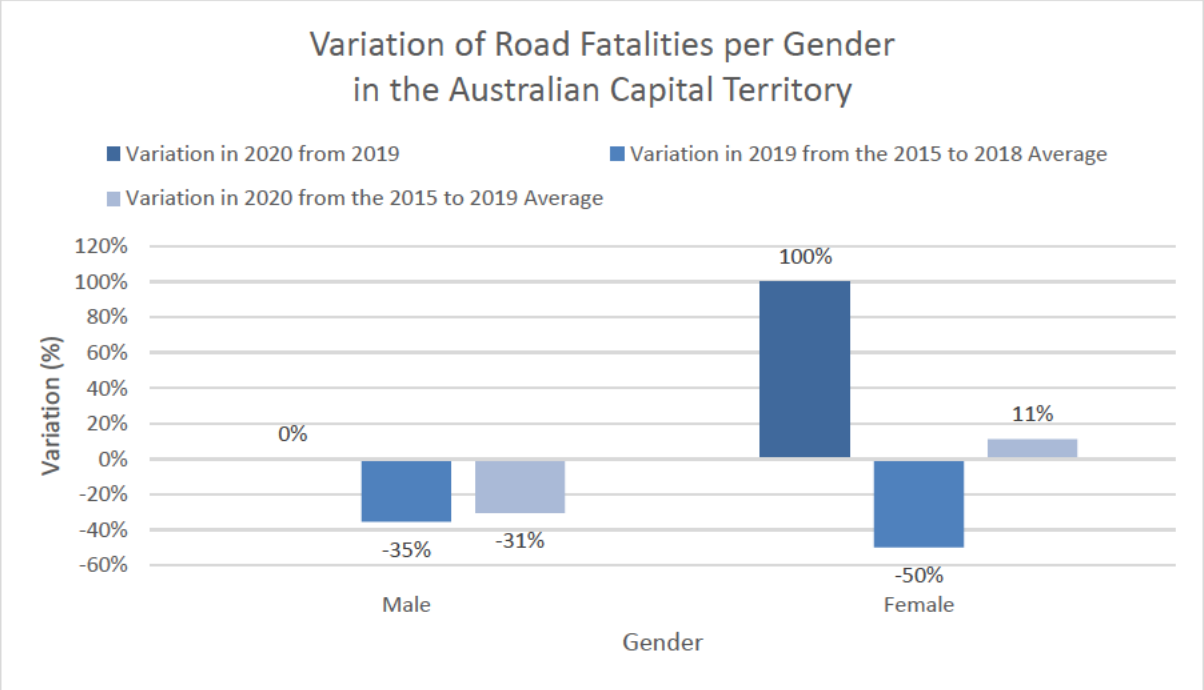

Figure 98: Variation of Road Fatalities per Gender in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

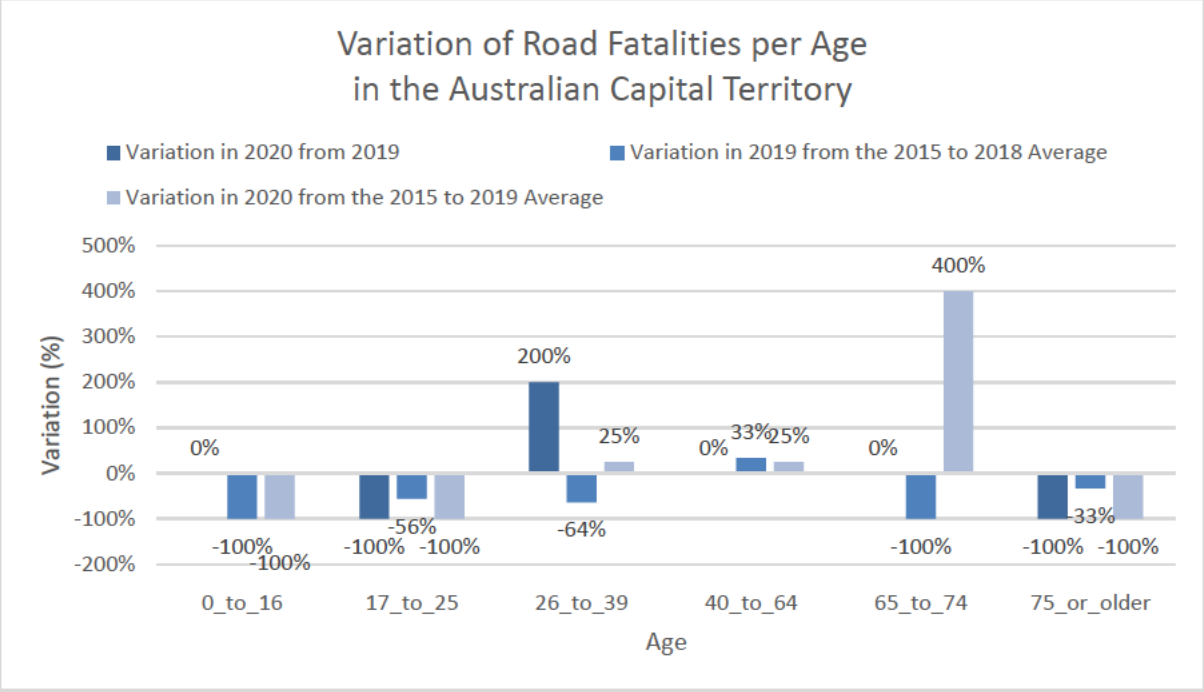

Figure 99: Variation of Road Fatalities per Age in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

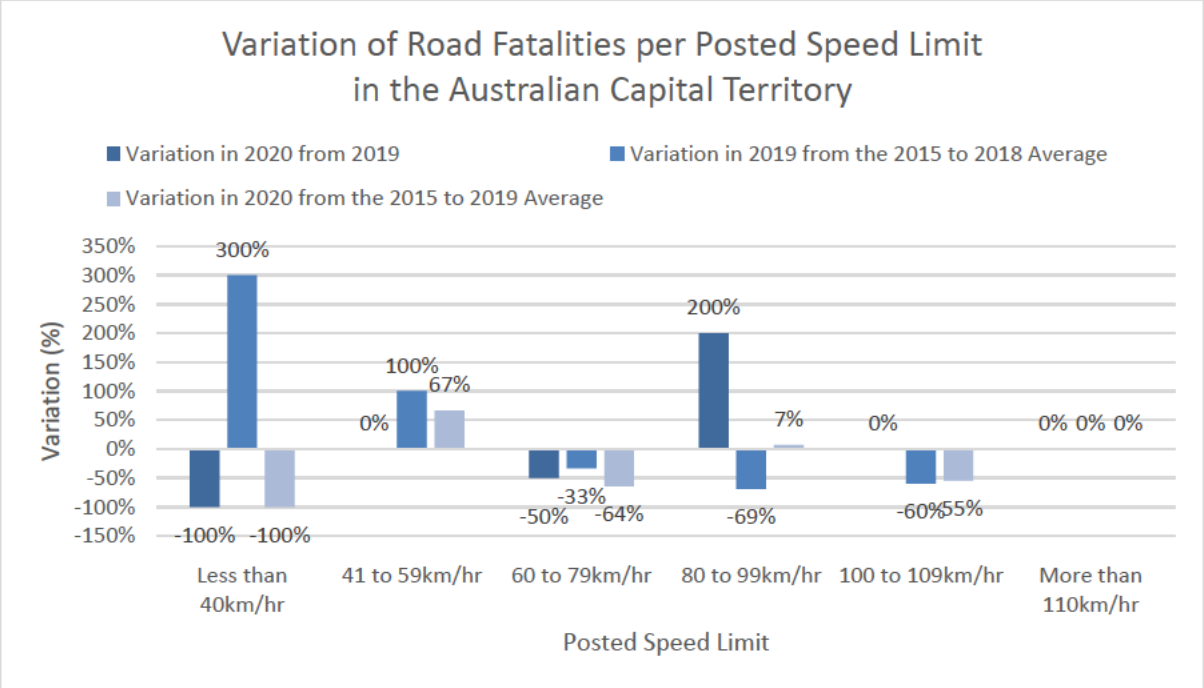

Figure 100: Variation of Road Fatalities per Posted Speed Limit in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

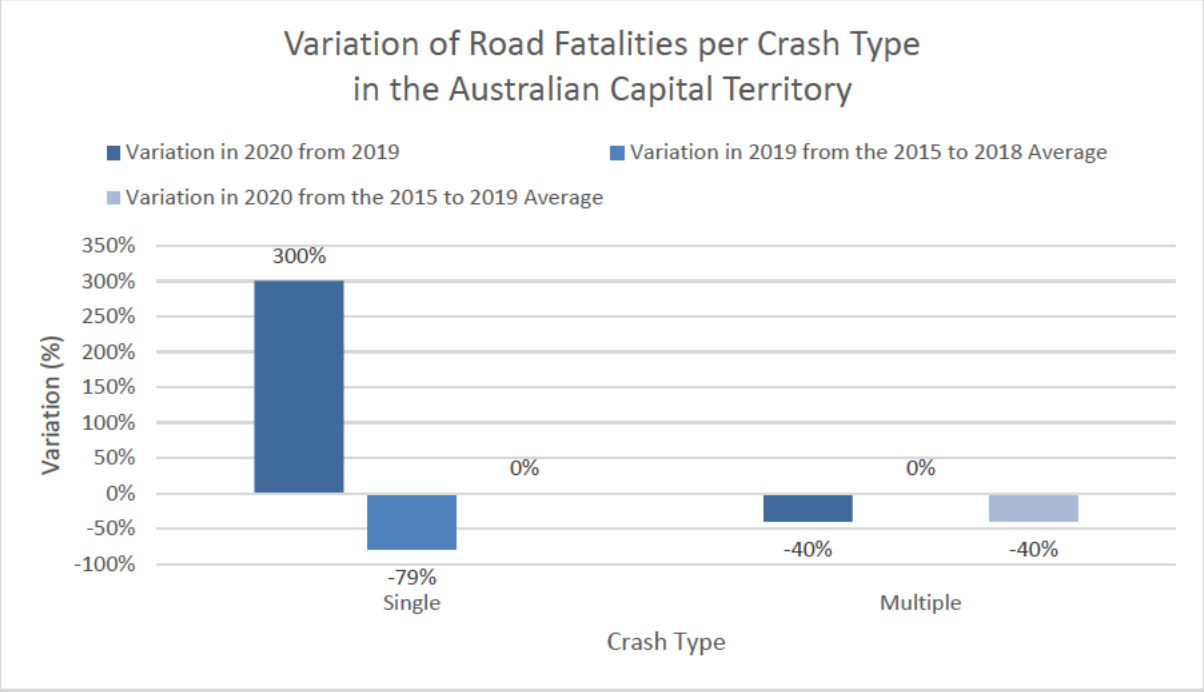

Figure 101: Variation of Road Fatalities per Crash in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

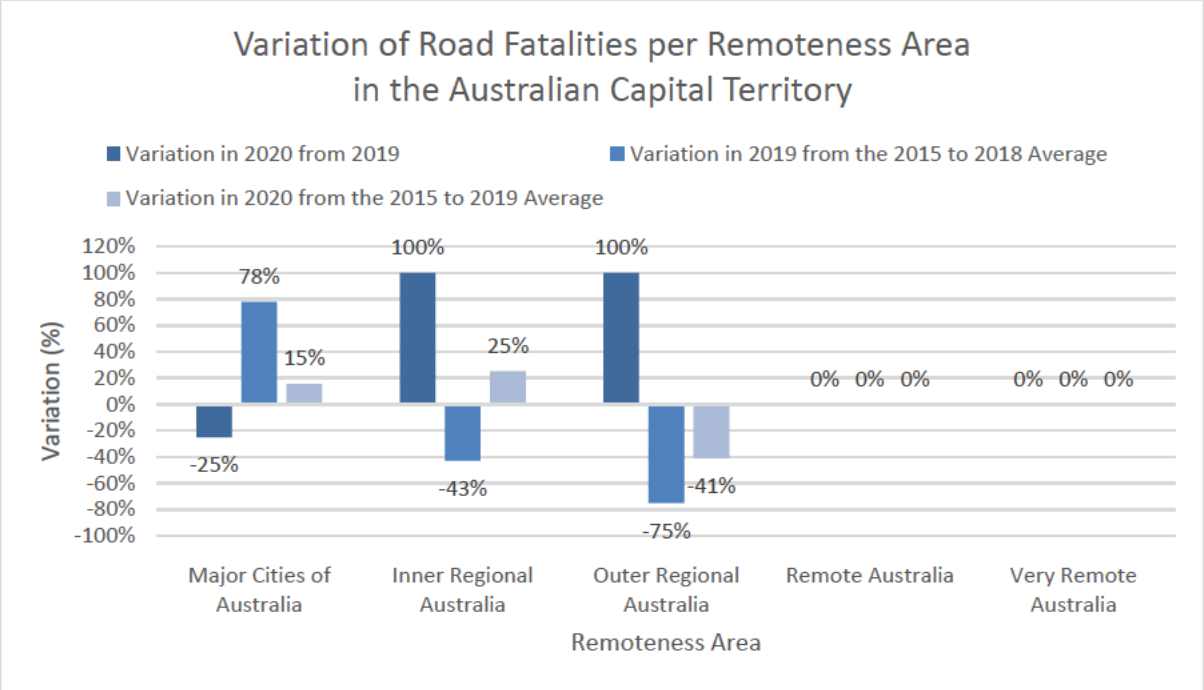

Figure 102: Variation of Road Fatalities per Remoteness Area in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

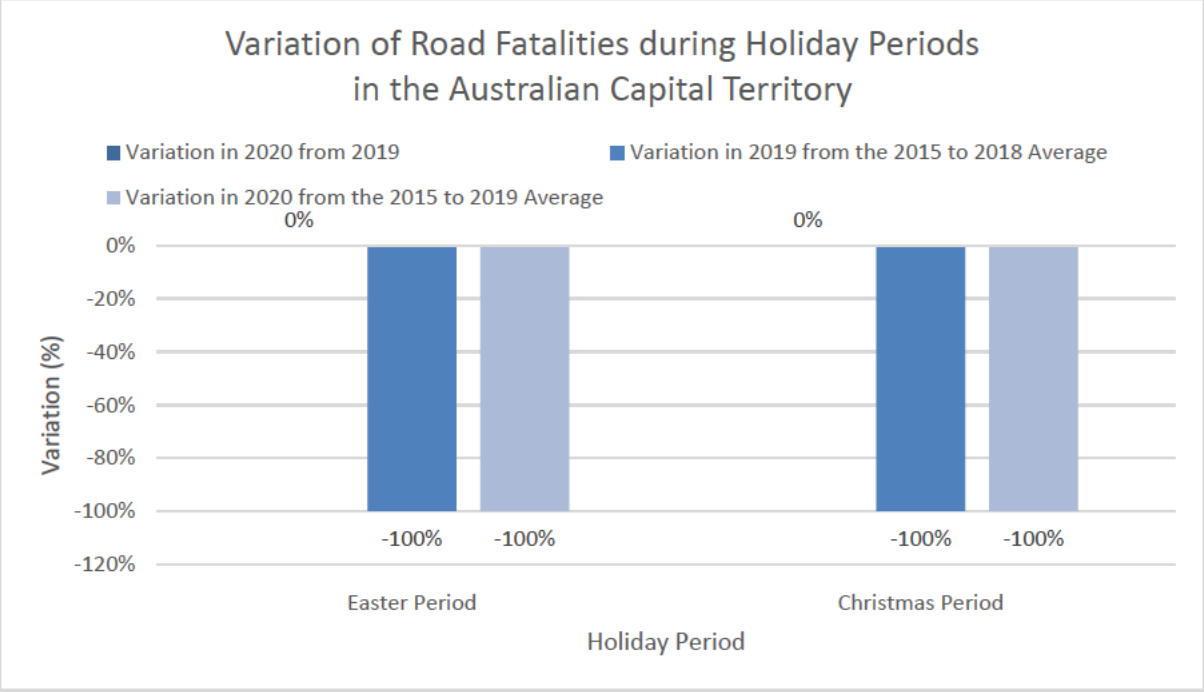

Figure 103: Variation of Road Fatalities during Holiday Periods in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

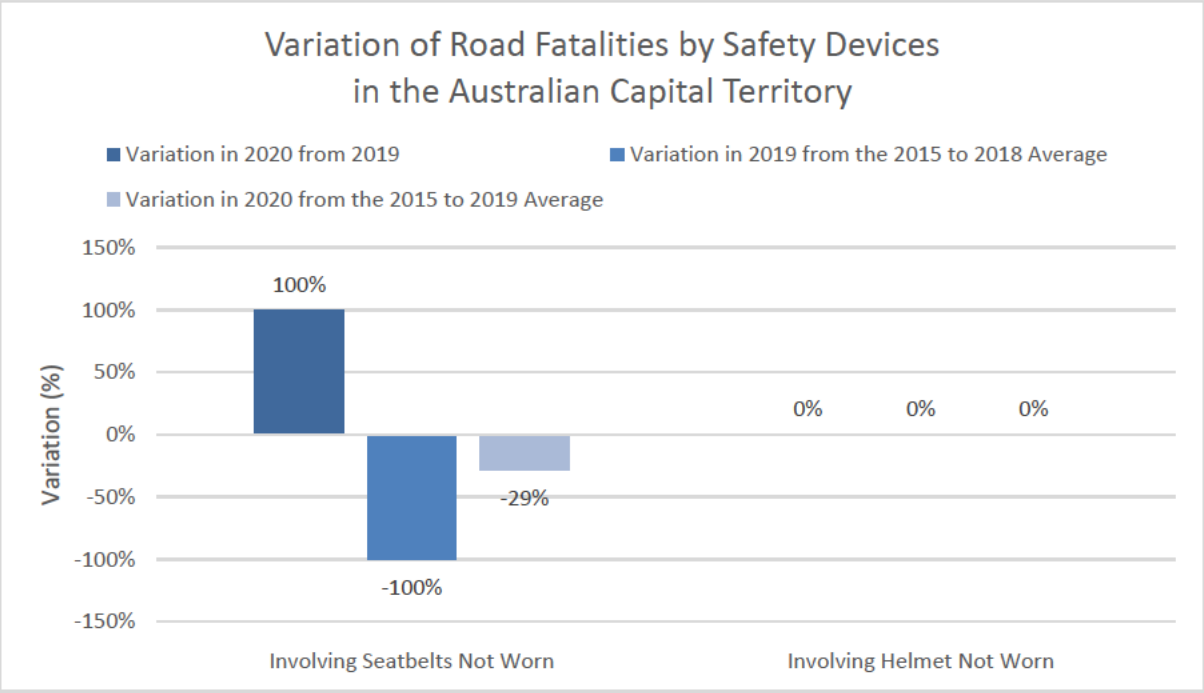

Figure 104: Variation of Road Fatalities by Safety Devices in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

5.2.8 Road Fatalities in Western Australia

In 2020, Western Australia recorded a total of 155 road fatalities. This was 8 (5%) less than 2019 and 13 (8%) less than the 2015 to 2019 average. Upon examination of the variation in road fatalities when compared to proceeding years, it is apparent that the influence of COVID-19 did not have a significant impact. The rate of road fatalities in 2020 remained consistent with the established trend from prior years. Despite this, further analysis of additional road crash characteristics was still warranted to determine if there are any significant indicators.

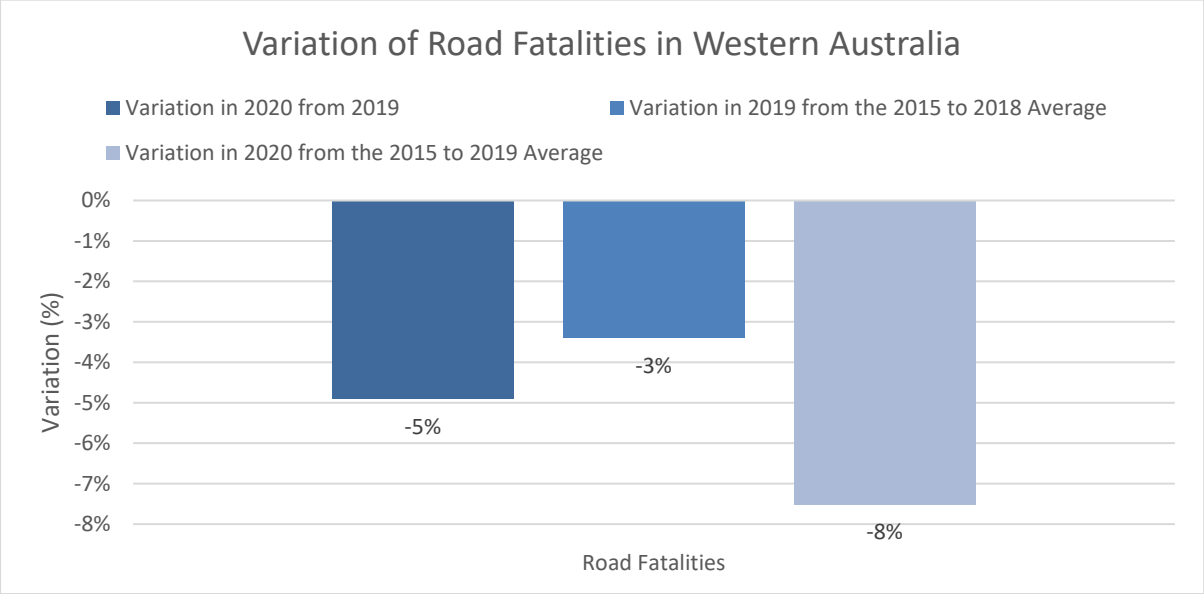

Figure 105: Variation of Road Fatalities in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

Figure 106 to Figure 116 showcases the variations between the road fatalities that occurred in respect to the different categories in the Northern Territory. Categories include month of the year, day of the week, time of day, road user, gender, age, posted speed limit, crash type, remoteness areas, holiday periods and risky road user behaviour.

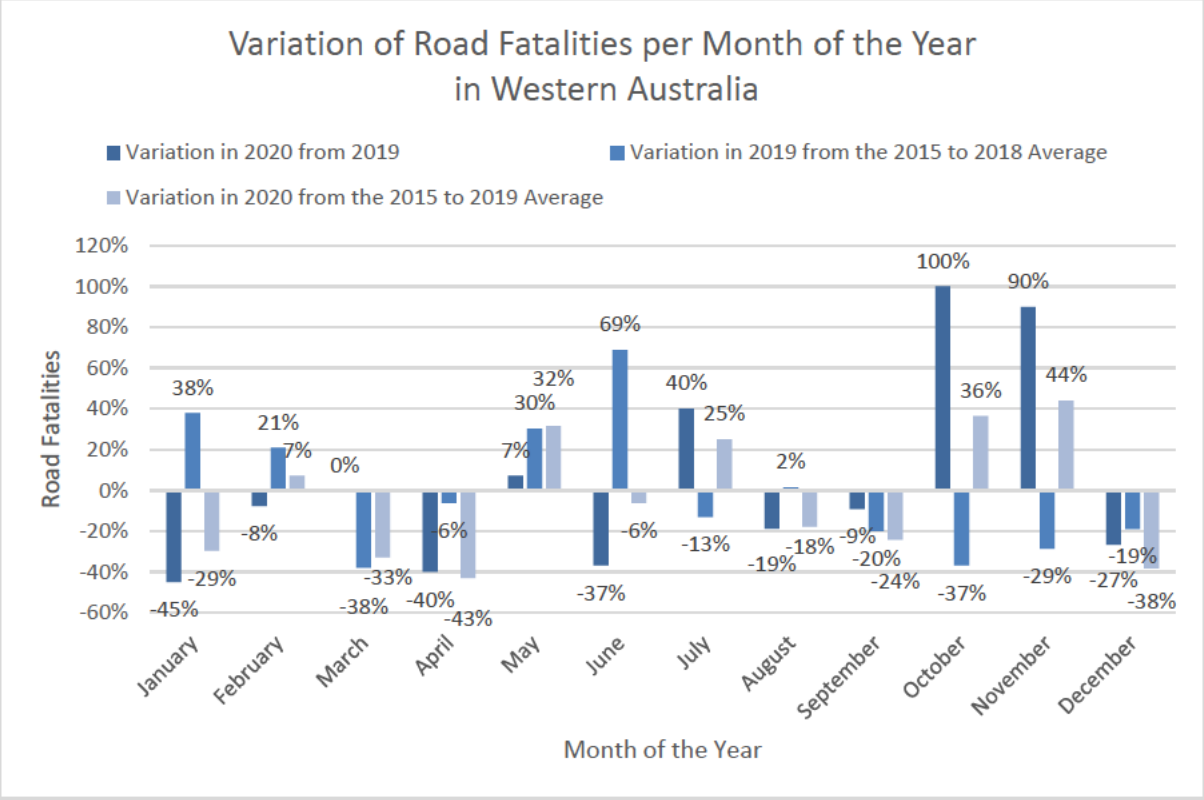

Figure 106: Variation of Road Fatalities per Month of the Year in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

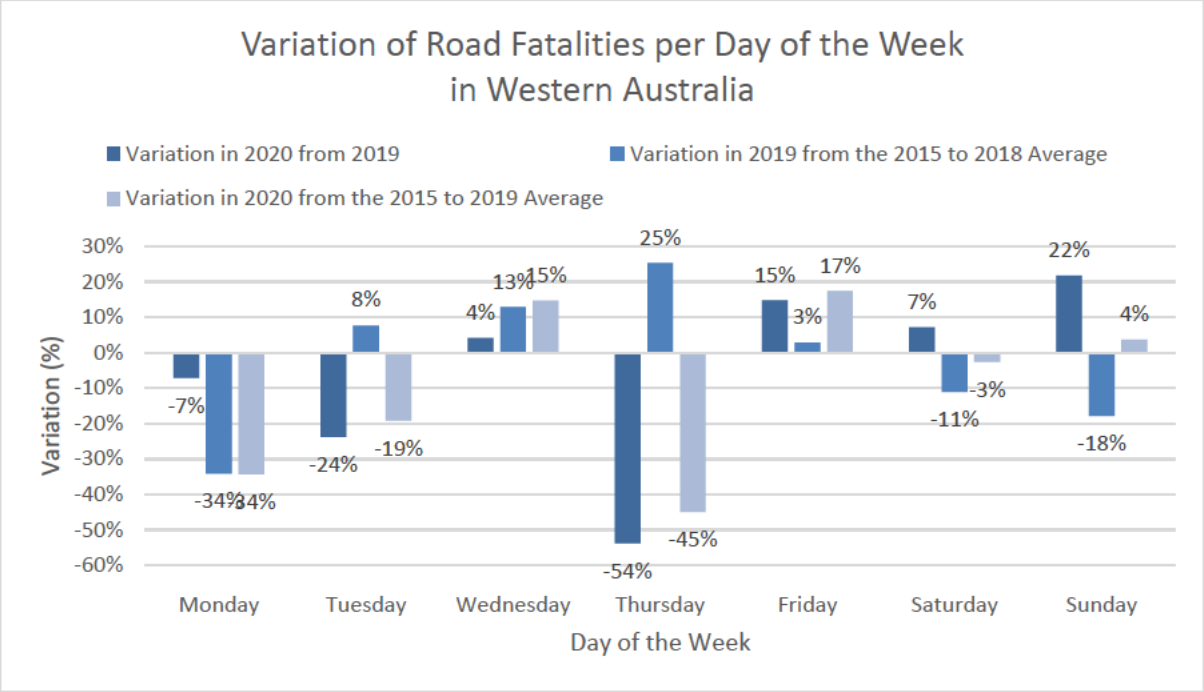

Figure 107: Variation of Road Fatalities per Day of the Week in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

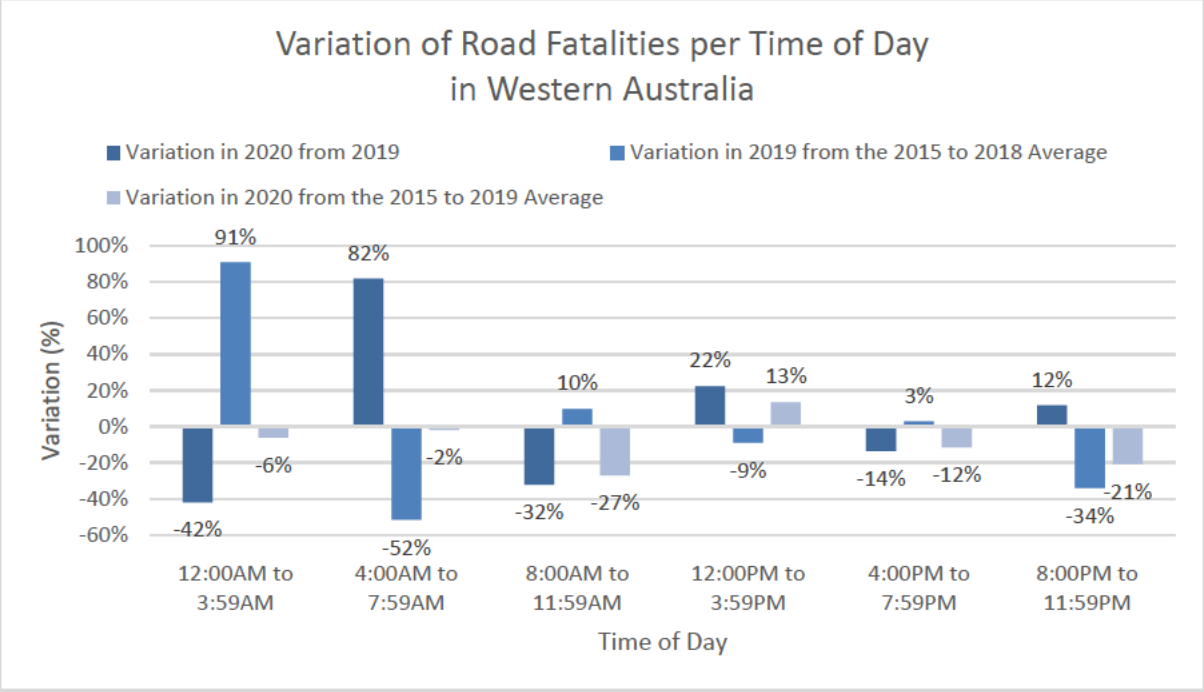

Figure 108: Variation of Road Fatalities per Time of Day in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

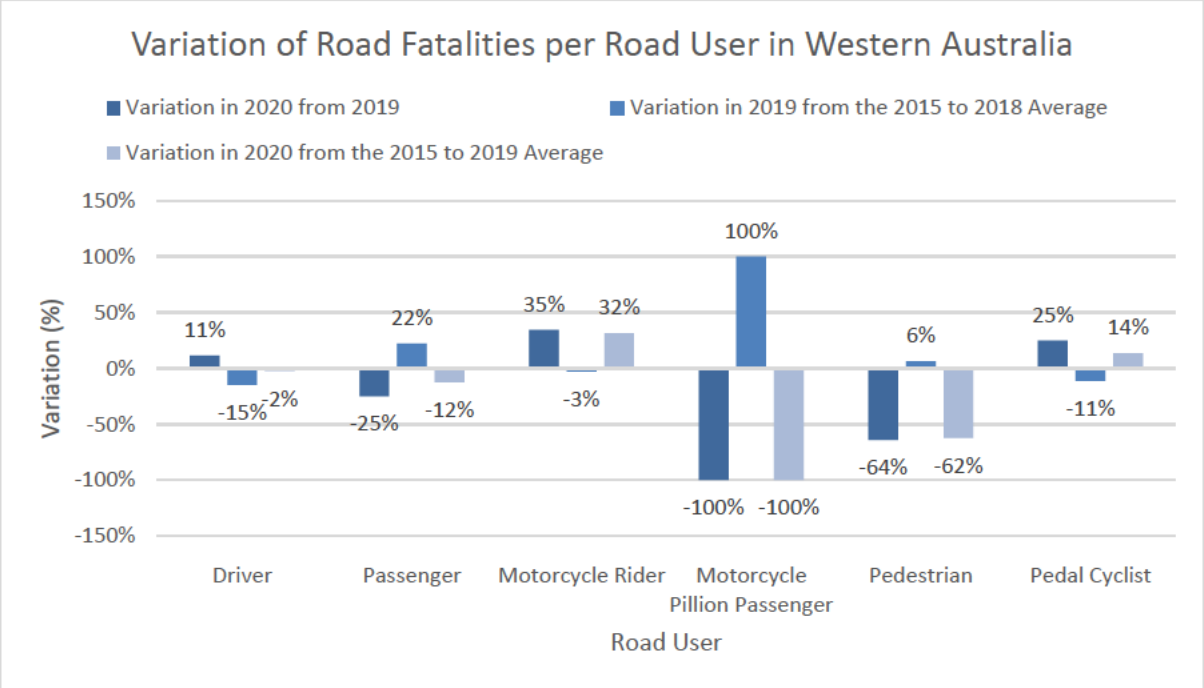

Figure 109: Variation of Road Fatalities per Road User in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

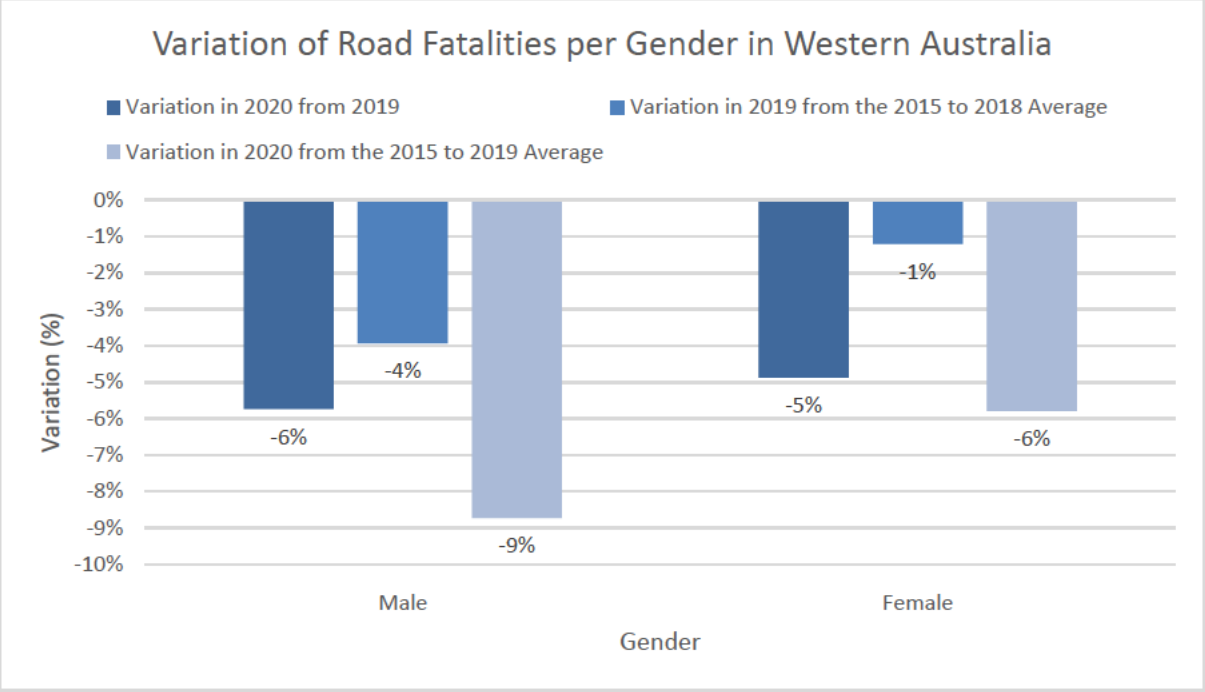

Figure 110: Variation of Road Fatalities per Gender in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

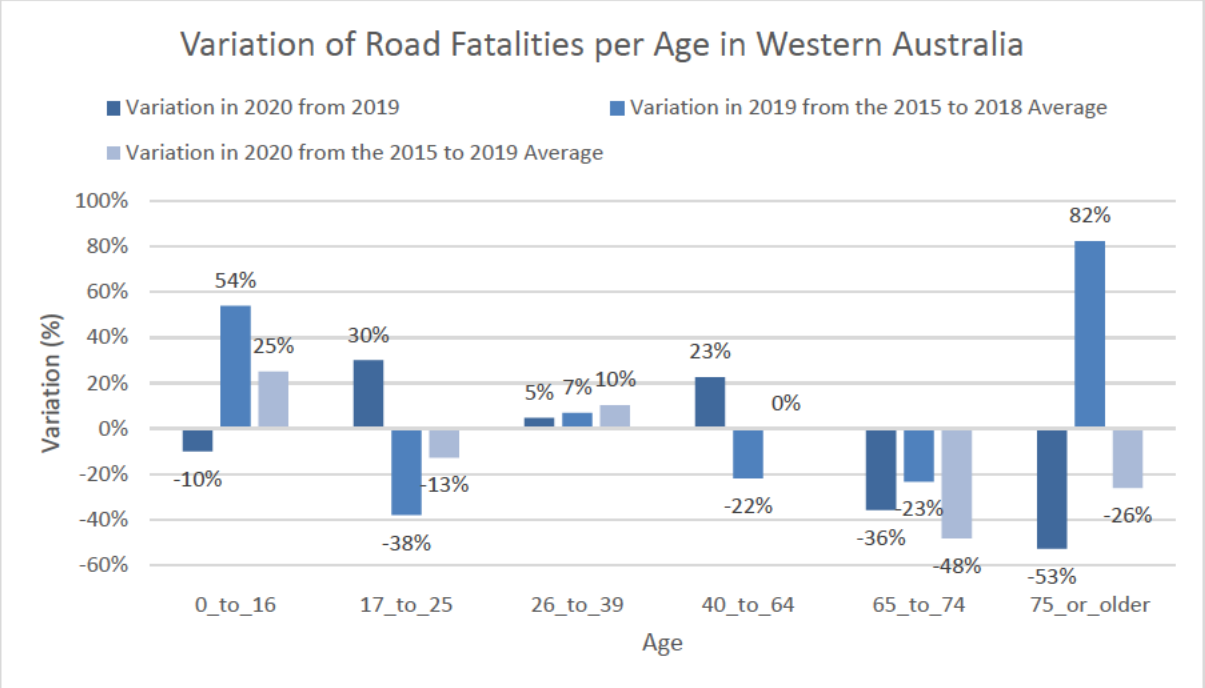

Figure 111: Variation of Road Fatalities per Age in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

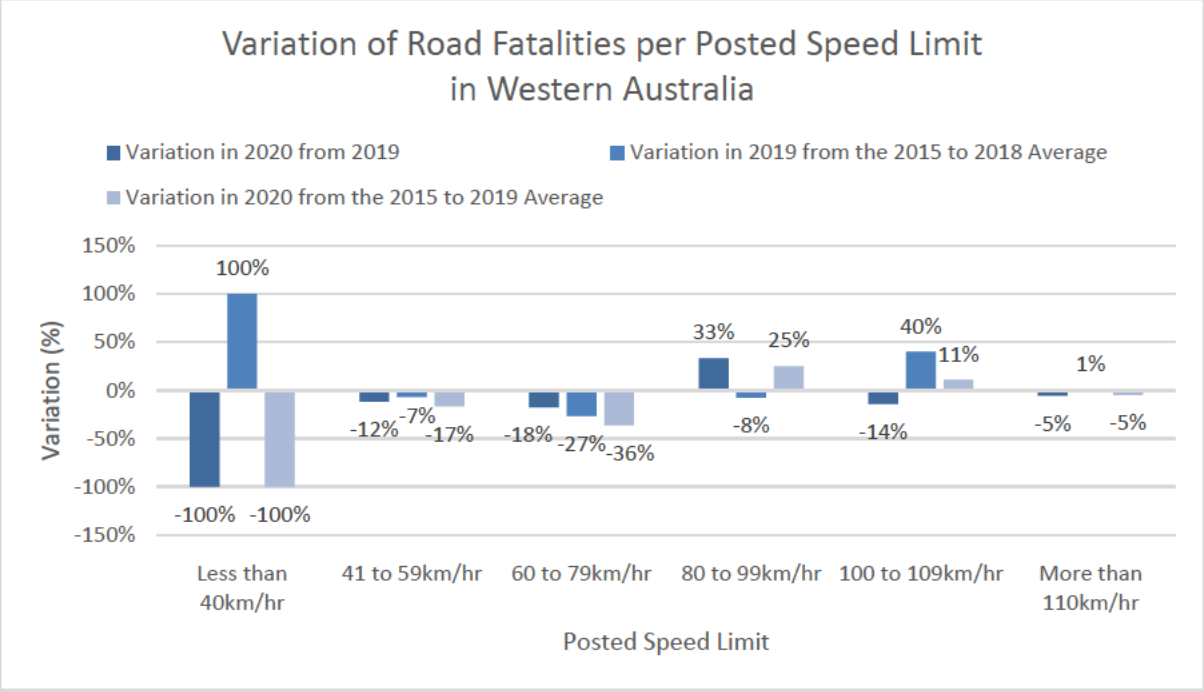

Figure 112: Variation of Road Fatalities per Posted Speed Limit in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

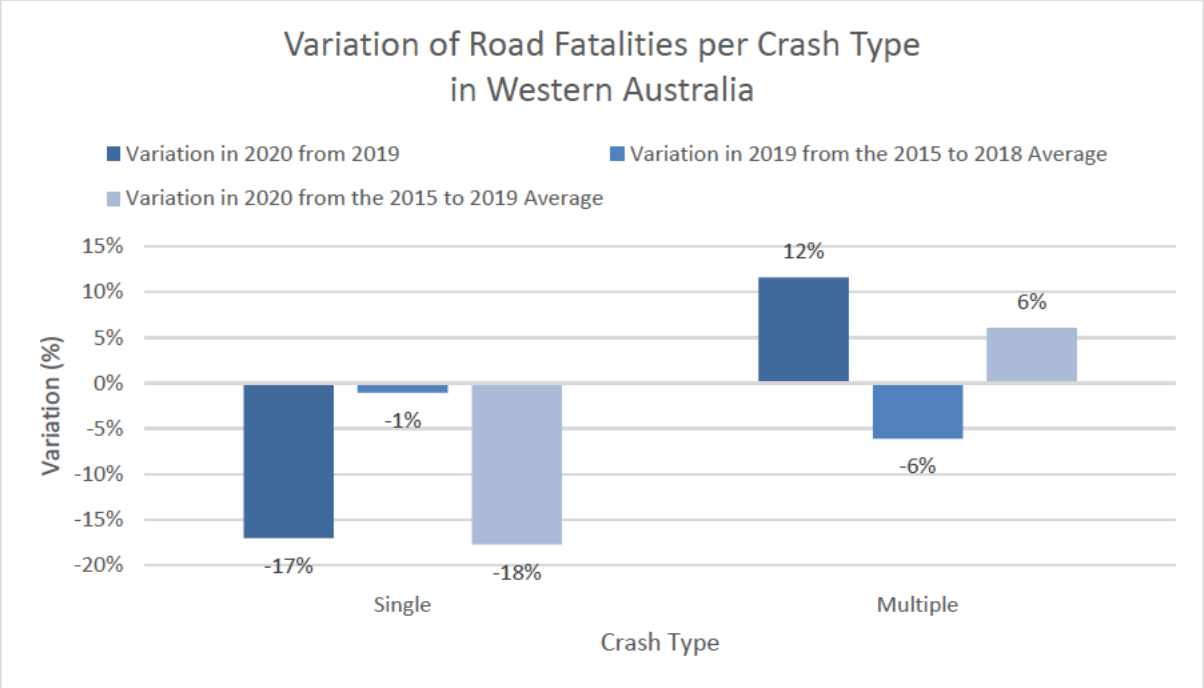

Figure 113: Variation of Road Fatalities per Crash Type in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

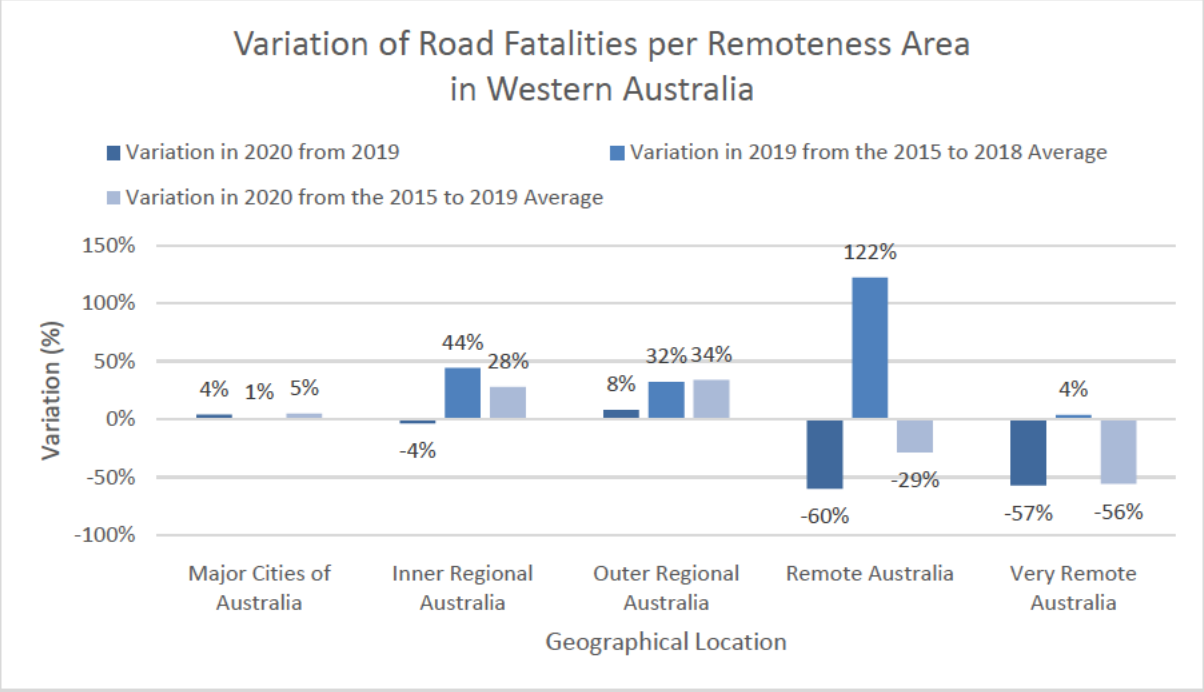

Figure 114: Variation of Road Fatalities per Remoteness Area in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

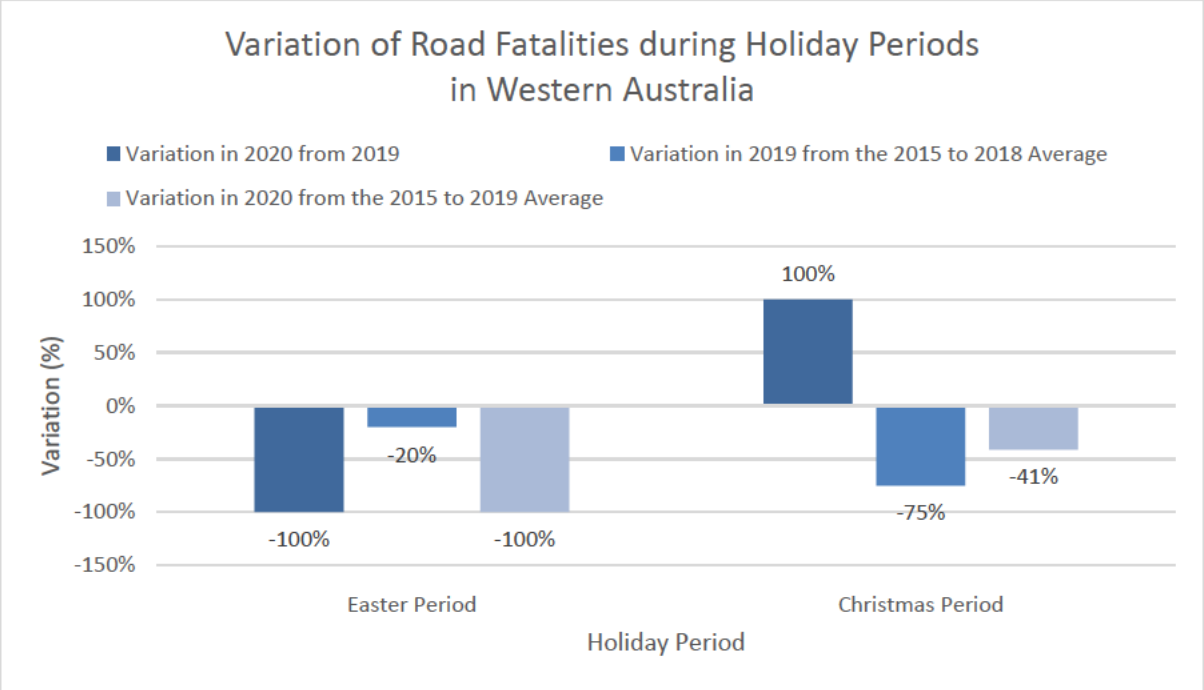

Figure 115: Variation in Road Fatalities during the Holiday Period in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

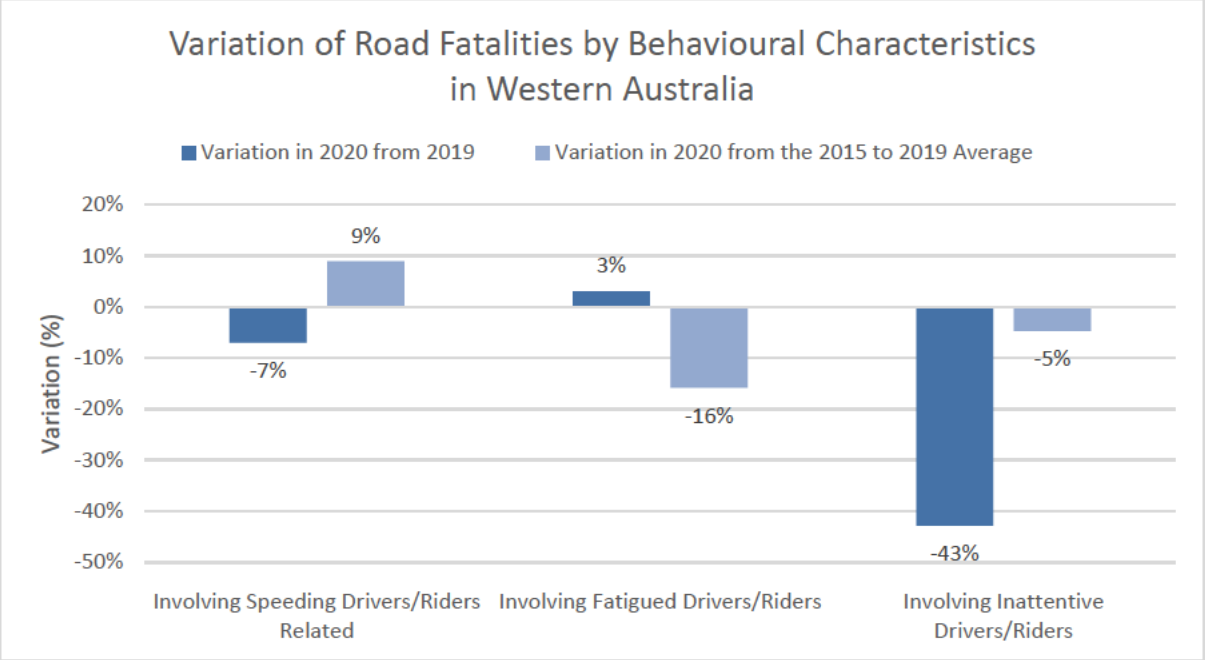

Figure 116: Variation of Road Fatalities by Behavioural Characteristics in Western Australia (Road Safety Commission 2021)

A summary of significant variations of road fatalities in Western Australia during 2020 in showcased in Table 11.

Significant Increases:	• Month of the Year – July, October, November • Day of the Week – Friday, Sunday • Time of the Day – 4:00AM to 7:59AM, 12:00PM to 3:59PM • Road User – Motorcyclist, Pedal Cyclist • Age – 17 to 25 years old, 26 to 39 years old, 40 to 64 years old • Posted Speed Limit – 80 to 99km/hr • Holiday Period – Christmas
Significant Decreases:	• Month of the Year – March, April, June, August, December • Day of the Week – Tuesday, Thursday • Time of Day – 12:00AM to 3:59AM, 8:00AM to 11:59AM • Road User – Passenger, Motorcycle Pillion Passenger, Pedestrians • Age – 65 to 74 years old, older than 75 years old • Posted Speed Limit – 40km/hr • Crash Type – Single Vehicle Crash • Remoteness Area – Remote Australia, Very Remote Australia • Holiday Period – Easter • Risky Road User Behaviour – Inattentive Drivers

Table 11: Summary of Significant Variations of Road Fatalities in Western Australia

After Western Australia imposed strict border controls and non-essential travel was actively discouraged on the 23rd of March 2023, road fatalities significantly decreased. This was likely due to increased uptake of workers and students working remotely, reduced leisurely travel and with the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took.

When COVID-19 restrictions began to ease on the 26th of June, road fatalities had a significant increase. This was likely due to the increased demand to travel and lingering riskier road user behaviours which stemmed from the initial lockdowns where there was reduced traffic on the roads. Individuals would perceive the roadway to be safer than what they really are with reduced traffic volumes. For the remainder of the year, road fatalities per month would be expected to be volatile due to the broader socioeconomic impacts that COVID-19 exerted throughout the remainder of the year.

During the week, there was a significant reduction in road fatalities which would be caused from an increased uptake of workers and students working remotely. On the weekends, there was a significant increase in road fatalities which would be caused from individuals travelling out on the weekends as they continue to work from home during the week. With the lockdowns that occurred in March, it would also be expected that individuals would go out and socialise more than previously. This would also lead to a potential increase in risky road user behaviours.

Individuals aged 17 to 25 years old also experienced a significant increase in road fatalities compared to previous years. It is expected that many student drivers had a significant disadvantage to learning to drive during COVID-19 than the years prior. In the initial lockdowns, many student drivers, parents and authorities were unsure of the guidelines pertaining to driving lessons. This caused limited training opportunities for student drivers to build up their safe driving skills and confidence on the roads.

With traffic volumes also reduced at the beginning of COVID-19, learner drivers who continued to learn during that time would be accustomed to driving in less congested conditions. When traffic volumes resumed to pre-COVID-19 levels, student drivers may not be adequately prepared for driving in those conditions.

With many driving schools and instructions suspending or limiting their operations, it meant that student drivers had to rely on parental supervision for driving lessons. Depending on the supervisory adult's experience and their own road user behaviour, it may have an impact on the quality of the driving lesson as they would be unable to provide the same level of instruction as a professional or unknowingly provide poor road user behaviour advice to learner drivers.

Individuals aged over 65 years old also saw a significant decline in road fatality rates compared to previous years. This is likely due to the heightened risks associated with being infected with COVID-19, especially for older individuals. Then many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took. In addition, with many recreational and outdoor activities limited it meant that older individuals limited their travel throughout the pandemic.

Remoteness areas that had significantly reduced fatality rates included those remote and very remote regions in Western Australia. At the beginning of COVID-19 the Government of Western Australia had restrictions for intrastate and interstate travel, allowing only essential services to travel. In remote and very remote regions in Western Australia, usually there are a lot of camping and 4WD tourist traveller. This meant that there would've been a huge reduction of tourists in those regions as interstate borders remained closed until early 2022.

The Easter holiday period experienced a significant reduction in road fatalities and serious injuries which is expected due to the initial March lockdowns commencing right before the holiday period. The Christmas holiday period saw an increase in road fatality rates. Again, this is expected due to the pent up demand after long periods in lockdown and restrictions that individuals wanted to celebrate with family and friends. In addition, the Christmas holiday period also attracts increased fatality rates with increased traffic volumes and riskier road user behaviours such as drink driving.

5.2.9 Road Fatalities in Tasmania

As illustrated in Figure 117, there was 38 road fatalities in the Northern Territory during 2020 which was 9 (31%) more than 2019 and 5 (16%) more than the 2015 to 2019 average. After a comprehensive assessment, it is apparent that COVID-19 did have a significant influence on road fatalities in Tasmania. The additional road crash characteristics still require further analysis to determine if there are any significant indicators.

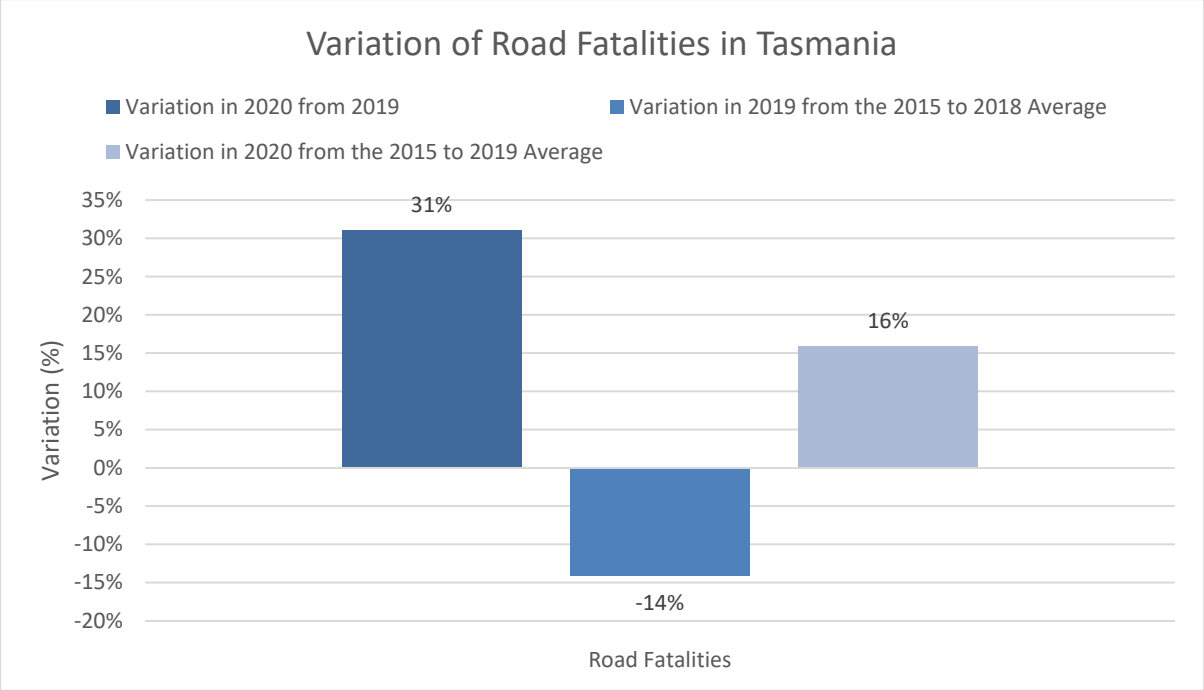

Figure 117: Variation of Road Fatalities in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

Figure 118 to Figure 127 showcases the variations between the road fatalities that occurred in respect to the different categories in the Northern Territory. Categories include month of the year, day of the week, time of day, road user, gender, age, posted speed limit, crash type, remoteness areas and holiday periods.

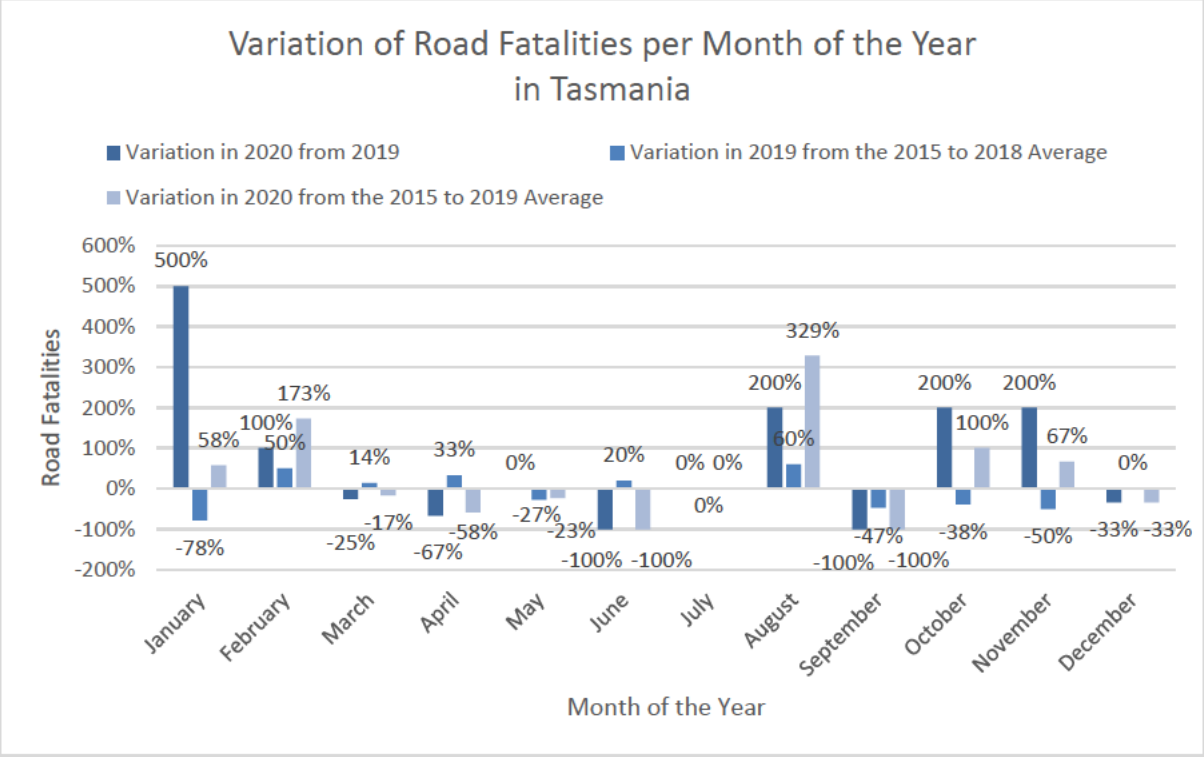

Figure 118: Variation of Road Fatalities per Month of the Year in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

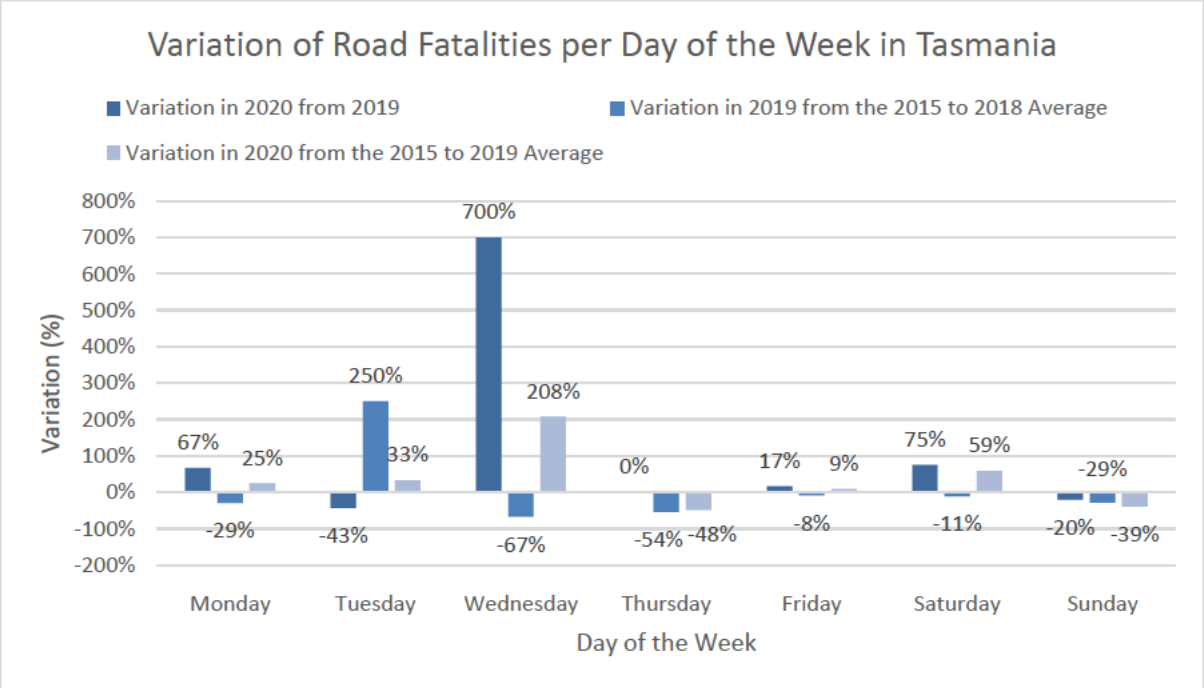

Figure 119: Variation of Road Fatalities per Day of the Week in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

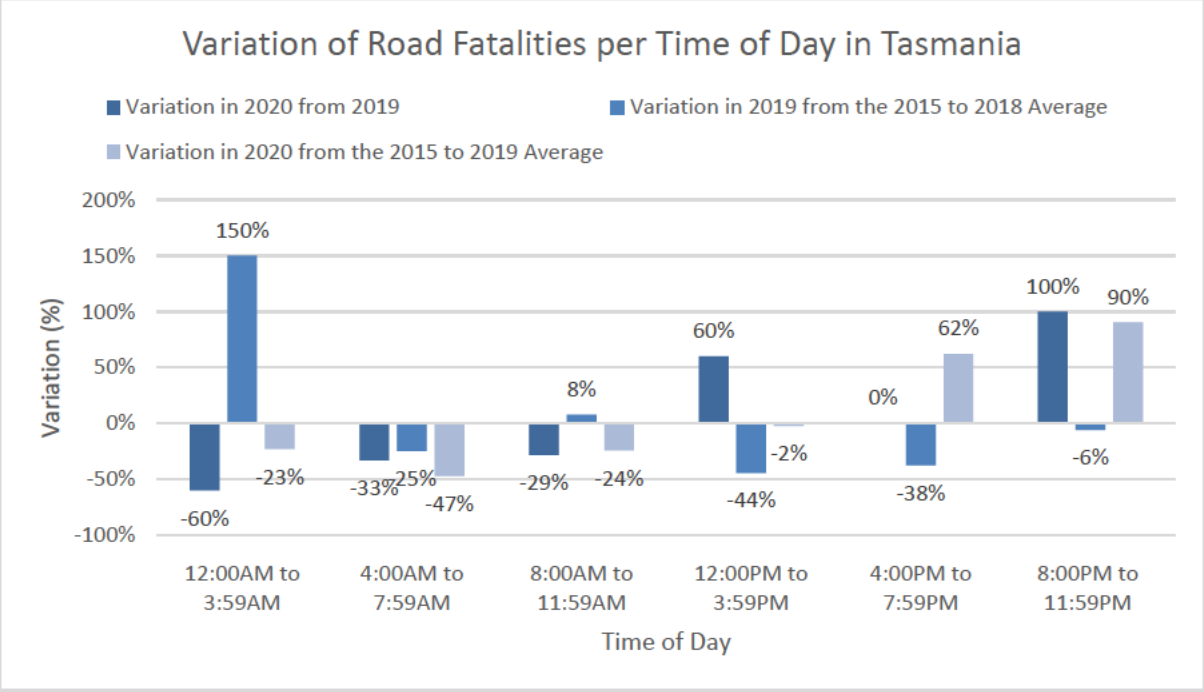

Figure 120: Variation of Road Fatalities per Time of Day in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

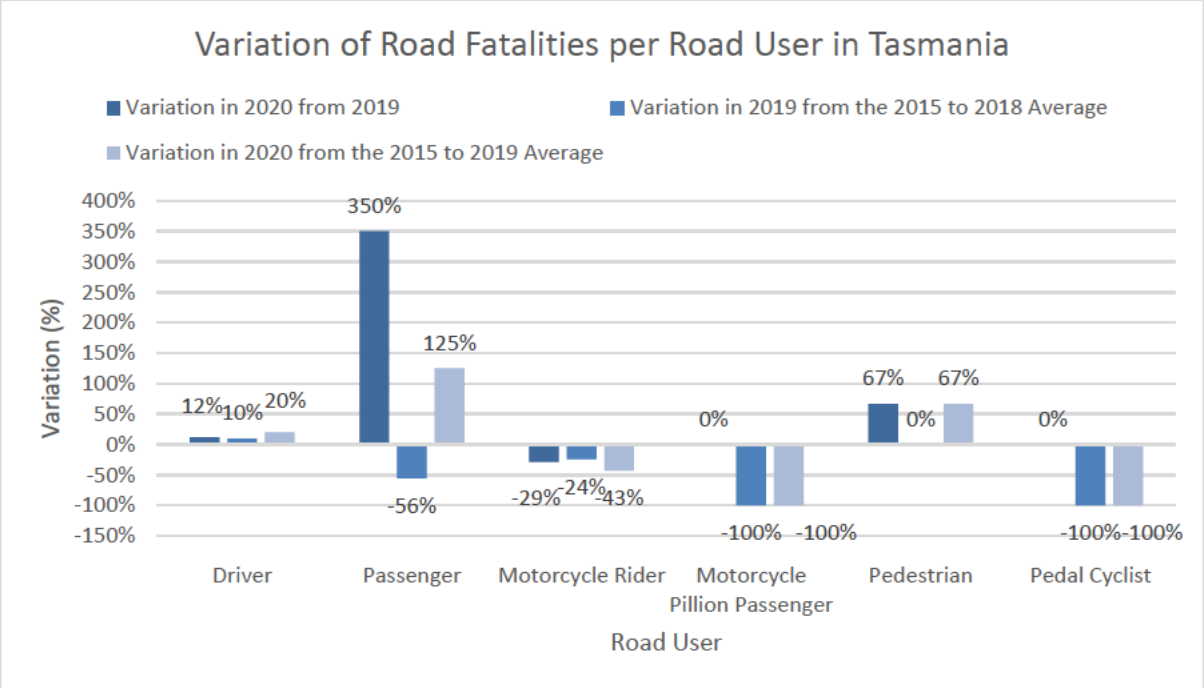

Figure 121: Variation of Road Fatalities per Road User in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

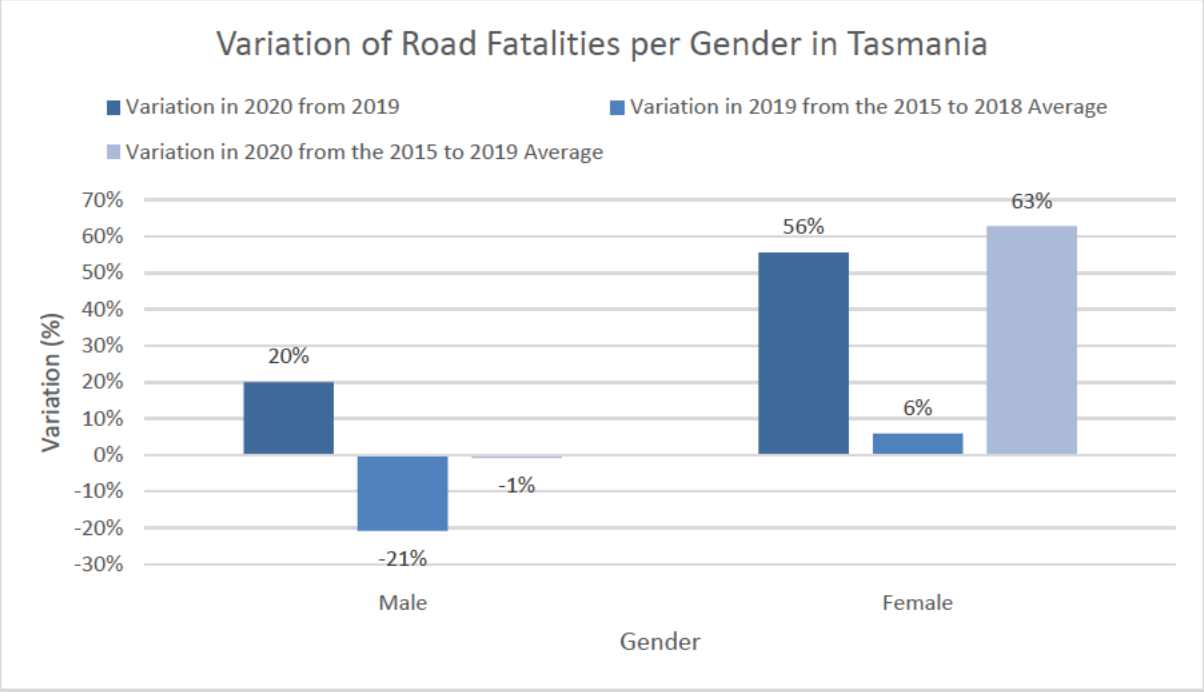

Figure 122: Variation of Road Fatalities per Gender in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

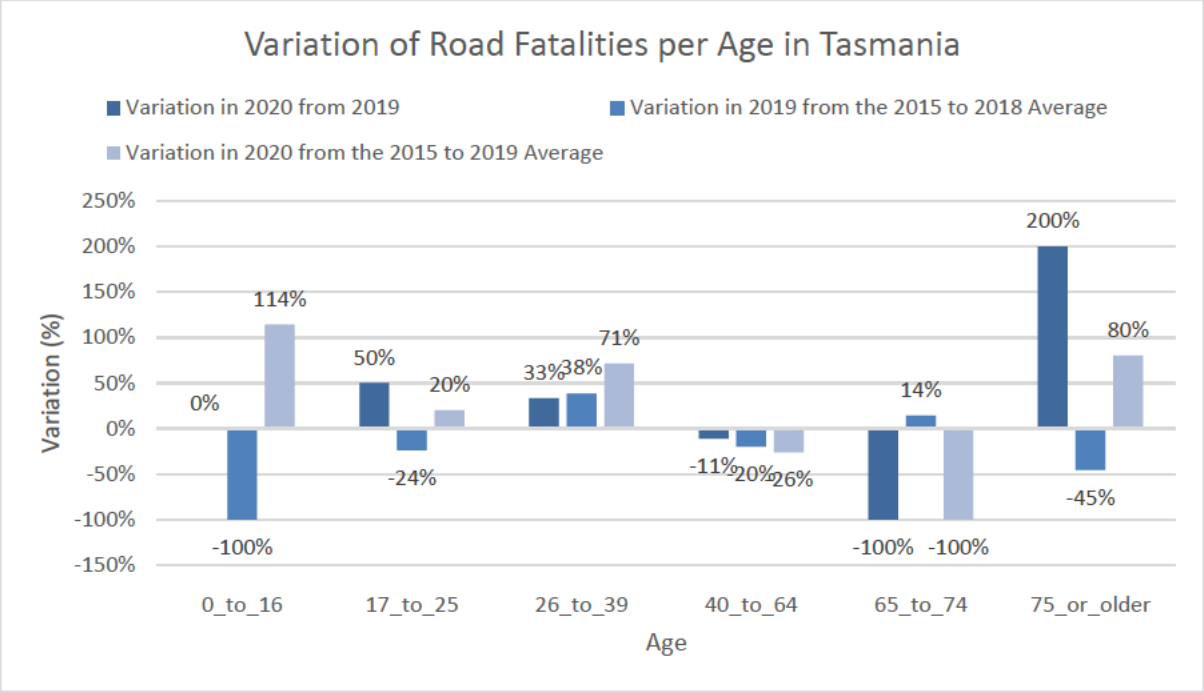

Figure 123: Variation of Road Fatalities per Age in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

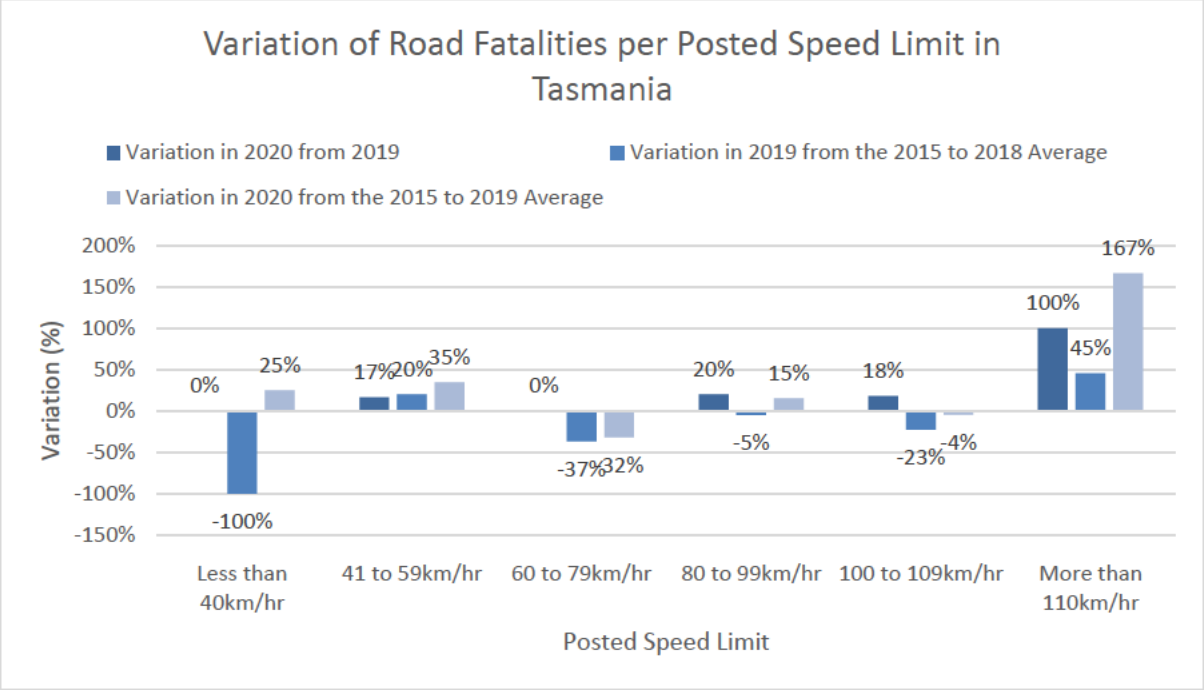

Figure 124: Variation of Road Fatalities per Posted Speed Limit in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

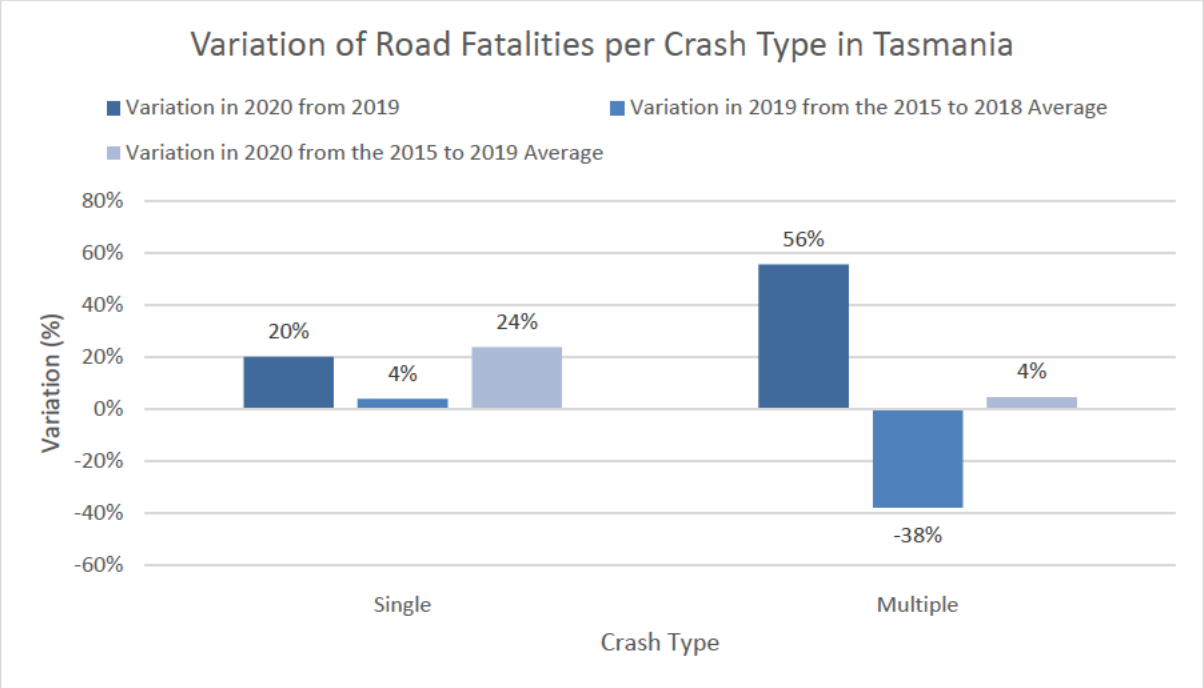

Figure 125: Variation of Road Fatalities per Crash Type in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

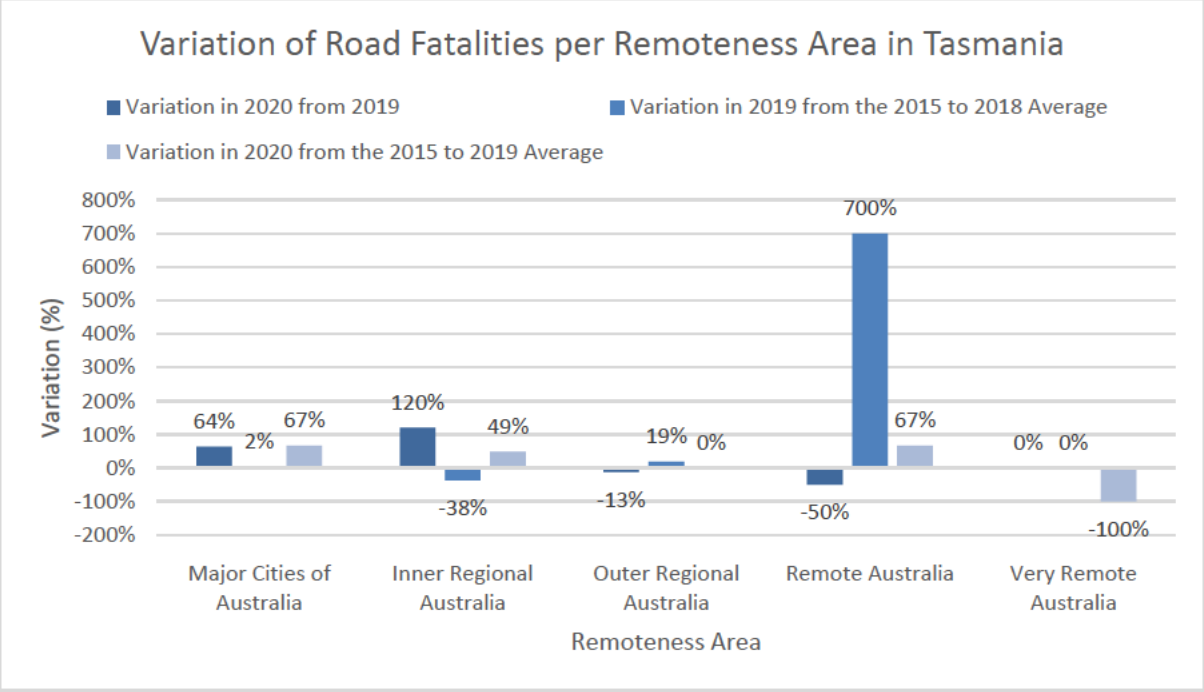

Figure 126: Variation of Road Fatalities per Remoteness Area in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

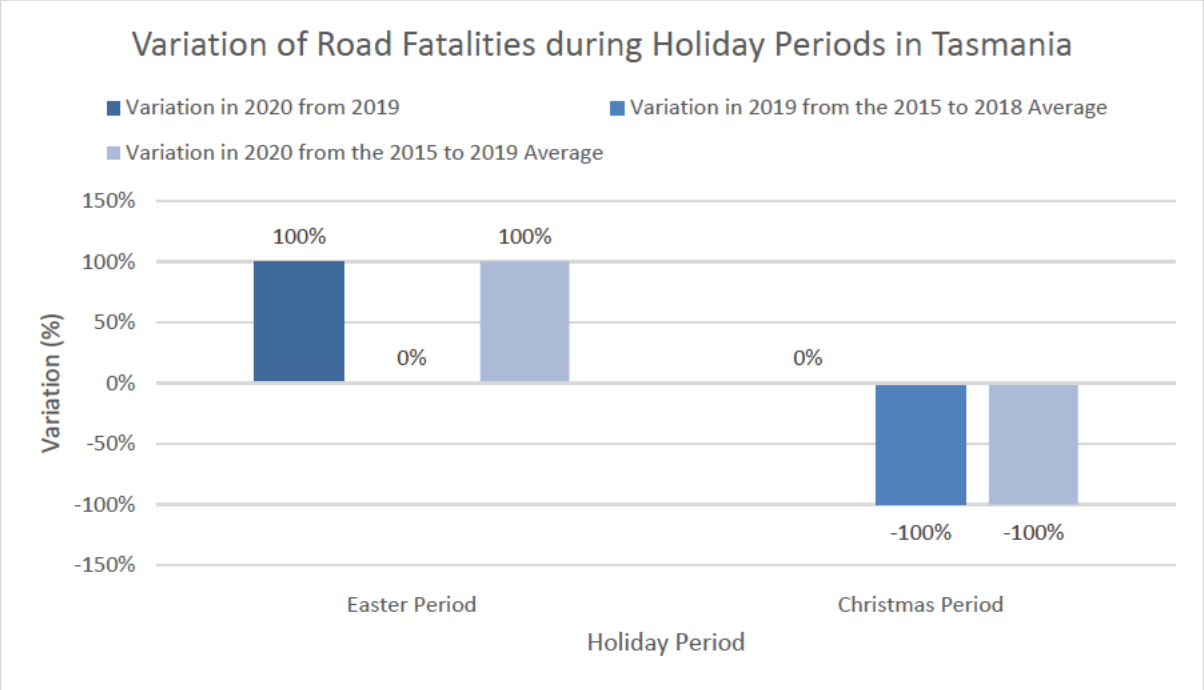

Figure 127: Variation of Road Fatalities during Holiday Periods in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

A summary of significant variations of road fatalities in Tasmania during 2020 is showcase in Table 12.

Significant Increases:	• Annual Road Fatalities • Month of the Year – August, October, November • Day of the Week – Monday, Wednesday, Friday, Saturday • Time of Day – 12:00PM to 3:59PM, 8:00PM to 11:59PM • Road User – Passenger, Pedestrian • Gender – Male, Female • Age – 17 to 25 years old, 26 to 39 years old, over 75 years old • Posted Speed Limit – 41 to 59km/hr, 80 to 99km/hr, 100 to 109km/hr, 110km/hr • Crash Type – Single, Multiple • Remoteness Area – Major Cities, Inner Regional Australia • Holiday Period - Easter
Significant Decreases:	• Month of the Year – March, April, June September, December • Day of the Week – Tuesday, Sunday • Time of Day – 12:00AM to 3:59AM, 4:00AM to 7:59AM, 8:00AM to 11:59AM • Road User – Motorcycle Rider • Age – 65 to 74 years old • Remoteness Area – Remote Australia

Table 12: Summary of Significant Variations of Road Fatalities in Tasmania

From late March to late June, Tasmania experienced strict border controls and non-essential travel was actively discouraged. As an outcome, road fatalities significantly reduced in March, April and June when restrictions would have been in place. This was likely due to increased uptake of workers and students working remotely, reduced leisurely travel and with the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took. Petrol sales during this period had reduced by 26.1% when compared to 2019 (Catchpole et al. 2020).

With the easing of restrictions on the 26th of June, road fatalities increased with July obtaining similar rates as previous years and August significantly increasing from previous years. This was likely due to the increased demand to travel and lingering riskier road user behaviours which stemmed from the initial lockdowns where there was reduced traffic on the roads. Individuals would perceive the roadway to be safer than what they really are with reduced traffic volumes. For the remainder of the year, road fatalities per month would be expected to be volatile due to the broader socioeconomic impacts that COVID-19 exerted throughout the remainder of the year.

While many activities had restrictions during COVID-19, outdoor activities such as walking and jogging increased in popularity. As individuals were predominantly working from home, this was a chance for them get some fresh air and to safely exercise. This increase in pedestrians near roads was likely An increase in pedestrians would subsequently mean an increase in pedestrian accidents occurring on roadways which is what likely occurred in Tasmania.

Individuals aged 17 to 25 years old also experienced a significant increase in road fatalities compared to previous years. It is expected that many student drivers had a significant disadvantage to learning to drive during COVID-19 than the years prior. In the initial lockdowns, many student drivers, parents and authorities were unsure of the guidelines pertaining to driving lessons. This caused limited training opportunities for student drivers to build up their safe driving skills and confidence on the roads.

With traffic volumes also reduced at the beginning of COVID-19, learner drivers who continued to learn during that time would be accustomed to driving in less congested conditions. When traffic volumes resumed to pre-COVID-19 levels, student drivers may not be adequately prepared for driving in those conditions.

With many driving schools and instructions suspending or limiting their operations, it meant that student drivers had to rely on parental supervision for driving lessons. Depending on the supervisory adult's experience and their own road user behaviour, it may have an impact on the quality of the driving lesson as they would be unable to provide the same level of instruction as a professional or unknowingly provide poor road user behaviour advice to learner drivers.

Individuals aged 65 to 74 years old also saw a significant decline in road fatality rates compared to previous years. This is likely due to the heightened risks associated with being infected with COVID-19, especially for older individuals. Then many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took. In addition, with many recreational and outdoor activities limited it meant that older individuals limited their travel throughout the pandemic.

Interestingly, road fatalities in major cities and inner regional significantly increased in comparison to previous years. It is expected that reduced traffic on the roads would lead to riskier road user behaviour such as speeding. In addition, due to concerns of COVID-19 transmission from taking public transport, there was an increased number of individuals who took up driving their own vehicle or began carpooling with family, friends or colleagues. This presents a risk for those drivers who are not confident and proficient on major city and inner regional area roads.

The Easter holiday period experienced a significant reduction in road fatalities and serious injuries which is expected due to the initial March lockdowns commencing right before the holiday period. The Christmas holiday period saw an increase in road fatality rates. Again, this is expected due to the pent up demand after long periods in lockdown and restrictions that individuals wanted to celebrate with family and friends. In addition, the Christmas holiday period also attracts increased fatality rates with increased traffic volumes and riskier road user behaviours such as drink driving.

5.3 Serious Injuries Analysis

5.3.1 Serious Injuries in New South Wales

Serious injuries defined by the Government of New South Wales is when an individual is injured in a road crash, admitted into hospital and who did not die within 30 days of the road crash (Transport for NSW n.d. -b). As Figure 128 illustrates, annual serious injury casualties in New South Wales had been steadily increasing from 2015 to 2018. While annual serious injury casualties began decreasing in 2019 to 2020.

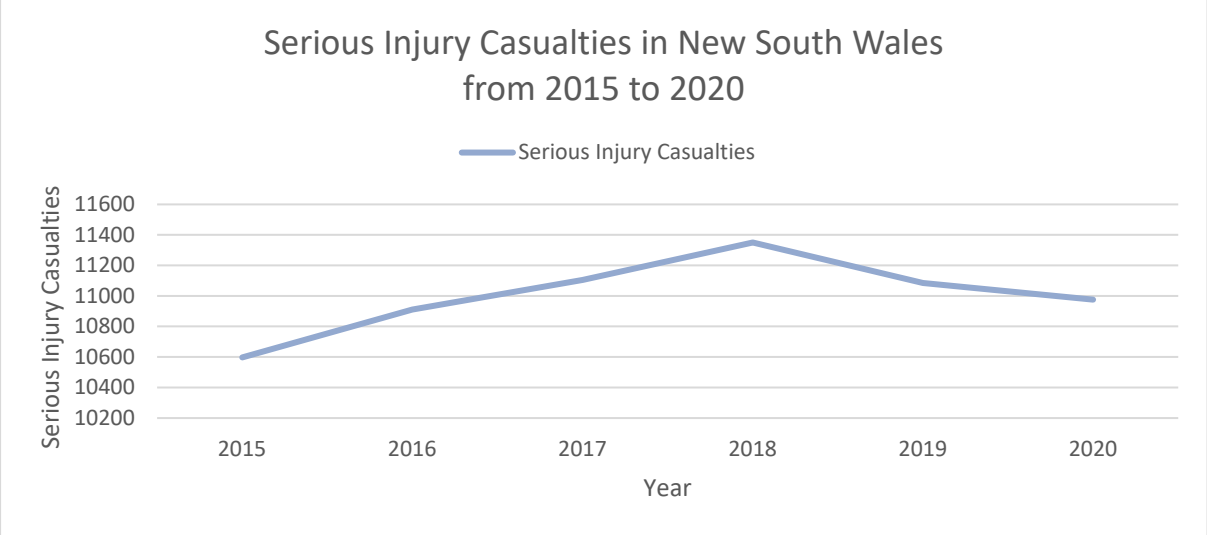

Figure 128: Serious Injury Casualties in New South Wales from 2015 to 2020 (Transport for NSW n.d. -a)

The variation of annual serious injury casualties in New South Wales are deemed insignificant concerning the potential influence of COVID-19 during 2020, as shown in Figure 129. Despite the lack of significant impact on annual serious injury casualties, further analysis of additional road crash characteristics in New South Wales is warranted.

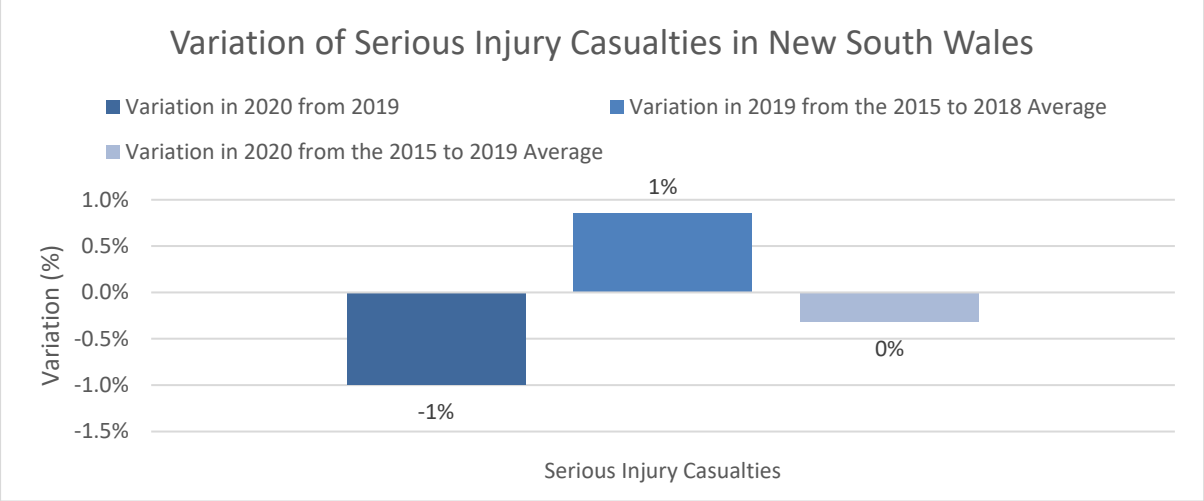

Figure 129: Variation of Serious Injury Casualties in New South Wales (Transport for NSW n.d. -a)

Examining the serious injury casualty rates in New South Wales per 10,000 vehicles, 10,000 licences and 100,000 population, as shown in Figure 130, it was also deemed insignificant concerning the potential influence of COVID-19 during 2020.

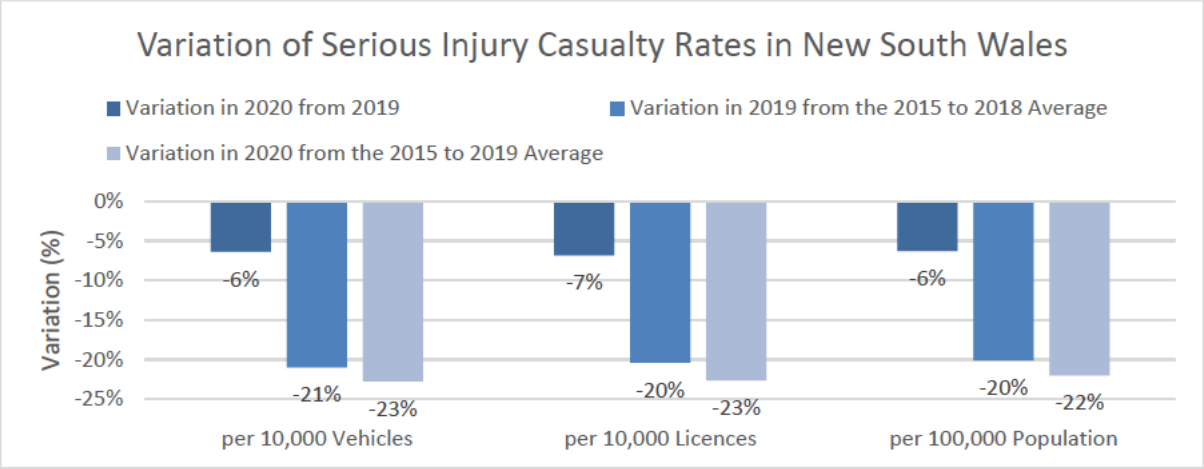

Figure 130: Variation of Serious Injury Casualty Rates in New South Wales (Transport for NSW n.d. -a)

Regarding serious injury casualties by road user in New South Wales, it was notable that passengers and pedestrians experienced a reduction in variation rates, albeit not exceeding a significance of 15%, as depicted in Figure 131. The sole noteworthy variation in serious injury casualties by road user in New South Wales pertains to pedal cyclists.

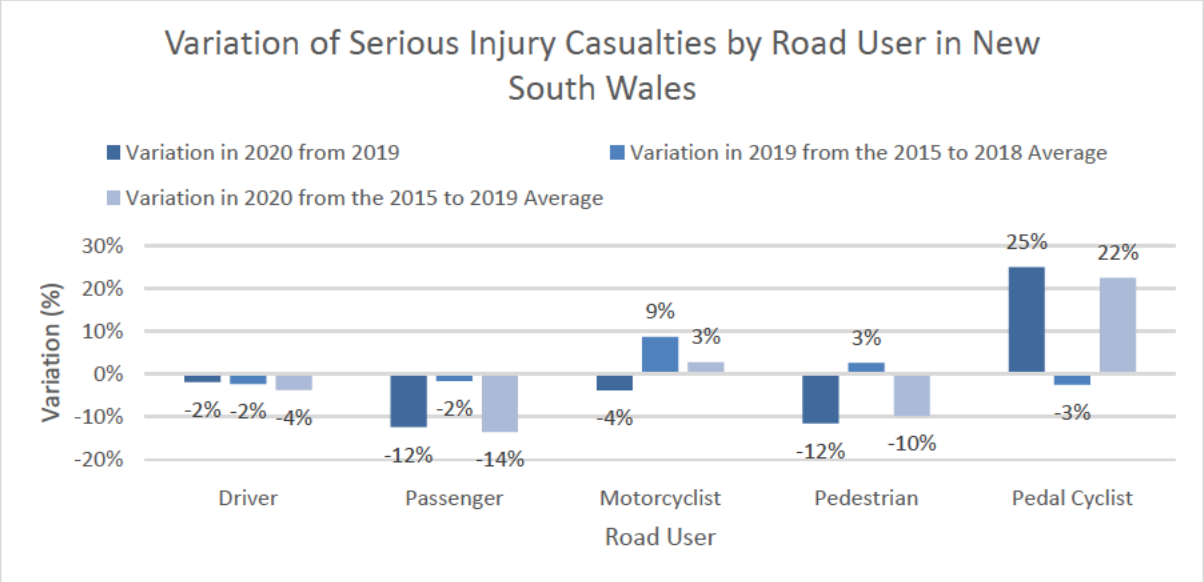

Figure 131: Variation of Serious Injury Casualties by Road User in New South Wales (Transport for NSW n.d. -a)

- In 2020, there were 2308 seriously injured casualties who were pedal cyclists in New South Wales. This is 461 (25%) more than 2019 and 423 (22%) more than the 2015 to 2019 average. Prior to 2020, New South Wales experienced 48 (3%) less seriously injury casualties who were pedal cyclists in 2019 from the 2015 to 2018 average.

The significant increase in serious injuries in New South Wales for pedal cyclists was likely due to the following factors.

- Due to COVID-19 lockdowns and restrictions, many individuals took to cycling for transportation, recreational and health advantages throughout 2020.
- With the significantly increased uptake of cycling due to COVID-19, there would be a larger population of inexperienced riders entering the road environment, which can increase the risks of road crashes, especially those involving vulnerable road users.
- With the significantly increased uptake of cycling due to COVID-19, the lack of safe cycling infrastructure can significantly increase road crashes for cyclists when sharing the road with other motor vehicles.
- There were reduced traffic volumes for the first three months of COVID-19 and for the year in New South Wales. When fewer vehicles are on the road, some drivers tend to engage in more risky behaviour such as speeding, reckless driving and distracted driving. This riskier road user behaviour can increase the likelihood of road crashes, especially those involving vulnerable road users.

In terms of serious injury casualties categorised by gender in New South Wales, as shown in Figure 132, there is no significant variation in the comparison between 2020 and preceding years. It is noteworthy that males exhibited a modest increase in serious injury rates, which aligns with the trend observed in previous years. Conversely, females displayed a notable decline in serious injury rates when compared to prior years, albeit without reaching statistical significance.

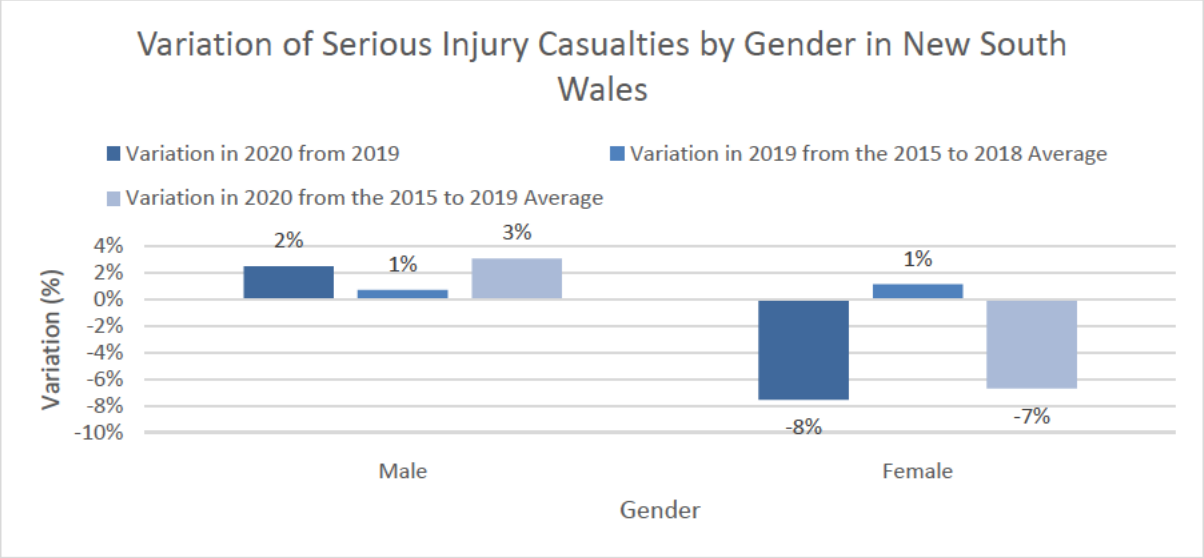

Figure 132: Variation of Serious Injury Casualties by Gender in New South Wales (Transport for NSW n.d. -a)

In terms of serious injury casualties categorised by age in New South Wales, two significant trends are distinguishable, as observed by Figure 133. In addition, two significant variations in serious injury casualties by age in New South Wales are observed among individuals aged 5 to 16 and those over 80.

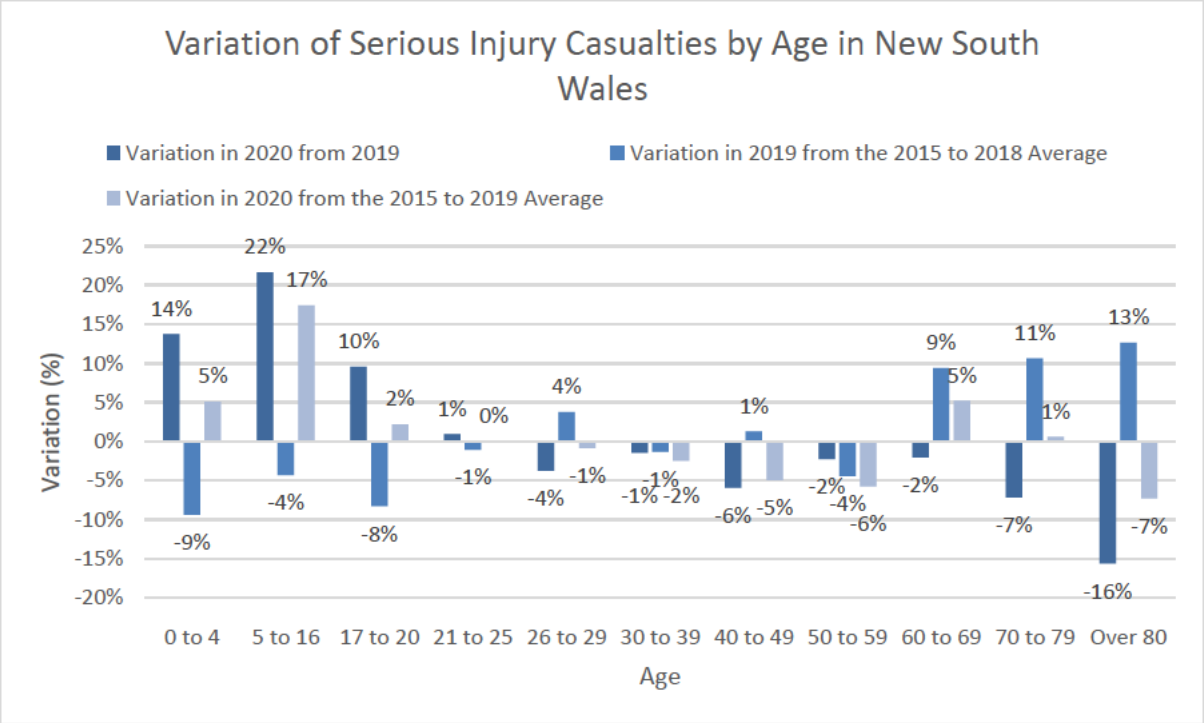

Figure 133: Variation of Serious Injury Casualties by Age in New South Wales (Transport for NSW n.d. -a)

- In 2020, there were 933 seriously injured casualties who were aged 5 to 16 years old in New South Wales. This is 166 (22%) more than 2019 and 138 (17%) more than the 2015 to 2019 average. Prior to 2020, New South Wales experienced 35 (4%) less seriously injury casualties who were aged 5 to 16 years old in 2019 from the 2015 to 2018 average.
- In 2020, there were 617 seriously injured casualties who were aged over 80 years old in New South Wales. This is 114 (16%) less than 2019 and 48 (7%) less than the 2015 to 2019 average. Prior to 2020, New South Wales experienced 82 (13%) more seriously injury casualties who were aged over 80 years old in 2019 from the 2015 to 2018 average.

The first distinguishable trend is from the increased serious injury rates for individuals aged less than 20 years old, which is noteworthy as serious injuries have typically exhibited a steady decrease in those age groups. The significant increase in serious injuries in New South Wales for individuals aged 5 to 16 was likely due to the following factors.

- The restrictions put in place by Governments to reduce the spread of COVID-19 meant that the usual routines for families changed as children transitioned to remote learning and parents worked from home. When children would usually be at school or in after-school activities under direct supervision, children were at home with increased access to roadways, which would increase their likelihood of being involved in car crashes.
- During term 2, when schools transitioned to remote learning and parents worked similarly from home, children would find themselves with increased unsupervised time. The reduced supervision may have enabled children to be near roadways without parents noticing, increasing the likelihood of their involvement in car crashes.
- There was a significant increase in the uptake of bicycle riding during COVID-19. For children, this presented an alternative to indoor activities or public transportation. Increased bicycle riding in children would mean a higher likelihood of being involved in a car crash due to potential lack of experience and cycling infrastructure.
- Travel restrictions throughout Australia meant closing public places like playgrounds and sporting fields. This limiting access would likely mean children would have to play in areas closer to their homes, such as along roadways, increasing their likelihood of being involved in a road crash.
- Children are taught the importance of road safety and safe behaviours near roadways during school. With the significant disruption of the 2020 school year due to COVID-19, it was likely that road safety education was of little importance for schools. Instead, the importance of safe behaviours shifted to safe conduct in mitigating the transmission of COVID-19.

The second distinguishable trend is from the decreased serious injury rates for individuals aged over 60 years old, which is noteworthy as serious injuries have typically exhibited a steady increase in those age groups. The significant reduction of road fatalities of individuals aged over 60 years old in New South Wales was likely due to following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.

- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant older individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

In summary, significant variations in serious injuries throughout New South Wales during 2020 are showcase in Table 13.

Significant Increases:	• Road User – Pedal Cyclist • Age – 5 to 16 years olds
Significant Decreases:	• Age – Over 80 years old

Table 13: Summary of Significant Variations of Serious Injuries in New South Wales

5.3.2 Serious Injuries in Queensland

Serious injuries defined by the Queensland Government is when an individual is transported to hospital, from injuries sustained in a road crash and who does not die within 30 days of the crash (Department of Transport and Main Road 2021). As Figure 134 illustrates, annual serious injury casualties and serious injury crashes in Queensland have been steading increasing since 2015.

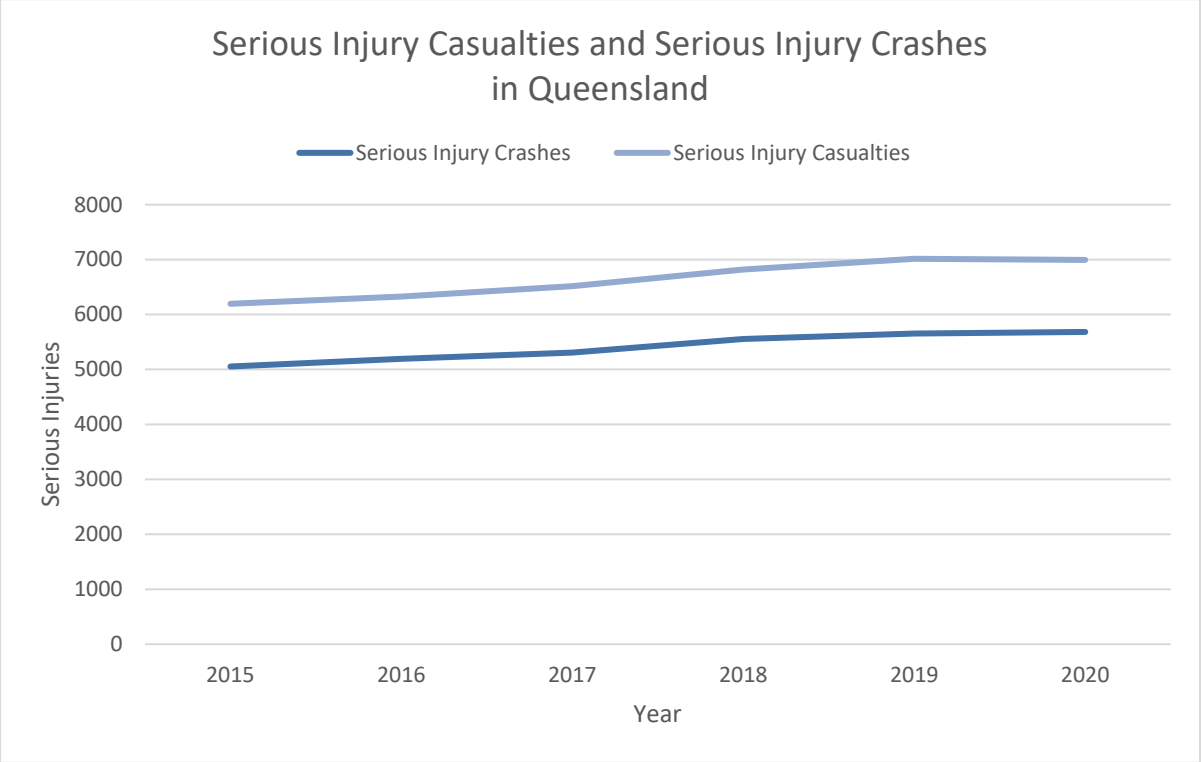

Figure 134: Serious Injury Casualties and Serious Injury Crashes in Queensland (Department of Transport and Main Roads 2021)

Annual serious injury casualties and crashes in Queensland are considered insignificant concerning the potential impact of COVID-19 during 2020, as shown in Figure 135. Despite this lack of significant impact on annual serious injury casualties and crashes, further analysis of additional road crash characteristics in Queensland is warranted.

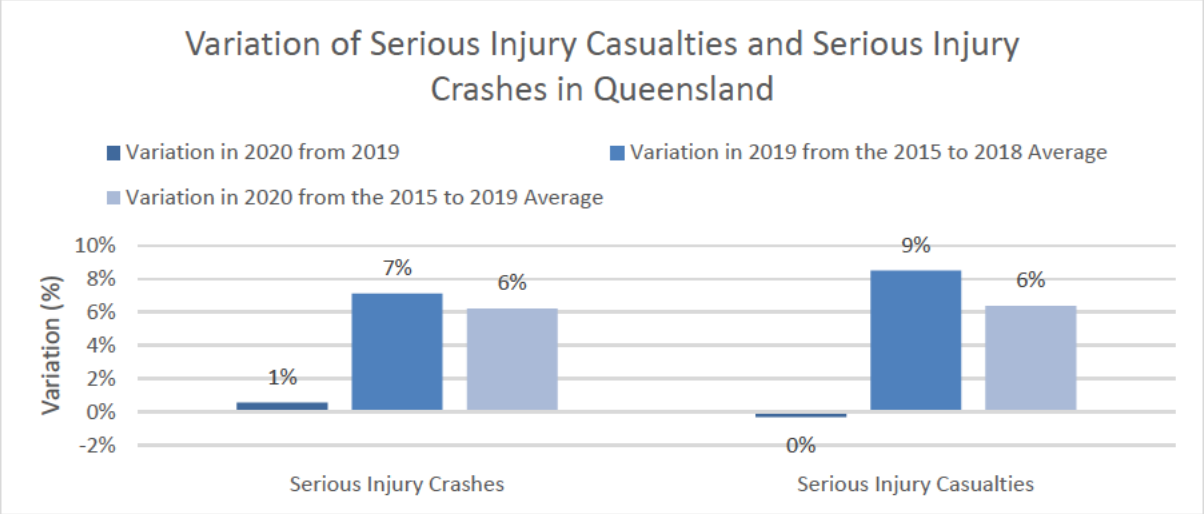

Figure 135: Variation of Serious Injury Casualties and Serious Injury Crashes in Queensland (Department of Transport and Main Roads 2021)

Regarding road users in Queensland, as demonstrated by Figure 136, the occurrence of serious injury casualties was found to be insignificant when comparing the variation between 2020 and prior years. The rates of serious injuries sustained by drivers, motorcyclists, pedal cyclists and pedestrians remained relatively consistent with the figures recorded in previous years. However, passengers experienced a marginal decline in serious injury casualties in 2020 compared to preceding years. This may be attributed to alterations in travel behaviour during the pandemic, such as reduced carpooling for work and schooling as more individuals transitioned to remote work arrangements and decreased leisurely travel.

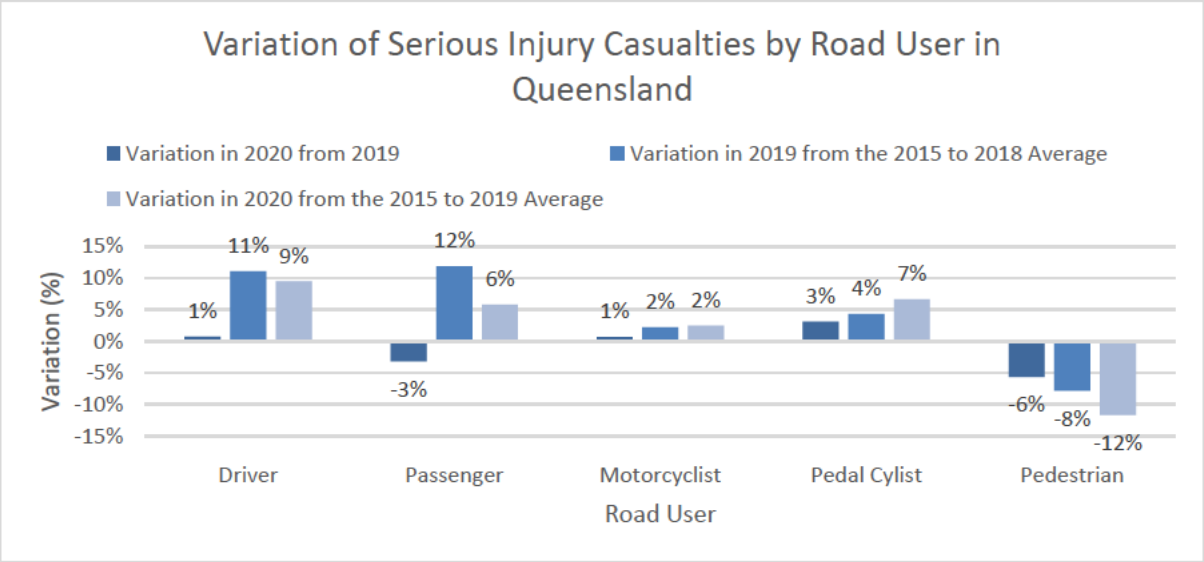

Figure 136: Variation of Serious Injury Casualties by Road User in Queensland (Department of Transport and Main Roads 2021)

With respect the involvement older drivers or riders in Queensland involved in serious injury crashes during 2020, it was found to be significant when comparing the variation between 2020 and preceding years, as shown by Figure 136. When it came to younger drivers or riders in Queensland involved in serious injury crashes during 2020, it was found to be insignificant when comparing the variation between 2020 and preceding years.

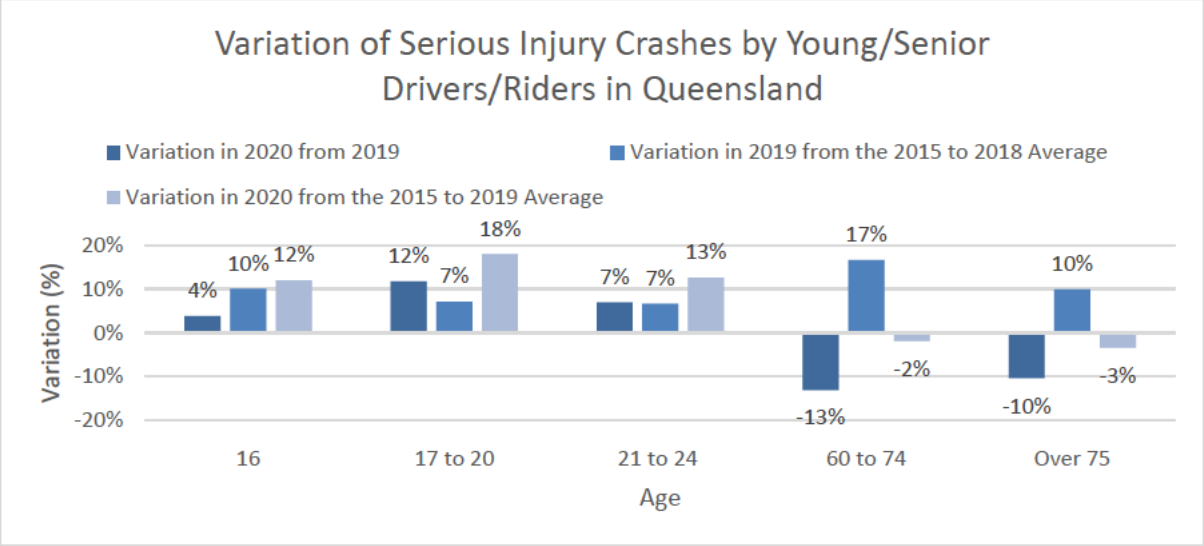

Figure 137: Variation of Serious Injury Crashes by Young/Senior Drivers/Riders in Queensland (Department of Transport and Main Roads 2021)

A distinguishable trend is apparent from the decreased involvement of individuals aged over 60 years old in serious injury crashes, which is noteworthy as those age groups have typically exhibited a steady increase in serious injury crashes. This could be due to numerous factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant older individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

Serious injury casualty rates had similar findings to those serious injury crashes in Queensland, as shown by Figure 138. Individuals aged over 75 years old had a significant decline in seriously injuries when compared to 2019 and prior years.

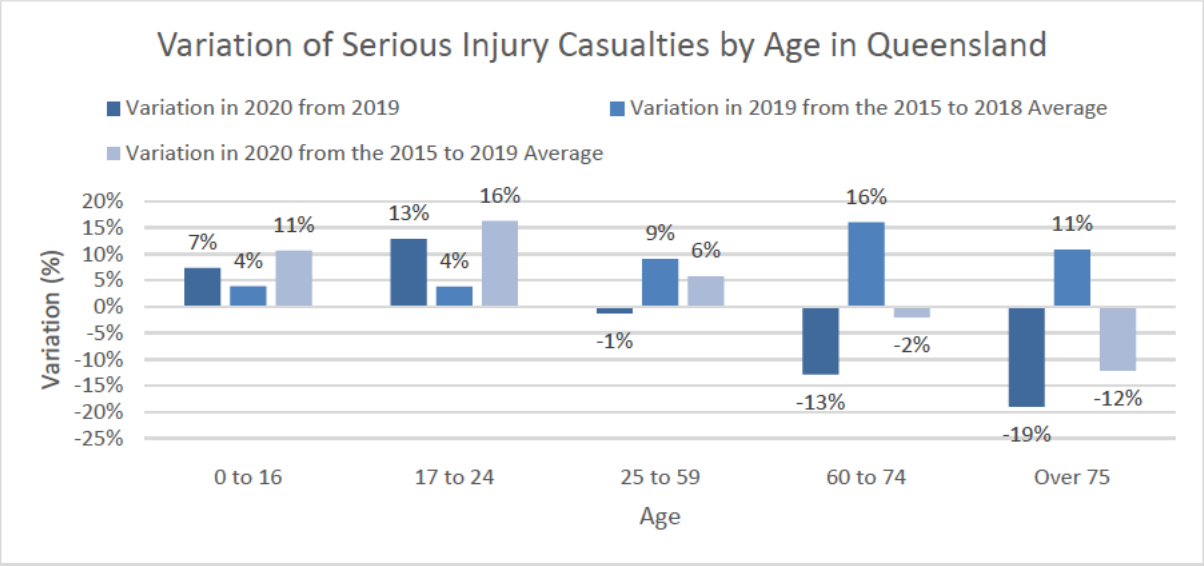

Figure 138: Variation of Serious Injury Casualties by Age in Queensland (Department of Transport and Main Roads 2021)

- In 2020, there were 294 individuals aged over 75 years old who were seriously injured in Queensland. This is 69 (19%) less than 2019 and 41 (12%) less than the 2015 to 2019 average. Prior to 2020, Queensland experienced 36 (11%) more serious injuries with individuals aged over 75 years old in 2019 from the 2015 to 2018 average.

This distinguishable trend is apparent from the decreased seriously injured rates of individuals aged over 60 years old, which is noteworthy as those age groups have typically exhibited a steady increase in serious injury crashes. This could be due to numerous factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.

- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant older individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

Regarding licence type in Queensland, it was notable that provisional drivers experienced a significant increase in serious injury rates during 2020, as shown in Figure 139. Provisional and unlicenced drivers or riders had consistent serious injury rates compared to previous years which is then deemed insignificant in respect to the influence COVID-19 may have had.

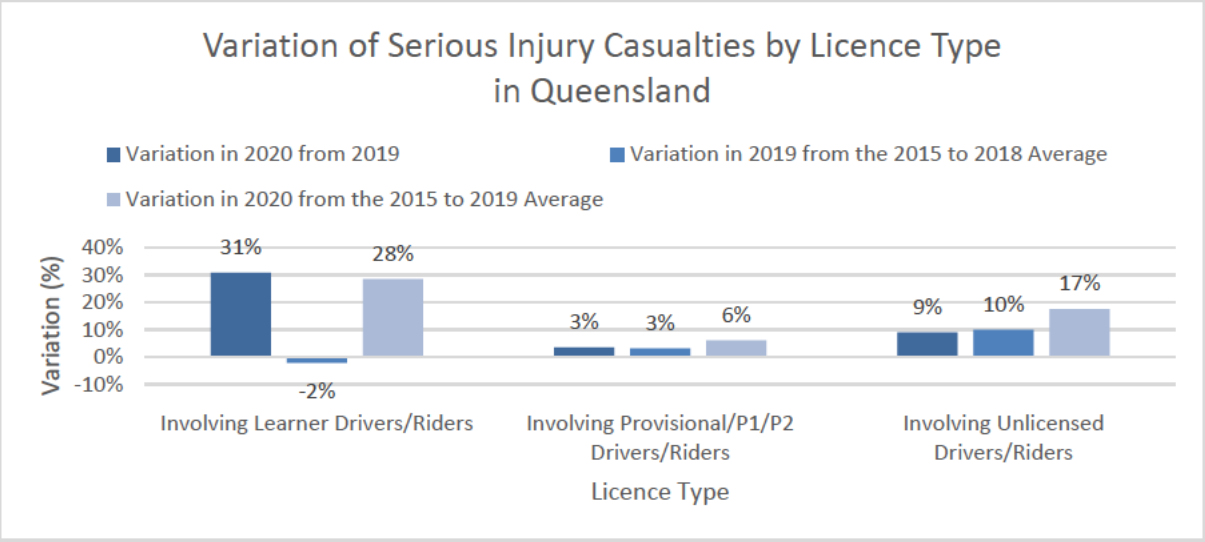

Figure 139: Variation of Serious Injury Casualties by Licence Type in Queensland (Department of Transport and Main Roads 2021)

- In 2020, there were 247 learner drivers or riders who were seriously injured in Queensland. This is 58 (31%) more than 2019 and 55 (28%) more than the 2015 to 2019 average. Prior to 2020, Queensland experienced 4 (2%) less learner drivers or riders who were serious injuries in 2019 from the 2015 to 2018 average.

The significant increase of serious injuries casualties involving learner drivers in Queensland was likely due to the following factors.

- In the initial lockdowns caused from COVID-19, many student drivers, parents and authorities were unsure of the guidelines pertaining to driving lessons. This caused limited training opportunities for student drivers to build up their safe driving skills and confidence on the roads which has a direct association with increased risk of being involved in a road crashes.

- With traffic volumes reducing by 17% from March to July 2020, learner drivers who continued to learn during that time would be accustomed to driving in less congested conditions. When traffic volumes resumed to pre-COVID-19 levels, student drivers may not be adequately prepared for driving in those conditions which would increase their risk of being involved in a road crash.
- With many driving schools and instructions suspending or limiting their operations, it meant that student drivers had to rely on parental supervision for driving lessons. Depending on the supervisory adult's experience and their own road user behaviour, it may have an impact on the quality of the driving lesson as they would be unable to provide the same level of instruction as a professional or unknowingly provide poor road user behaviour advice to learner drivers. This can then increase the risk for learner drivers to be involved in a road crash.

Regarding the involvement of riskier behavioural characteristics in Queensland, it was notable that serious injury casualties occurring from speeding and drink driving had significantly increased, as depicted in Figure 140. Whereas other riskier road user behaviours such as distracted driving or being fatigued had remained consistent with preceding years.

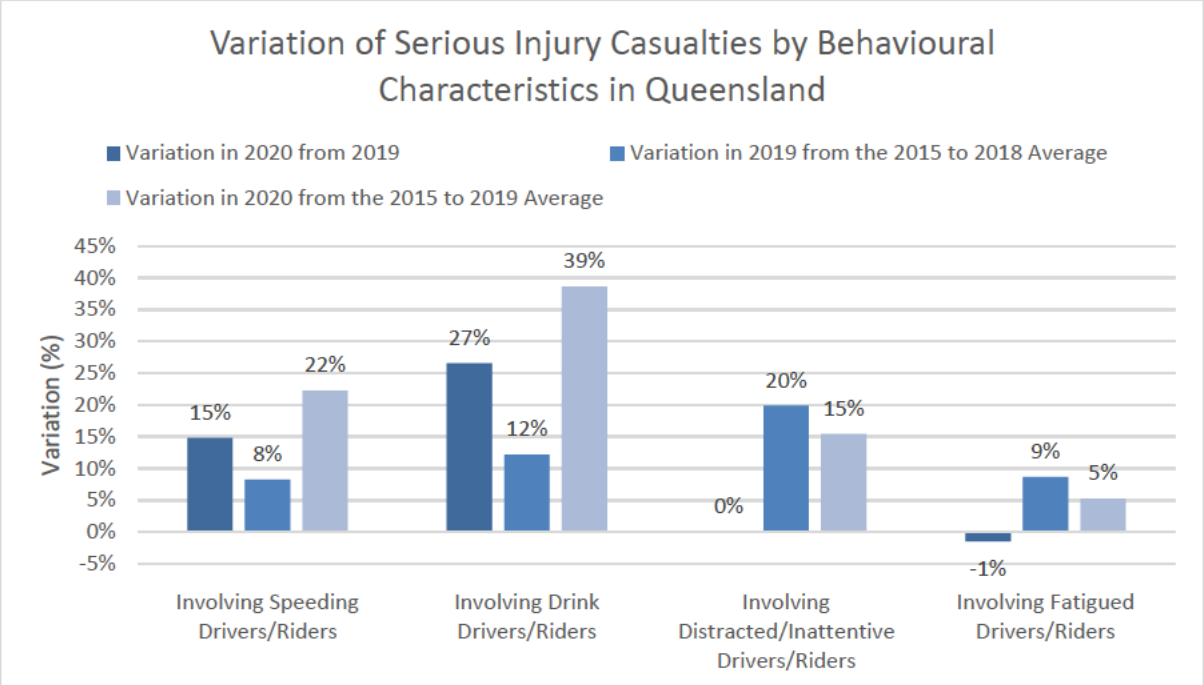

Figure 140: Variation of Serious Injury Casualties by Behavioural Characteristics in Queensland (Department of Transport and Main Roads 2021)

- In 2020, there were 388 individuals who were seriously injured in road crashes throughout Queensland that involved speeding drivers or riders. This is 50 (15%) more than 2019 and 71 (22%) more than the 2015 to 2019 average. Prior to 2020, Queensland experienced 26 (8%) more serious injuries in road crashes that involved speeding drivers or riders in 2019 from the 2015 to 2018 average.
- In 2020, there were 801 individuals who were seriously injured in road crashes throughout Queensland that involved drink driving drivers or riders. This is 168 (27%) more than 2019 and 223 (39%) more than the 2015 to 2019 average. Prior to 2020, Queensland experienced 69 (12%) more serious injuries in road crashes that involved speeding drivers or riders in 2019 from the 2015 to 2018 average.

The significant increase of serious injuries involving riskier road user behaviour in Queensland was likely due to the following factors.

- Due to strict restrictions relating to travel in Queensland, some individuals may have taken the opportunity to speed to their non-essential destination to ensure they are not caught breaching COVID-19 mandated restrictions. This may have put individuals at increased likelihood of causing a road crash.
- Due to reduce traffic volumes, some drivers could increase their speed, perceiving it as less risky without congestion. This may have put individuals at increased likelihood of causing a road crash.
- As many individuals began to work remotely at home, there would have been ampule reasoning and opportunity for individuals to increase their alcohol consumption. As individuals could not travel to see friends, lockdowns became very lonely. As a result, individuals may have turned to alcohol to fill in time or deal with loneliness. In addition, the lack of daily structure may have led individuals to consume more alcohol at irregular hours. These reasons may have put individuals at increased risk of drunk driving and causing a road crash.
- Mental health dramatically reduced during COVID-19 with many individuals facing job losses and financial uncertainty. Alcohol consumption is a means of coping in stressful situations for many individuals. This may have put individuals at increased risk of drunk driving and causing a road crash.

- Due to travel restrictions, individuals who had a drinking problem or developed a drinking problem during COVID-19 had reduced access to in-person treatment services such as rehabilitation centres or Alcoholics Anonymous. Reduced access to those treatment services could have worsened individuals drinking problem which may have put them at risk of drunk driving and causing a road crash.
- The COVID-19 pandemic had a notable impact on law enforcement practices with static roadside random breath testing being suspended in March 2020 due to concerns about the transmission of COVID-19. In 2020, random breath tests in Queensland witnessed a 49% reduction compared to 2019, with positive testing results remaining consistent with the rates recorded in 2019 (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023b). Speed infringements issued by police officers in Queensland decreased by 15% in 2020 compared to 2019 (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023b). The reduction in law enforcement meant that individuals were able to violate the traffic laws without being apprehended which could ultimately increase the risk of being involved in a road crash as a consequence.

In summary, significant variations in serious injuries throughout Queensland during 2020 are showcase in Table 14.

Significant Increases:	• License Type – Learner Drivers • Risky Road User Behaviour – Speeding, Drink Driving
Significant Decreases:	• Age – Over 75 years old

Table 14: Summary of Significant Variations of Serious Injuries in Queensland

5.3.3 Serious Injuries in Victoria

Serious injuries defined by the Victorian State Government are when an individual is injured, admitted into hospital and did not die within 30 days of the crash (VicRoads n.d.). As Figure 141 illustrates, annual serious injuries in Victoria steadily increased from 2015 to 2019. In 2020, annual serious injuries in Victoria had declined compared to prior years.

Figure 141: Serious Injury Casualties in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

Annual serious injury casualties in Victoria during 2020 are considered significant concerning the potential impact COVID-19 had during 2020, as illustrated by Figure 142. This significance is also observed across all reported road crash characteristics as documented by the Transport Accident Commission, where each serious injury rate is considered significant in relation to the potential impact of COVID-19 in 2020.

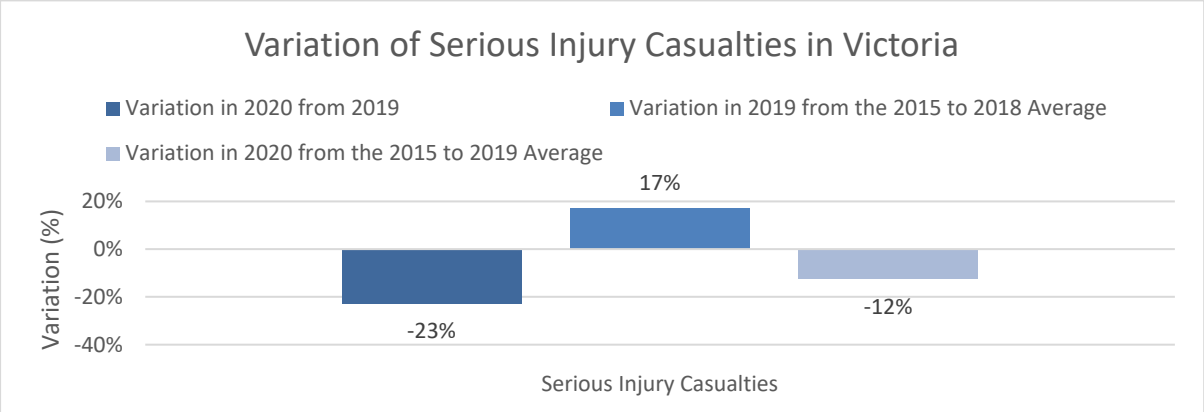

Figure 142: Variation of Serious Injury Casualties in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

Examining the serious injury casualty rates in Victoria per 100,000 population and 10,000 vehicles in Figure 143, serious injury casualty rates was also deemed significant concerning the potential influence of COVID-19 during 2020.

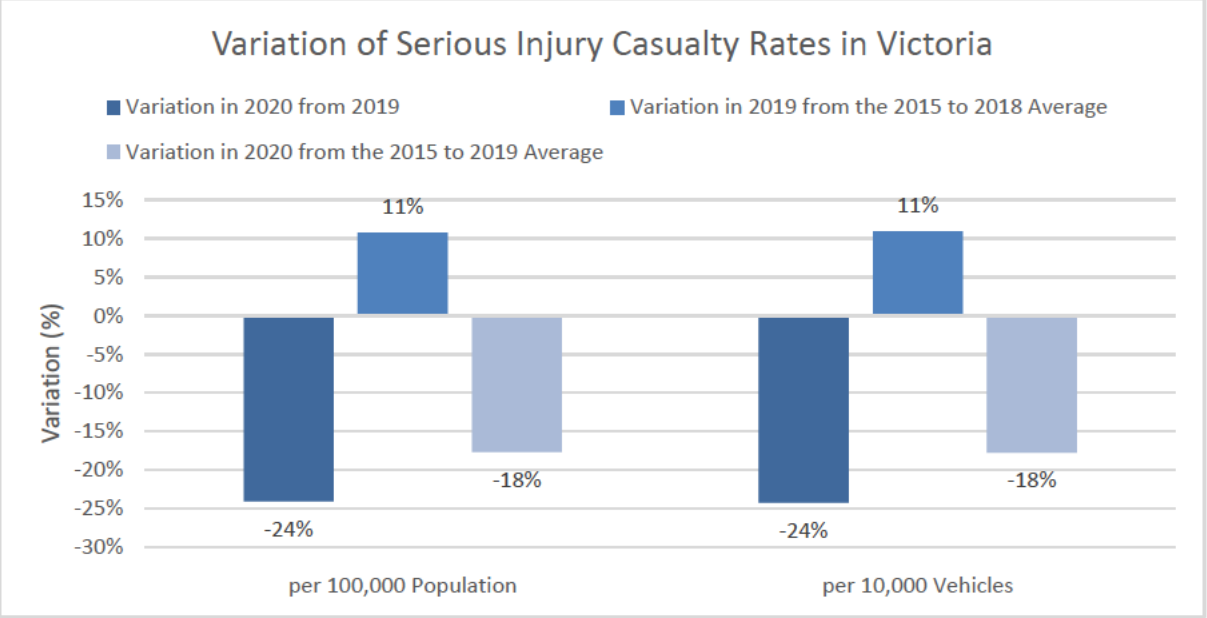

Figure 143: Variation of Serious Injury Casualty Rates in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

Before the year 2020, serious injury rates exhibited an upward trend across all road user categories in Victoria. However, in 2020, drivers, passengers, motorcyclists, pedestrians, pedal cyclists, and tram/train users experienced a significant reduction in serious injury rates, as shown in Figure 144.

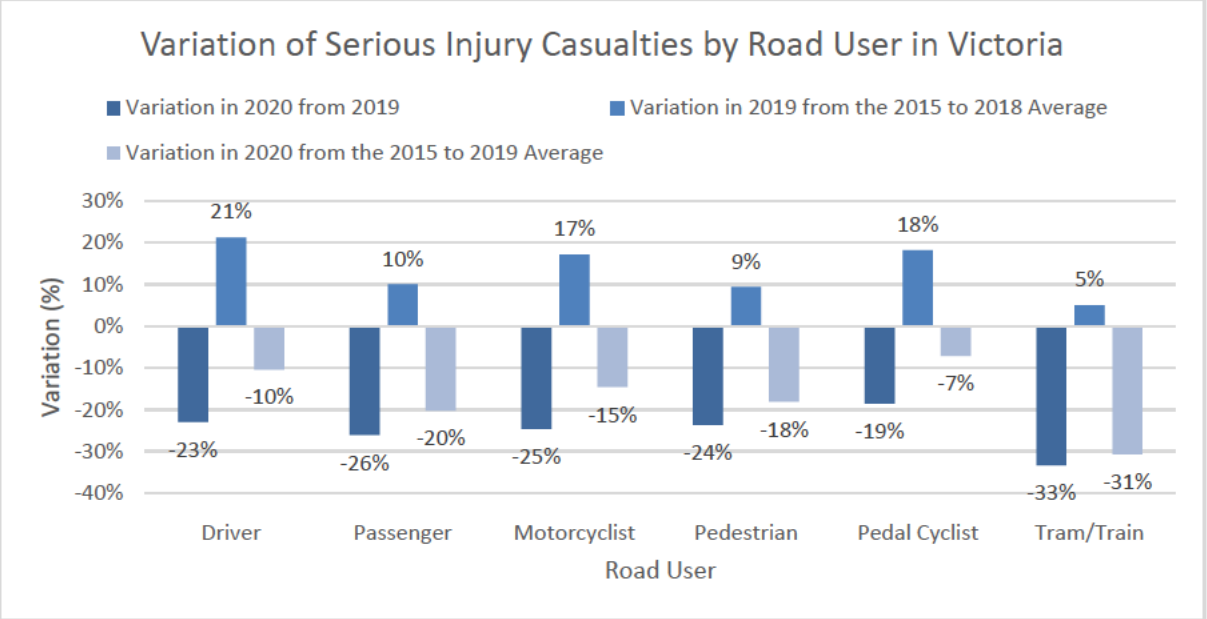

Figure 144: Variation of Serious Injury Casualties by Road User in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

Before the year 2020, serious injury rates exhibited an upward trend across both genders in Victoria. However, in 2020, both genders experienced a significant reduction in serious injury rates, as illustrated in Figure 145Figure 144.

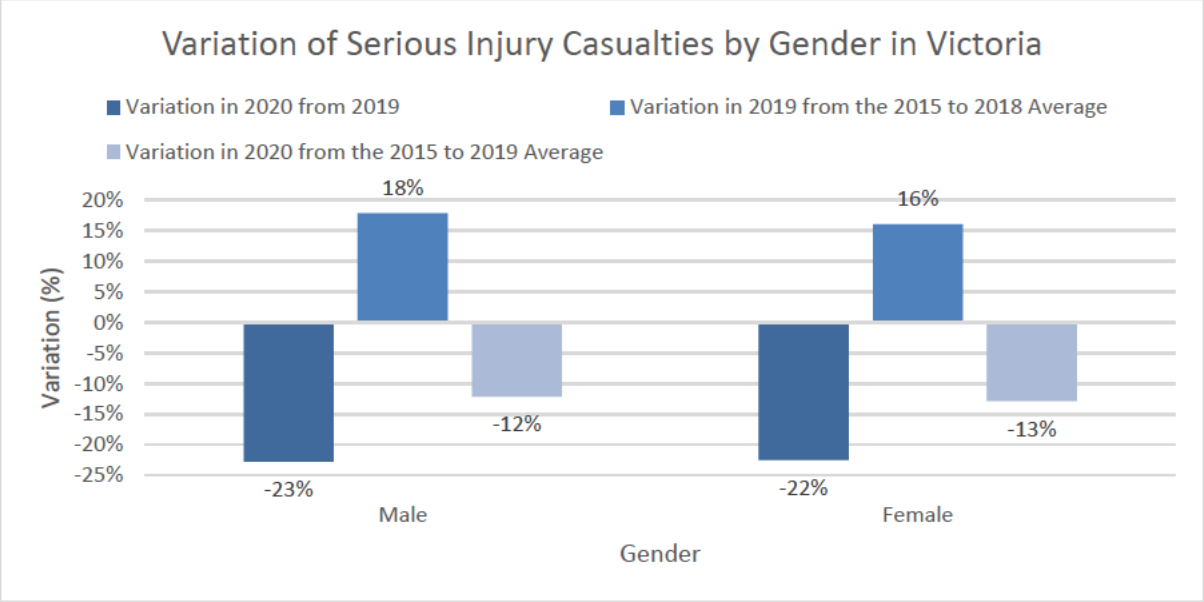

Figure 145: Variation of Serious Injury Casualties by Gender in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

Before the year 2020, serious injury rates exhibited an upward trend across every single age group in Victoria. However, in 2020, every single age group experience a significant reduction in serious injury rates, as illustrated in Figure 146.

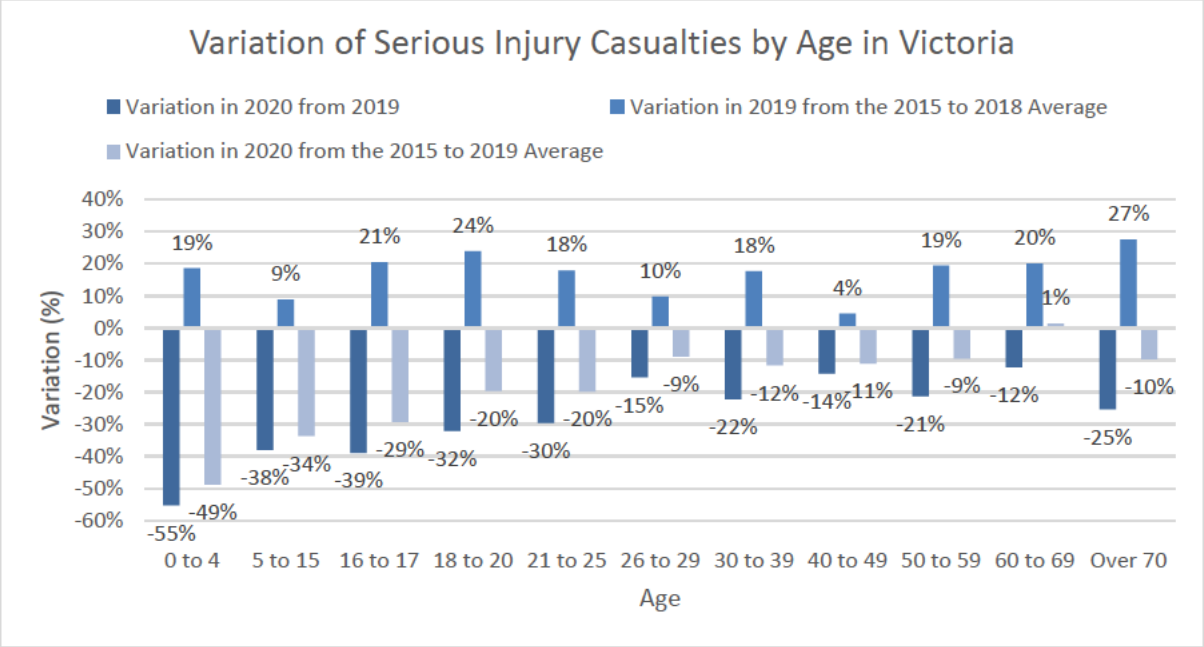

Figure 146: Variation of Serious Injury Casualties by Age in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

In summary, significant variations in serious injuries throughout Victoria during 2020 are showcase in Table 14.

Significant Increases:	• Nil
Significant Decreases:	• Road User – Driver, Passenger, Motorcyclist, Pedestrian, Pedal Cyclist, Tram or Train Passenger • Gender – Male, Female • Age – All Age Groups

Table 15: Summary of Significant Variations of Serious Injuries in Victoria

Overall, the annual serious injury rates in Victoria are deemed significant in relation to the potential impact of COVID-19 on serious injuries during 2020. All reported road crash characteristics, as documented by the Transport Accident Commission, exhibit notable variations, signifying the substantial influence that COVID-19 had on serious injuries during 2020. The prolonged lockdown and restrictions implemented throughout the year significantly altered the movement of people and goods in Victoria and consequently road safety. While other states and territories in Australia also experienced lockdowns and restrictions, Victoria endured one of the world's lengthiest lockdowns, spanning over 100 days and concluding in late October 2020 (Palmer et al. 2021).

In general, the major contributing factors for all characteristics showcasing significant reductions in 2020 from 2019 and the 2015 to 2019 average include:

- The reduced traffic volumes for the first and second lockdowns in Victoria, meant that the likelihood of collisions with other vehicles would be decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.

5.3.4 Serious Injuries in South Australia

Serious injuries defined by the Government of South Australia are when an individual is injured, admitted into hospital and did not die within 30 days of the crash (Department of Infrastructure and Transport n.d.). As depicted in Figure 147, annual serious injuries and crashes steadily decreased from 2015 to 2018. However, in 2019, there was a noteworthy upsurge in annual serious injuries and crashes, surpassing the rates observed in 2015. In 2020, annual serious injuries and crashes decreased compared to 2019 but remained higher than prior years.

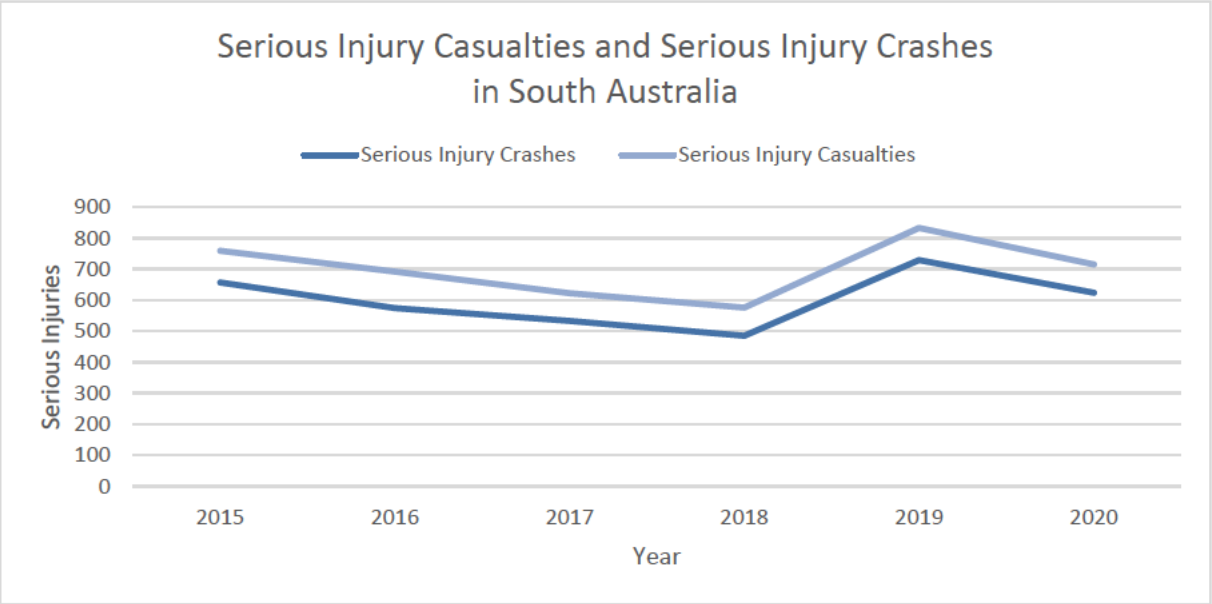

Figure 147: Variation of Serious Injury Casualties and Serious Injury Crashes in South Australia (Department for Infrastructure and Transport n.d.)

Annual serious injury casualties and crashes in South Australia during 2020 had a considerable decline compared to 2019 and the 2015 to 2019 average. However, in terms of this undergraduate research dissertation, it is considered insignificant concerning the potential impact of COVID-19, as shown in Figure 148. Despite this lack of significant impact on annual serious injury casualties and crashes, further analysis of additional road crash characteristics in South Australia is warranted.

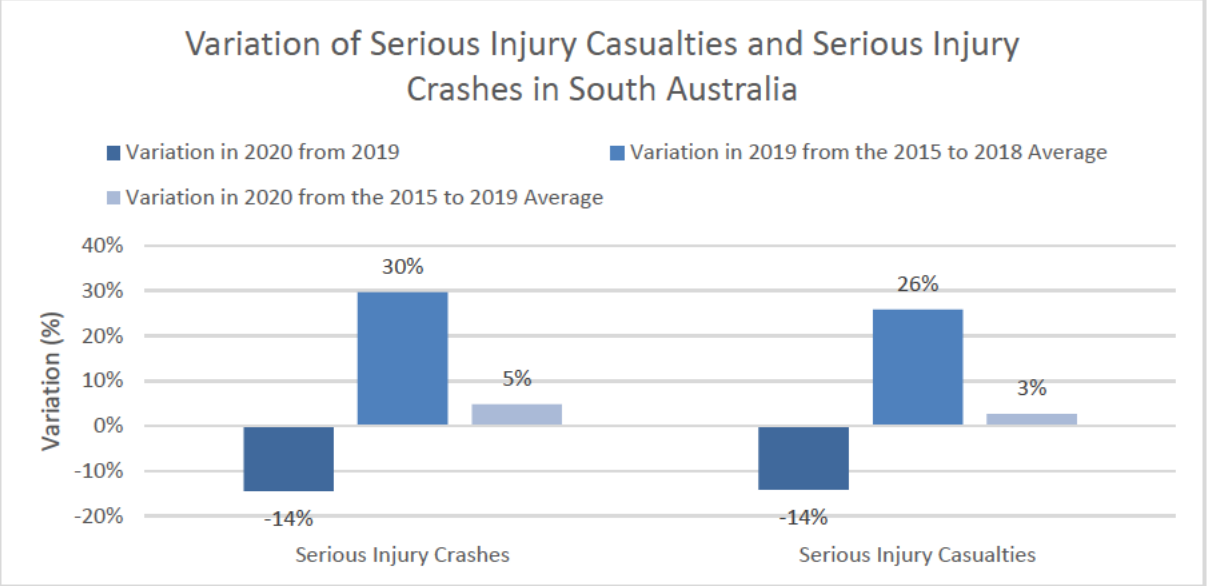

Figure 148: Variation of Serious Injury Casualties and Serious Injury Crashes in South Australia (Department for Infrastructure and Transport n.d.)

Regarding road users in South Australia, as demonstrated by Figure 149, the occurrence of serious injury casualties from drivers, pedestrians and pedal cyclists was significant when comparing the variation between 2020 to preceding years. Whereas passengers and motorcyclists had a steady decrease in serious injury casualties and motorcycle pillion passengers remained consistent with the prior year rates.

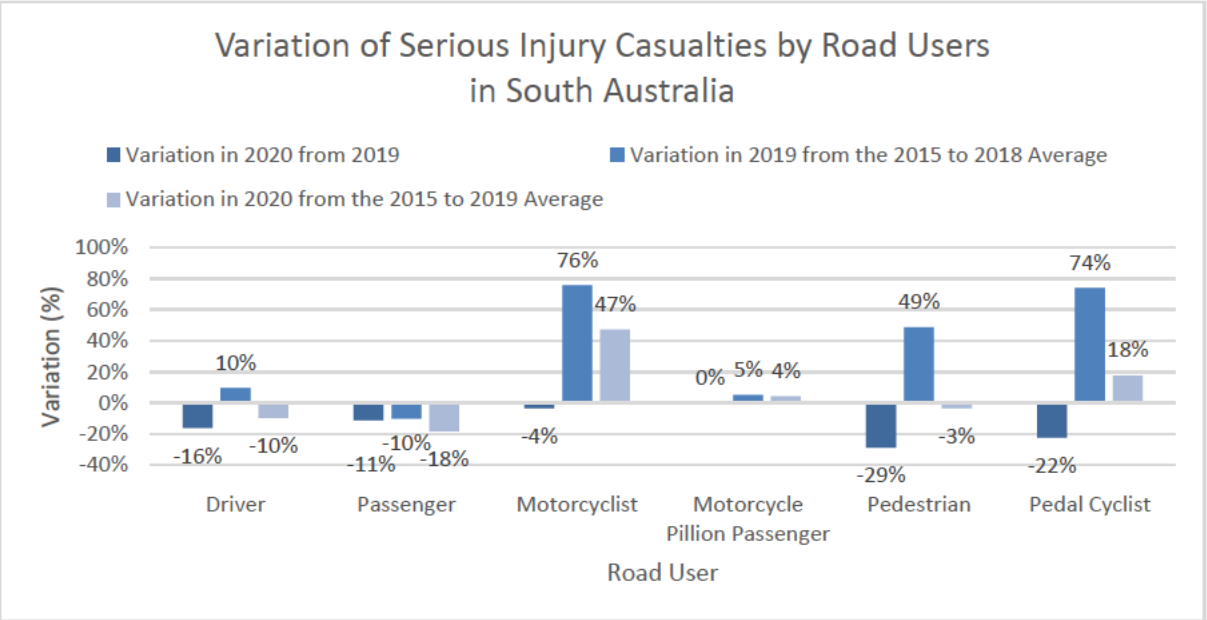

Figure 149: Variation of Serious Injury Casualties by Road Users in South Australia (Department for Infrastructure and Transport n.d.)

- In 2020, there were 293 drivers who were seriously injured in road crashes throughout South Australia. This is 56 (16%) less than 2019 and 31 (10%) less than the 2015 to 2019 average. Prior to 2020, South Australia experienced 31 (10%) more serious injuries in road crashes from drivers in 2019 from the 2015 to 2018 average.
- In 2020, there were 57 pedestrians who were seriously injured in road crashes throughout South Australia. This is 23 (29%) less than 2019 and 2 (3%) less than the 2015 to 2019 average. Prior to 2020, South Australia experienced 26 (49%) more serious injuries in road crashes from pedestrians in 2019 from the 2015 to 2018 average.
- In 2020, there were 73 pedal cyclists who were seriously injured in road crashes throughout South Australia. This is 21 (22%) less than 2019 and 11 (18%) less than the 2015 to 2019 average. Prior to 2020, South Australia experienced 40 (74%) more serious injuries in road crashes from pedal cyclists in 2019 from the 2015 to 2018 average.

The significant reduction of serious injuries from drivers, pedestrians and pedal cyclists was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19 in South Australia. It would mean the likelihood of collisions with other vehicles would have decreased.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Venues had prevalent closures or limited operating capacity due to COVID-19 restrictions, which meant fewer individuals would attend these venues. Therefore, there would be less opportunity for road crashes relating to alcohol consumption or night time activities, which is prevalent in road crashes on weekends.

- Due to the heightened risk of transmission of COVID-19 during special events such as festivals or sports games, many special events were cancelled or postponed. From the crowd levels, it meant that special events led to increased traffic during the event. The postponement and cancellation of many special events in South Australia likely led to decreased road crashes.
- Due to the stringent messaging of safety measures to the Australian public, it is likely that individuals became more conscious of safety which led to safer driving and riding practices which would reduce the likelihood of being involved in a road crash.

Regardless of gender, all Australians experienced the same limiting factors that COVID-19 imposed. During 2020, there were reductions in serious injuries per gender in South Australia. Albeit, not significant to determine whether COVID-19 may have an impact. Both males and females had an increasing trajectory prior to COVID-19.

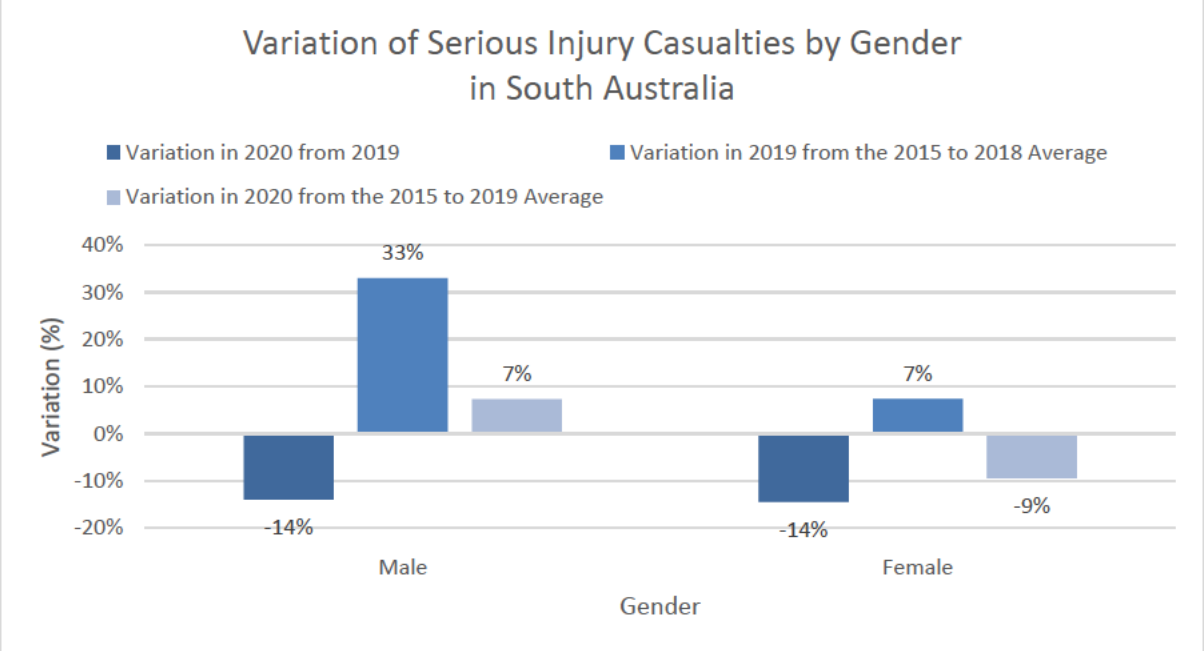

Figure 150: Variation of Serious Injury Casualties by Gender in South Australia (Department for Infrastructure and Transport n.d.)

Each age group had significant disruptions to their usual routines which would have affected their mobility and risk to be involved in a road crash. In South Australia, the most substantial reduction in serious injuries occur in young adults aged 16 to 24 years old and in older adults aged over 50 years old, as shown in Figure 151.

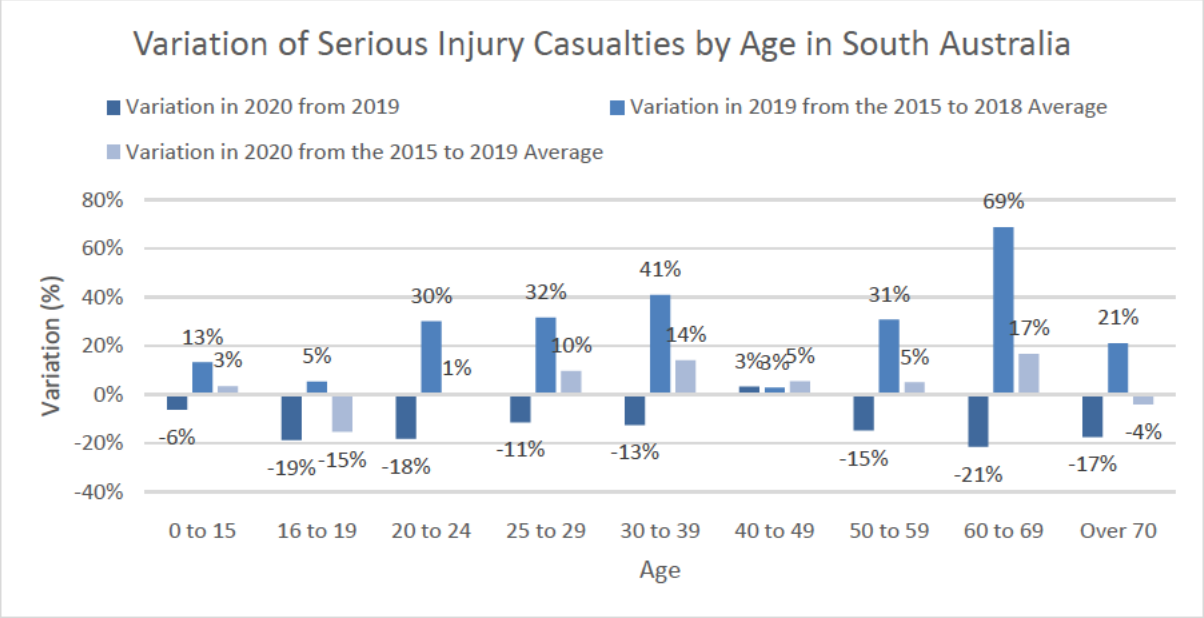

Figure 151: Variation of Serious Injury Casualties by Gender in South Australia (Department for Infrastructure and Transport n.d.)

- In 2020, there were 52 individuals aged 16 to 19 years old who were seriously injured in road crashes throughout South Australia. This is 12 (19%) less than 2019 and 9 (15%) less than the 2015 to 2019 average. Prior to 2020, South Australia experienced 3 (5%) more serious injuries in road crashes from individuals aged 16 to 19 years old in 2019 from the 2015 to 2018 average.
- In 2020, there were 77 individuals aged 20 to 24 years old who were seriously injured in road crashes throughout South Australia. This is 17 (18%) less than 2019 and 0 (1%) more than the 2015 to 2019 average. Prior to 2020, South Australia experienced 22 (30%) more serious injuries in road crashes from individuals aged 20 to 24 years old in 2019 from the 2015 to 2018 average.
- In 2020, there were 104 individuals aged 50 to 59 years old who were seriously injured in road crashes throughout South Australia. This is 18 (15%) less than 2019 and 5 (5%) more than the 2015 to 2019 average. Prior to 2020, South Australia experienced 29 (31%) more serious injuries in road crashes from individuals aged 50 to 59 years old in 2019 from the 2015 to 2018 average.
- In 2020, there were 81 individuals aged 60 to 69 years old who were seriously injured in road crashes throughout South Australia. This is 22 (21%) less than 2019 and 12 (17%) less than the 2015 to 2019 average. Prior to 2020, South Australia experienced 42 (69%) more serious injuries in road crashes from individuals aged 60 to 69 years old in 2019 from the 2015 to 2018 average.

- In 2020, there were 90 individuals aged over 70 years old who were seriously injured in road crashes throughout South Australia. This is 19 (17%) less than 2019 and 4 (4%) less than the 2015 to 2019 average. Prior to 2020, South Australia experienced 19 (21%) more serious injuries in road crashes from individuals aged over 70 years old in 2019 from the 2015 to 2018 average.

The significant reduction of individuals aged from 16 to 19 years old, 20 to 24 years old, 50 to 59 years old, 60 to 69 years old and over 70 years old is likely due to the following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant older individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

In summary, significant variations in serious injuries throughout South Australia during 2020 are showcase in Table 16.

Significant Increases:	• Nil
Significant Decreases:	• Road User – Driver, Pedestrian, Pedal Cyclist • Age – 16 to 19 years old, 20 to 24 years old, 50 to 59 years old, 60 to 69 years old, over 70 years old

Table 16: Summary of Significant Variations of Serious Injuries in South Australia

5.3.5 Serious Injuries in the Northern Territory

Serious Injuries defined by the Northern Territory Government are when an individual is injured and admitted into hospital because of a road crash (Department of Infrastructure and Regional development 2016). As depicted in Figure 152, annual serious injury casualties and crashes remained constant from 2015 to 2018, with a steep decline in 2019. During 2020, annual serious injury casualties and crashes increased from 2019 but remained significantly lower than 2018 levels.

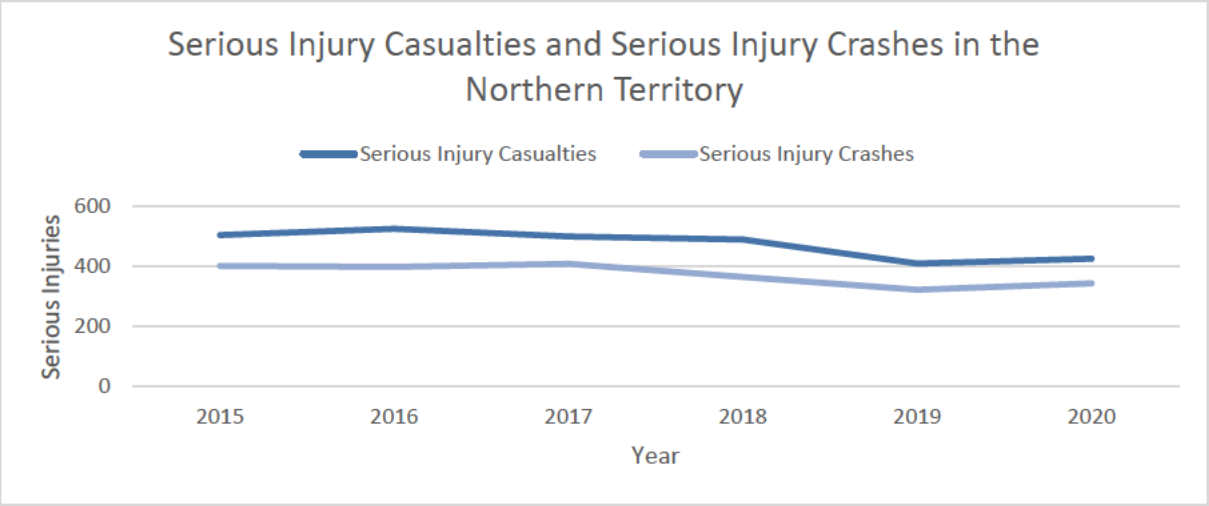

Figure 152: Serious Injury Casualties and Serious Injury Crashes in the Northern Territory (Department of Infrastructure, Planning and Logistics 2023)

Annual serious injury casualties and crashes in the Northern Territory during 2020 are considered insignificant concerning the potential impact of COVID-19 during 2020, as shown in Figure 153. Despite this lack of significant impact on annual serious injury casualties and crashes, further analysis of additional road crash characteristics in the Northern Territory is warranted.

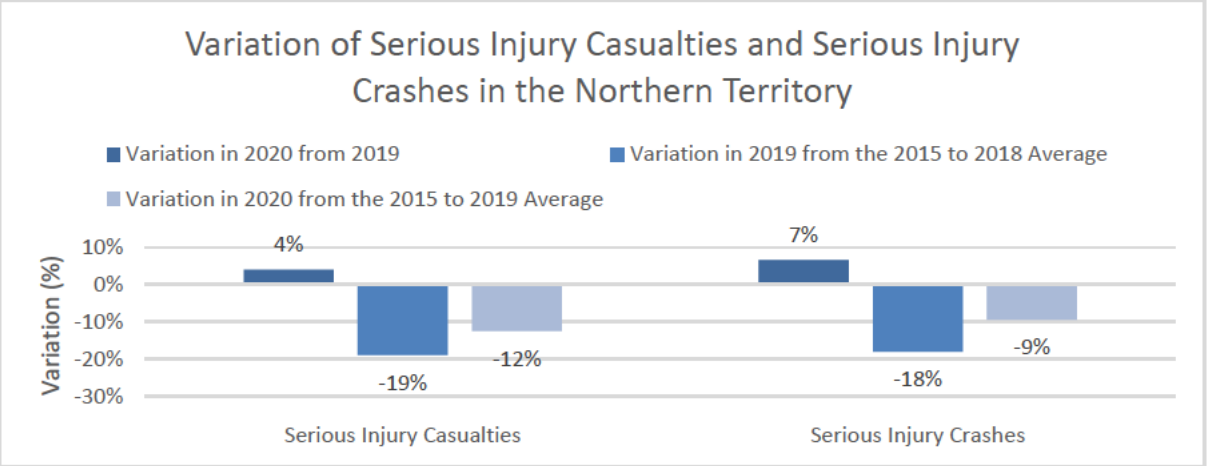

Figure 153: Variation of Serious Injury Casualties and Serious Injury Crashes in the Northern Territory (Department of Infrastructure, Planning and Logistics 2023)

Regarding road users in the Northern Territory, as demonstrated by Figure 154, the occurrence of serious injury casualties deriving from motorcyclists and pedestrians was significant when comparing the variation between 2020 and prior years. Whereas drivers and pedal cyclists had a slight increase in serious injury casualties during 2020, where historically those road users serious injury rates have been trending downwards. Then passengers had a stable decrease in serious injury casualties, like preceding years.

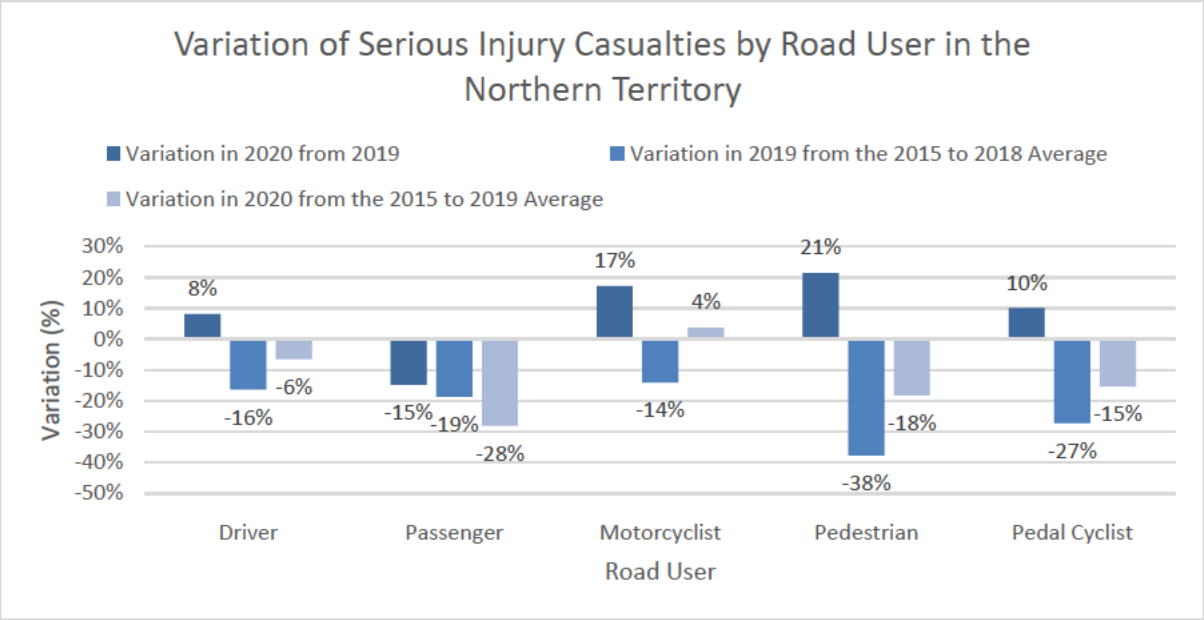

Figure 154: Variation of Serious Injury Casualties by Road User in the Northern Territory (Department of Infrastructure, Planning and Logistics 2023)

- In 2020, there were 68 motorcyclists were seriously injured in road crashes throughout the Northern Territory. This was 10 (17%) more than 2019 and 2 (4%) more than the 2015 to 2019 average. Prior to 2020, the Northern Territory experienced 10 (14%) less serious injuries from motorcyclists in 2019 from the 2015 to 2018 average.
- In 2020, there were 34 pedestrians were seriously injured in road crashes throughout the Northern Territory. This was 6 (21%) more than 2019 and 8 (18%) more than the 2015 to 2019 average. Prior to 2020, the Northern Territory experienced 17 (38%) less serious injuries from pedestrians in 2019 from the 2015 to 2018 average.

The significant increase in motorcyclist and pedestrian serious injuries in the Northern Territory was likely due to the following factors.

- There was reduced traffic volumes for the first three months of COVID-19. When there are fewer vehicles on the road, some drivers and riders tend to engage in more risky road user behaviour such as speeding and reckless driving. Participating in risky road user behaviour can increase the likelihood of road crashes, especially those involving vulnerable road users.
- During the pandemic, motorcycle sales continued to transpire, as individuals sought alternative modes of transportation or developed a newfound interest. Consequently, this influx of novice riders and pillion passengers on the road escalated their vulnerability to road crashes.
- During the initial stages of restrictions from COVID-19, motorcycle training services would have been closed or restricted in some regions. With new inexperienced riders, they would not have been able to receive the same level of training to build motorcycle skills and confidence on the roads as compared to prior years. This would increase the likelihood of inexperienced riders and pillion passengers being involved in a road crash.
- While many activities were restriction during COVID-19, outdoor activities such as walking and jogging increased in popularity. As individuals were predominantly working from home, this was a chance for them get some fresh air and to safely exercise. An increase in pedestrians would mean subsequently an increase in pedestrian accidents occurring on roadways.

Regarding the involvement of riskier behavioural characteristics in the Northern Territory, it was notable that serious injury casualties occurring from speeding, drink driving and individuals not wearing their seatbelts had significantly increased compared to prior years, as depicted in Figure 155. Whereas other riskier behaviours such as being fatigued when driving had remained consistent with preceding years.

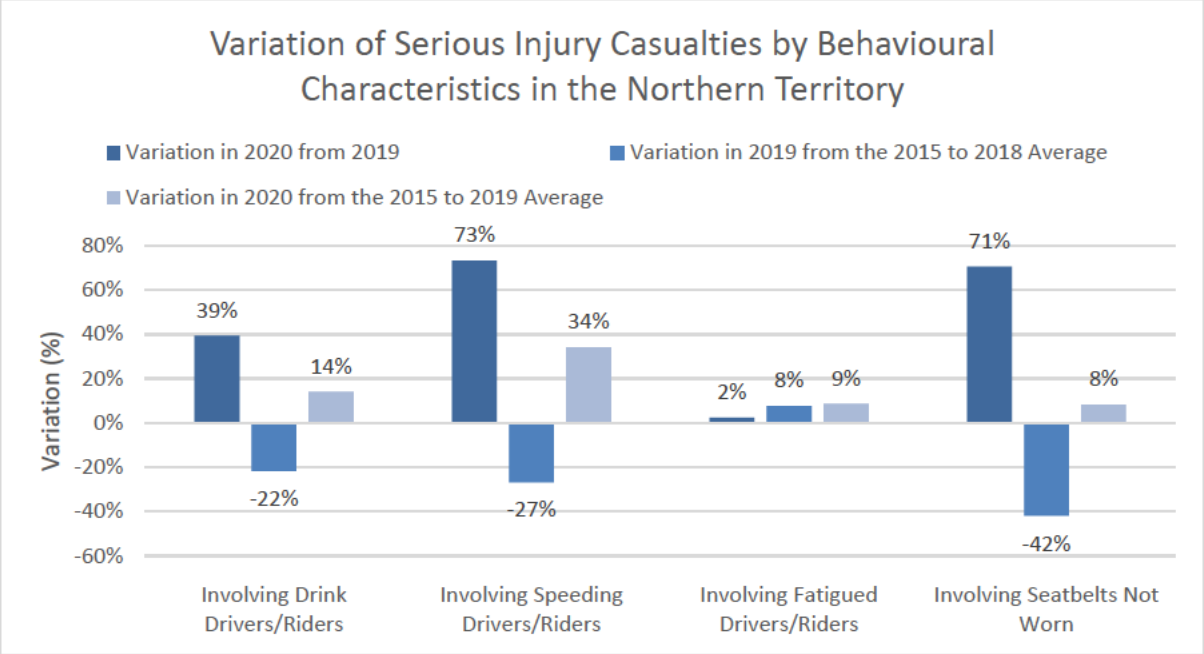

Figure 155: Variation of Serious Injury Casualties by Behavioural Characteristics in the Northern Territory (Department of Infrastructure, Planning and Logistics 2023)

- In 2020, there were 117 individuals who were seriously injured in road crashes throughout the Northern Territory that involved drink drivers or riders. This is 33 (39%) more than 2019 and 14 (14%) more than the 2015 to 2019 average. Prior to 2020, the Northern Territory experienced 23 (22%) less serious injuries in road crashes that involved drink drivers or riders in 2019 from the 2015 to 2018 average.
- In 2020, there were 123 individuals who were seriously injured in road crashes throughout the Northern Territory that involved speeding drivers or riders. This is 52 (73%) more than 2019 and 31 (34%) more than the 2015 to 2019 average. Prior to 2020, the Northern Territory experienced 26 (22%) less serious injuries in road crashes that involved seat belts not being worn in 2019 from the 2015 to 2018 average.
- In 2020, there were 29 individuals who were seriously injured in road crashes throughout the Northern Territory that involved seat belts not being worn. This is 12 (71%) more than 2019 and 2 (8%) more than the 2015 to 2019 average. Prior to 2020, the Northern Territory experienced 12 (42%) less serious injuries in road crashes that involved seat belts not being worn in 2019 from the 2015 to 2018 average.

The significant increase of riskier road user behaviour that resulted in serious injuries in Northern Territory was likely due to the following factors.

- When fewer vehicles are on the road, some drivers and riders tend to engage in more risky behaviour such as speeding, reckless driving, drunk driving and not wearing a seatbelt. Riskier road user behaviour can increase the likelihood of road crashes, especially those involving motorcycle pillion passengers.
- Due to strict restrictions relating to travel in the Northern Territory, some individuals may have taken the opportunity to speed to their non-essential destination to ensure they are not caught breaching COVID-19 mandated restrictions. This may have put individuals at increased likelihood of causing a road crash.
- Due to reduce traffic volumes, some drivers could increase their speed, perceiving it as less risky without congestion. This may have put individuals at increased likelihood of causing a road crash.
- As many individuals began to work remotely at home, there would have been ampule reasoning and opportunity for individuals to increase their alcohol consumption. As individuals could not travel to see friends, lockdowns became very lonely. As a result, individuals may have turned to alcohol to fill in time or deal with loneliness. In addition, the lack of daily structure may have led individuals to consume more alcohol at irregular hours. These reasons may have put individuals at increased risk of drunk driving and causing a road crash.
- Mental health dramatically reduced during COVID-19 with many individuals facing job losses and financial uncertainty. Alcohol consumption is a means of coping in stressful situations for many individuals. This may have put individuals at increased risk of drunk driving and causing a road crash.
- Due to travel restrictions, individuals who had a drinking problem or developed a drinking problem during COVID-19 had reduced access to in-person treatment services such as rehabilitation centres or Alcoholics Anonymous. Reduced access to those treatment services could have worsened individuals drinking problem which may have put them at risk of drunk driving and causing a road crash.
- The COVID-19 pandemic had a notable impact on law enforcement practices with static roadside random breath testing being suspended in March 2020 due to concerns about the transmission of COVID-19. In 2020, random breath tests in the Northern Territory witnessed a 34% reduction when compared to 2019, with positive testing results remaining consistent with the rates recorded in 2019 (Department of Infrastructure, Transport, Regional Development, Communications and the Arts

2023b). In 2020, speed infringements issued by police officers in the Northern Territory decreased by 36% when compared to 2019 (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023b). In 2020, seatbelt infringements issued by police officers in the Northern Territory decreased by 40% when compared to 2019 (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023b). The reduction in law enforcement meant that individuals were able to violate the traffic laws without being apprehended which could ultimately increase the risk of being involved in a road crash as a consequence.

In summary, significant variations in serious injuries throughout the Northern Territory during 2020 are showcase in Table 17.

Significant Increases:	• Road User – Motorcyclist, Pedestrian • Risky Road User Behaviour – Drink Driving, Speeding, Absence of Seatbelt
Significant Decreases:	• Nil

Table 17: Summary of Significant Variations of Serious Injuries in the Northern Territory

5.3.6 Serious Injuries in the Australian Capital Territory

Serious Injuries defined by the Government of the Australian Capital Territory are when an individual is injured and admitted into hospital because of a road crash (Transport Canberra and City Services 2021). As depicted in Figure 156, annual serious injury casualties and crashes consistently declined through 2015 to 2020. It is noted that during 2020, the ratio of serious injury casualties and crashes reduced.

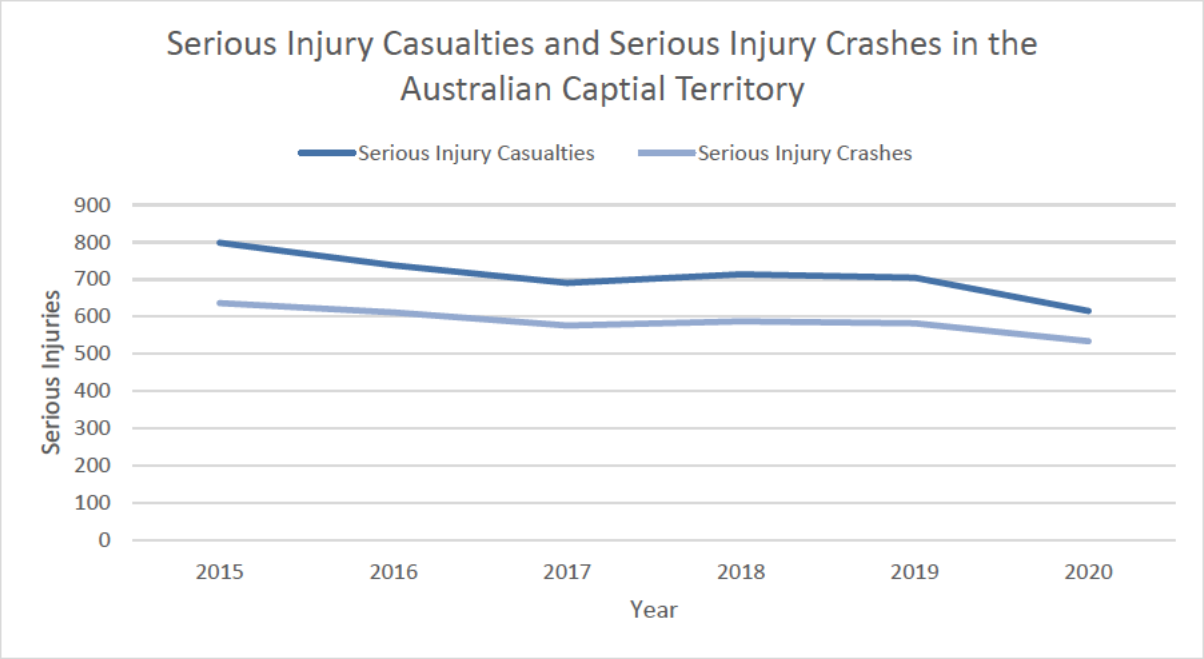

Figure 156: Serious Injury Casualties and Serious Injury Crashes in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

Annual serious injury casualties and crashes in the Australian Capital Territory are considered insignificant concerning the potential impact of COVID-19 during 2020, as depicted in Figure 157. Despite this lack of significant impact on annual serious injury casualty and crash rates, further analysis of additional road crash characteristics in Queensland is warranted.

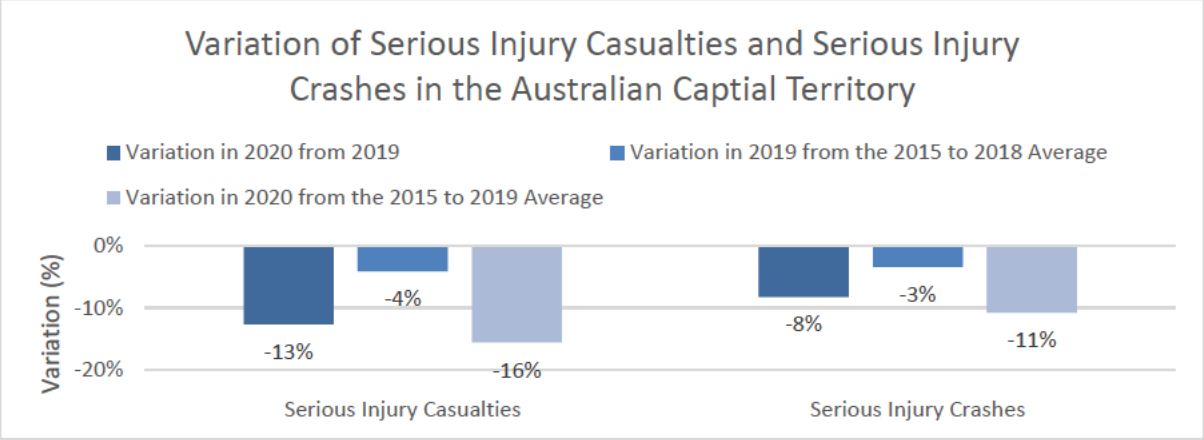

Figure 157: Variation of Serious Injury Casualties and Serious Injury Crashes in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

The implementation of strict lockdown orders, which drastically altered travel patterns in the Australian Capital Territory, commenced at the end of March 2020. This resulted in a reduction in serious injury casualties during the months spanning April to July, as depicted in Figure 158. Subsequently, there was a notable spike in serious injury casualties in August, followed by a period of reduced serious injury casualties until October. In November, another significant spike in serious injury casualties occurred.

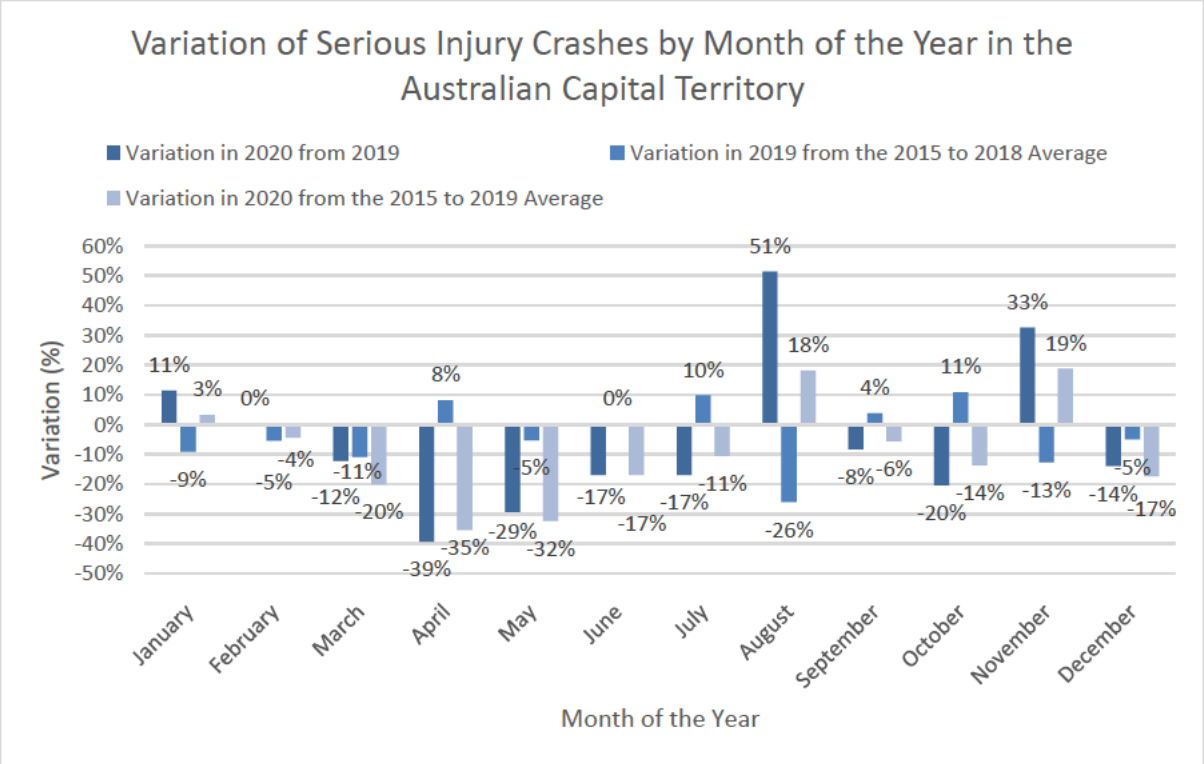

Figure 158: Variation of Serious Injury Crashes by Month of the Year in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

- In April 2020, there were 34 individuals who were seriously injured in road crashes throughout the Australian Capital Territory. This is 22 (39%) less than 2019 and 19 (35%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory in April experienced 4 (8%) more serious injuries from road crashes in 2019 from the 2015 to 2018 average.
- In May 2020, there were 41 individuals who were seriously injured in road crashes throughout the Australian Capital Territory. This is 17 (29%) less than 2019 and 20 (32%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory in May experienced 3 (5%) less serious injuries from road crashes in 2019 from the 2015 to 2018 average.
- In June 2020, there were 44 individuals who were seriously injured in road crashes throughout the Australian Capital Territory. This is 9 (17%) less than 2019 and 9 (17%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory in June experienced 0 (0%) change in serious injuries from road crashes in 2019 from the 2015 to 2018 average.
- In July 2020, there were 44 individuals who were seriously injured in road crashes throughout the Australian Capital Territory. This is 9 (17%) less than 2019 and 5 (11%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory in July experienced 5 (10%) more serious injuries from road crashes in 2019 from the 2015 to 2018 average.
- In August 2020, there were 56 individuals who were seriously injured in road crashes throughout the Australian Capital Territory. This is 19 (51%) more than 2019 and 9 (18%) more than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory in August experienced 13 (26%) less serious injuries from road crashes in 2019 from the 2015 to 2018 average.
- In October 2020, there were 47 individuals who were seriously injured in road crashes throughout the Australian Capital Territory. This is 12 (20%) less than 2019 and 7 (14%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory in October experienced 6 (11%) more serious injuries from road crashes in 2019 from the 2015 to 2018 average.

- In November 2020, there were 57 individuals who were seriously injured in road crashes throughout the Australian Capital Territory. This is 14 (33%) more than 2019 and 9 (19%) more than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory in November experienced 6 (13%) less serious injuries from road crashes in 2019 from the 2015 to 2018 average.

The significant decrease in serious injuries in the Australian Capital Territory from April to June was likely due to the following factors.

- The reduced traffic volumes for the first couple of months of COVID-19
  and for the year in New South Wales. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.

Following the initial lockdowns in the Australian Capital Territory, it is expected to have an increased volatility in serious injury rates due to restrictions easing.

With travel restrictions and stay-at-home orders encouraged by the Government of the Australian Capital Territory, there were significant impacts on the rate of serious injuries during the week, as shown by Figure 159. More significantly, decreased rates of serious injuries occurred on Mondays and Tuesdays in the Australian Capital Territory.

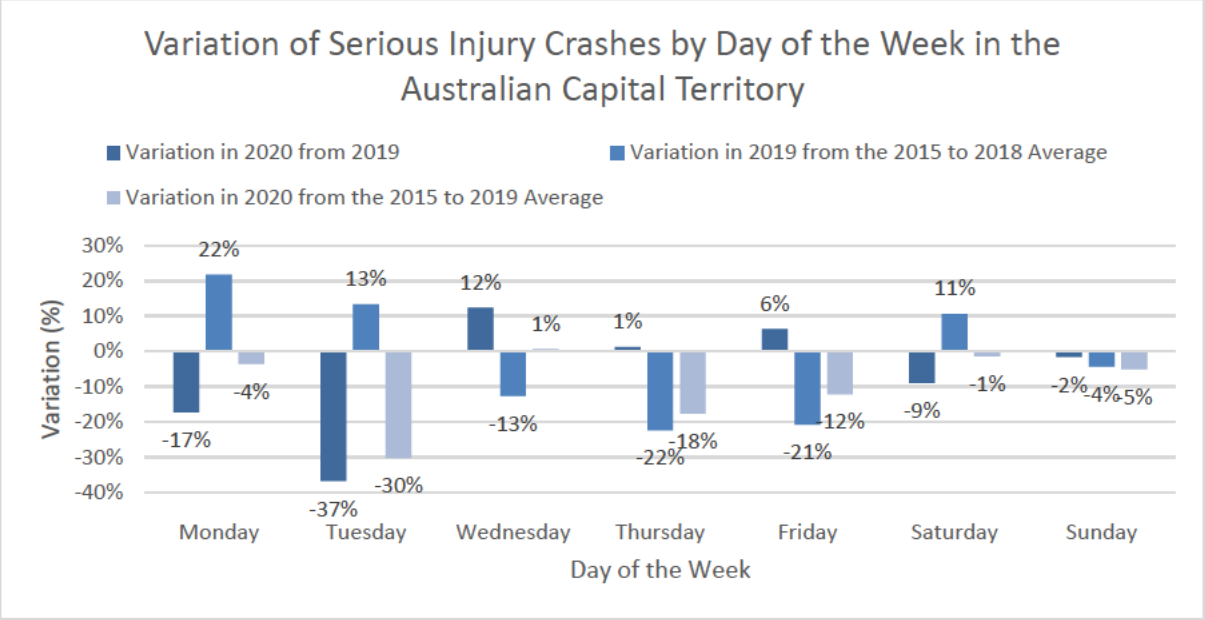

Figure 159: Variation of Serious Injury Crashes by Day of the Week in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

- On Mondays during 2020, there were 81 individuals who were seriously injured in road crashes throughout the Australian Capital Territory. This was 17 (17%) less than 2019 and 3 (4%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory on Mondays experienced 18 (22%) more serious injuries from road crashes in 2019 from the 2015 to 2018 average.
- On Tuesdays during 2020, there were 67 individuals who were seriously injured in road crashes throughout the Australian Capital Territory. This was 39 (37%) less than 2019 and 29 (30%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory on Tuesday experienced 13 (13%) more serious injuries from road crashes in 2019 from the 2015 to 2018 average.

The significant reduction of serious injuries on Mondays and Tuesdays in the Australian Capital Territory was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.

- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- As a result of travel restrictions imposed in 2020, there was a reduction in the number of individuals embarking on recreational or travel trips, which would lead to a decreased occurrence of road crashes.

With travel restrictions and stay-at-home orders encouraged by the Government of the Australian Capital Territory, there were significant impacts on the rate of serious injuries during the day, as shown by Figure 160. More significantly, decreased rates of serious injuries occurred during 8:00AM to 11:59AM and 4:00PM to 7:59PM.

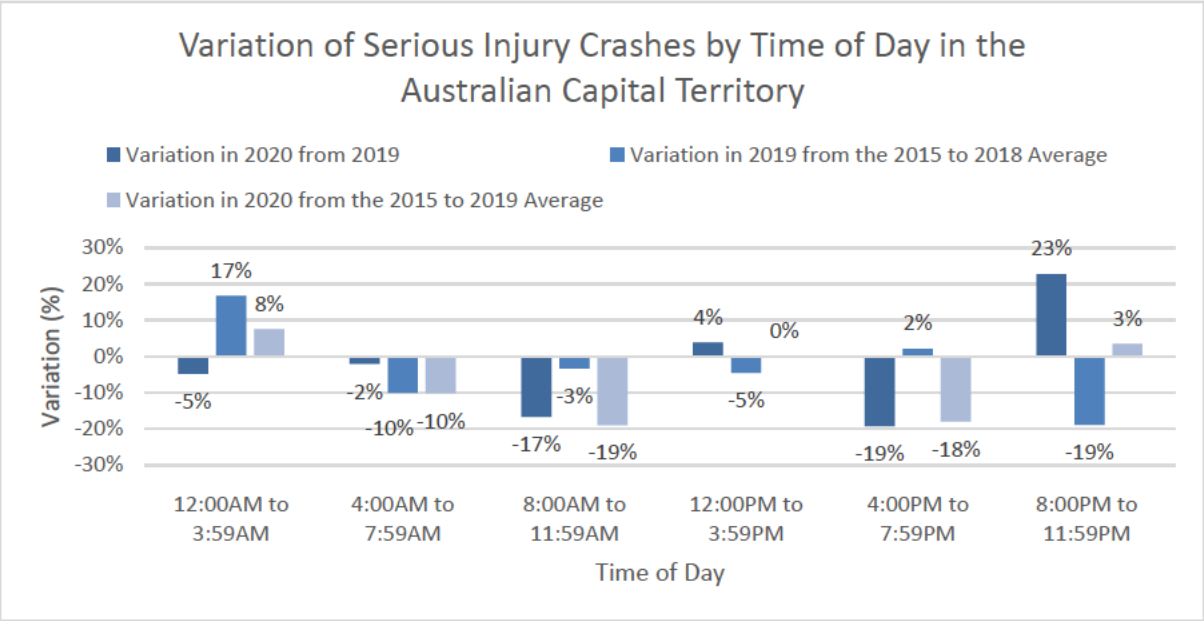

Figure 160: Variation of Serious Injury Crashes by Time of Day in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

- In 2020, there were 125 individuals who were seriously injured in road crashes during 8:00AM to 11:59AM throughout the Australian Capital Territory. This was 25 (17%) less than 2019 and 29 (19%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 5 (3%) less serious injuries from road crashes between 8:00AM to 11:59AM in 2019 from the 2015 to 2018 average.
- In 2020, there were 151 individuals who were seriously injured in road crashes during 4:00PM to 7:59PM throughout the Australian Capital Territory. This was 36 (19%) less than 2019 and 33 (18%) less than the 2015 to 2019 average. Prior to 2020, the

Australian Capital Territory experienced 4 (2%) more serious injuries from road crashes between 4:00PM to 7:59PM in 2019 from the 2015 to 2018 average.

- In 2020, there were 54 individuals who were seriously injured in road crashes during 8:00PM to 11:59PM throughout the Australian Capital Territory. This was 10 (23%) more than 2019 and 2 (3%) more than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 10 (19%) less serious injuries from road crashes between 8:00PM to 11:59PM in 2019 from the 2015 to 2018 average.

The significant reduction of serious injuries during 8:00AM to 11:59AM and 4:00PM to 7:59PM in the Australian Capital Territory was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19 in the Australian Capital Territory. With most vehicles travelling during the day, it would mean the likelihood of collisions with other vehicles would decrease due to reduced traffic volumes.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.

The significant reduction of serious injuries during 8:00PM to 11:59PM in the Australian Capital Territory was likely due to the following factors.

- When fewer vehicles are on the road, some drivers and riders tend to engage in more risky behaviour such as speeding, reckless driving, drink driving and not wearing a seatbelt. Riskier road user behaviour can increase the likelihood of road crashes.
- Due to strict restrictions relating to travel in the Australian Capital Territory, some individuals may have taken the opportunity to speed to their non-essential destination to ensure they are not caught breaching COVID-19 mandated restrictions. This may have put individuals at increased likelihood of causing a road crash.

- Due to reduce traffic volumes, some drivers could increase their speed, perceiving it as less risky without congestion. This may have put individuals at increased likelihood of causing a road crash.

COVID-19 brought significant changes to the way individuals travel in the Australian Capital Territory. Whether it be the reasoning for travel, methods of transportation or distance travelled, it all had a significant impact on serious injuries per road users. The most substantial reduction in serious injuries was observed from passengers, as shown in Figure 161.

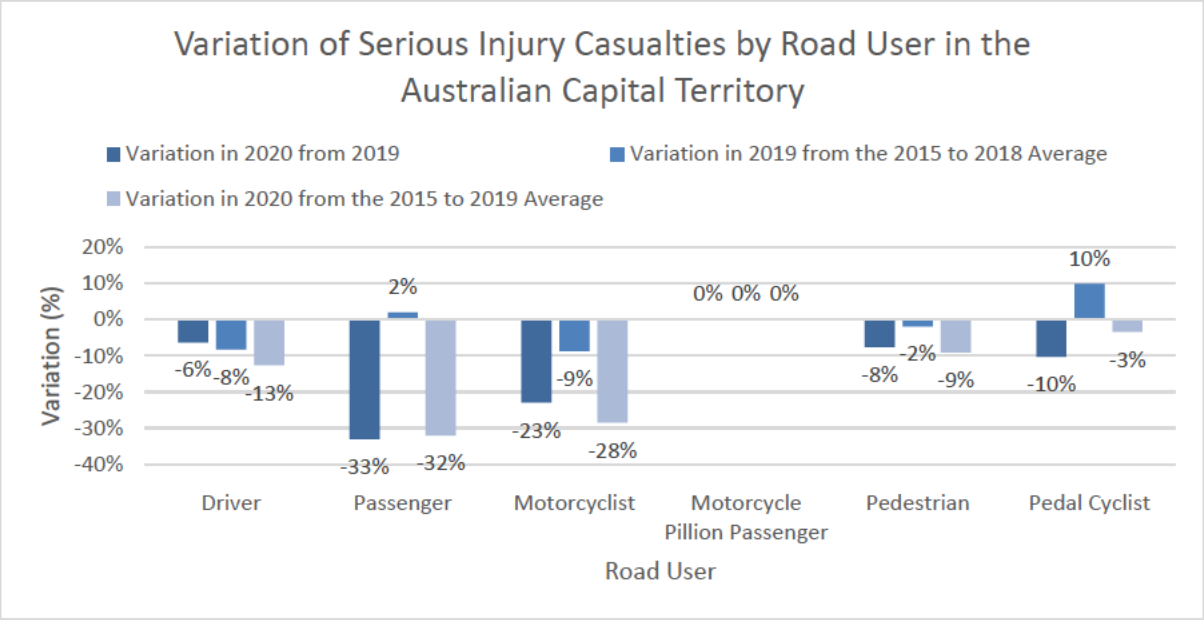

Figure 161: Variation of Serious Injury Casualties by Road User in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

- In 2020, there were 81 motor vehicle passengers who were seriously injured in the Australian Capital Territory. This is 40 (33%) less than 2019 and 38 (32%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 2 (2%) more motor vehicle passenger serious injuries in 2019 from the 2015 to 2018 average.

The significant reduction of motor vehicle passengers being seriously injured in the Australian Capital Territory was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19 in the Australian Capital Territory.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week.
- To reduce the risk of transmission of COVID-19, social distancing measures were encouraged. Individuals were advised to minimise contact with individuals outside their household. With the reduction of road mobility and the combination of social distancing measures, it would mean that fewer instances of transportation sharing would be occurring and therefore less likely for passengers to be involved in a road crash.
- Due to the stringent messaging of safety measures to the Australian public, it is likely that individuals became more conscious of safety which led to safer driving and riding practices which would reduce the likelihood of being involved in a road crash.

Regardless of gender, all Australians experienced the same limiting factors that COVID-19 imposed. Generally, male drivers are more likely to engage in riskier road user behaviours compared to female drivers. In the Australian Capital Territory, the most substantial reduction in road fatalities per gender was observed by women, as shown in Figure 162.

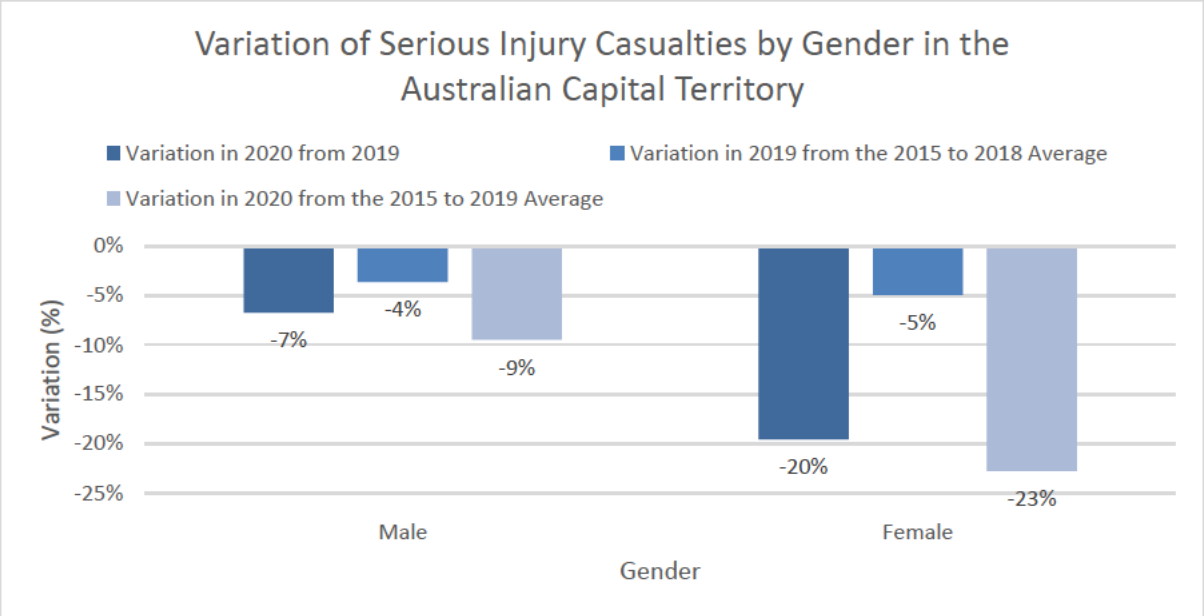

Figure 162: Variation of Serious Injury Casualties by Gender in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

- In 2020, there were 255 females who were seriously injured in road crashes throughout the Australian Capital Territory. This was 62 (20%) less than 2019 and 75 (23%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 17 (5%) less females who obtained serious injuries from road crashes in 2019 from the 2015 to 2018 average.

The significant reduction of females being seriously injured in the Australian Capital Territory was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19 in the Australian Capital Territory. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.

Each age group had significant disruptions to their usual routines which would have affected their mobility and risk to be involved in a road crash, as shown in Figure 163.

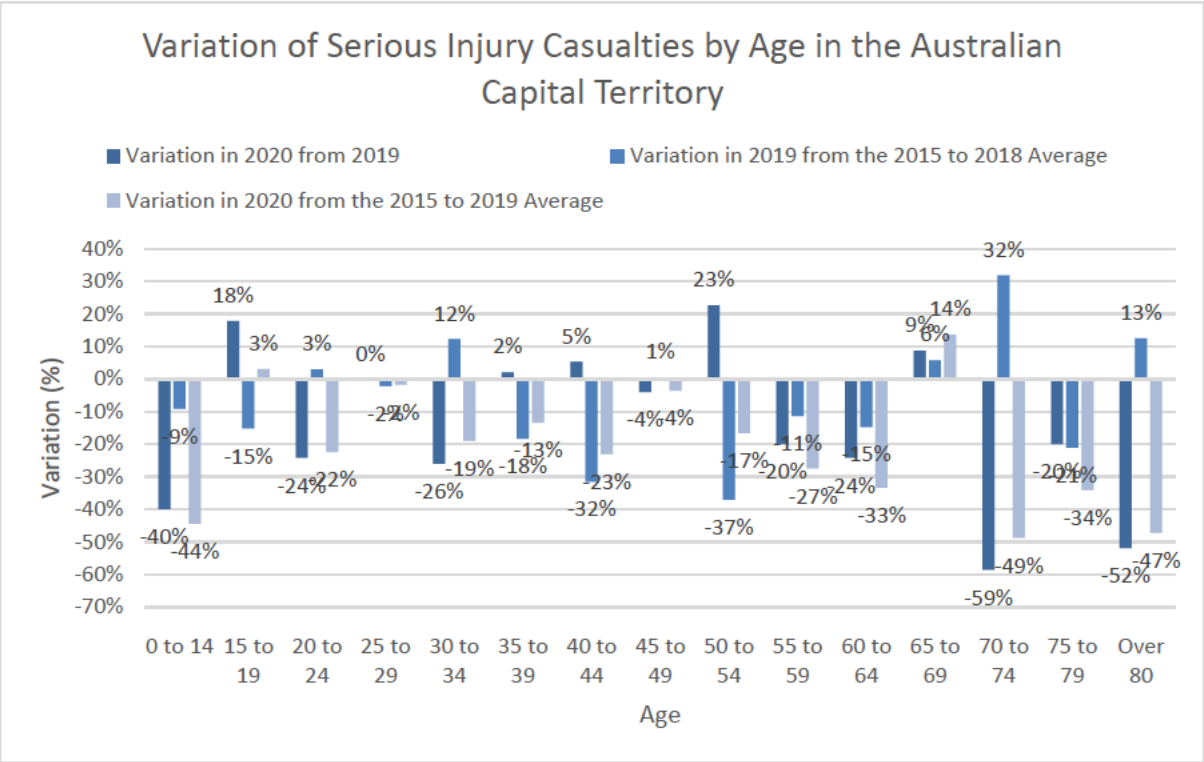

Figure 163: Variation of Serious Injury Casualties by Age in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

- In 2020, there were 21 individuals aged 0 to 14 who were seriously injured in the Australian Capital Territory. This was 14 (40%) less than 2019 and 17 (44%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 4 (9%) less serious injuries from individuals aged 0 to 14 in 2019 from the 2015 to 2018 average.
- In 2020, there were 66 individuals aged 15 to 19 who were seriously injured in the Australian Capital Territory. This was 10 (18%) more than 2019 and 2 (3%) more than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 10 (15%) less serious injuries from individuals aged 15 to 19 in 2019 from the 2015 to 2018 average.

- In 2020, there were 54 individuals aged 30 to 34 who were seriously injured in the Australian Capital Territory. This was 19 (26%) less than 2019 and 13 (19%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 8 (12%) more serious injuries from individuals aged 30 to 34 in 2019 from the 2015 to 2018 average.
- In 2020, there were 38 individuals aged 50 to 54 who were seriously injured in the Australian Capital Territory. This was 7 (23%) more than 2019 and 8 (17%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 18 (37%) less serious injuries from individuals aged 50 to 54 in 2019 from the 2015 to 2018 average.
- In 2020, there were 28 individuals aged 55 to 59 who were seriously injured in the Australian Capital Territory. This was 7 (20%) less than 2019 and 11 (27%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 5 (11%) less serious injuries from individuals aged 55 to 59 in 2019 from the 2015 to 2018 average.
- In 2020, there were 22 individuals aged 60 to 64 who were seriously injured in the Australian Capital Territory. This was 7 (24%) less than 2019 and 11 (33%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 5 (15%) less serious injuries from individuals aged 60 to 64 in 2019 from the 2015 to 2018 average.
- In 2020, there were 12 individuals aged 70 to 74 who were seriously injured in the Australian Capital Territory. This was 17 (59%) less than 2019 and 11 (49%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 7 (32%) more serious injuries from individuals aged 70 to 74 in 2019 from the 2015 to 2018 average.
- In 2020, there were 13 individuals aged over 80 years old who were seriously injured in the Australian Capital Territory. This was 14 (52%) less than 2019 and 12 (47%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 3 (13%) more serious injuries from individuals aged over 80 years old in 2019 from the 2015 to 2018 average.

The significant reduction of individuals aged 0 to 14 years old, 20 to 24 years old, 30 to 34 years old, 55 to 59 years old, 60 to 64 years old, 70 to 74 years old and over 80 years old being seriously injured in the Australian Capital Territory was likely due to the following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant older individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

The significant increase of individuals aged 15 to 19 years old and 50 to 54 years old being seriously injured in the Australian Capital Territory was likely due to the following factors.

- Individuals aged 17 to 25 years old also experienced a significant increase in road fatalities compared to previous years. It is expected that many student drivers had a significant disadvantage to learning to drive during COVID-19 than the years prior. In the initial lockdowns, many student drivers, parents and authorities were unsure of the guidelines pertaining to driving lessons. This caused limited training opportunities for student drivers to build up their safe driving skills and confidence on the roads.
- With traffic volumes also reduced at the beginning of COVID-19, learner drivers who continued to learn during that time would be accustomed to driving in less congested conditions. When traffic volumes resumed to pre-COVID-19 levels, student drivers may not be adequately prepared for driving in those conditions.
- With many driving schools and instructions suspending or limiting their operations, it meant that student drivers had to rely on parental supervision for driving lessons. Depending on the supervisory adult's experience and their own road user behaviour, it may have an impact on the quality of the driving lesson as they would be unable to provide the same level of instruction as a professional or unknowingly provide poor road user behaviour advice to learner drivers.

Regarding licence type in the Australian Capital Territory, it was notable that provisional drivers experienced a significant increase in serious injury rates during 2020, as shown in Figure 164.

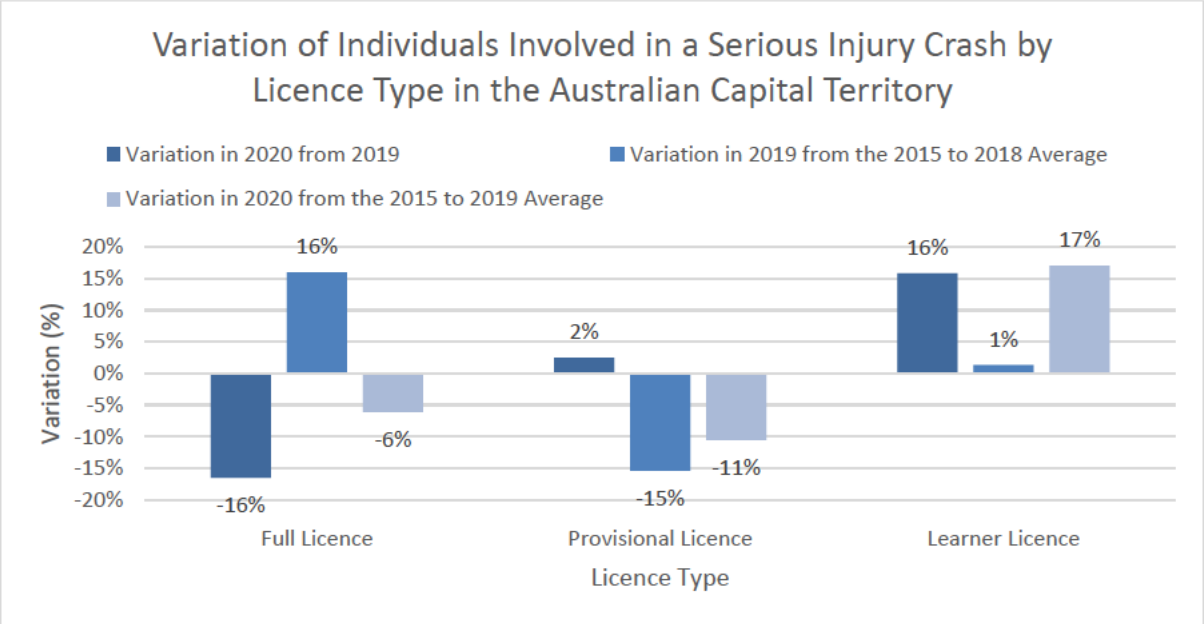

Figure 164: Variation of Individuals Involved in a Serious Injury Crash by Licence Type in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

- In 2020, there were 653 individuals who were fully licenced that was involved in a serious injury crash in the Australian Capital Territory. This is 129 (16%) less than 2019 and 43 (6%) less than the 2015 to 2019 average. Prior to 2020, the Australian Capital Territory experienced 108 (16%) more serious injuries crashes with fully licenced individuals 2019 from the 2015 to 2018 average.
- In 2020, there were 22 individuals who were on their learner licence that was involved in a serious injury crash in the Australian Capital Territory. This is 3 (16%) more than 2019 and 3 (17%) less than the 2015 to 2019 average.

The significant increase of individuals who were fully licenced that were involved in a serious injury crash in the Australian Capital Territory was likely due to the following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.

- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant older individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

The significant decrease of individuals who were on their learners that were involved in a serious injury crash in the Australian Capital Territory was likely due to the following factors.

- Individuals aged 17 to 25 years old also experienced a significant increase in road fatalities compared to previous years. It is expected that many student drivers had a significant disadvantage to learning to drive during COVID-19 than the years prior. In the initial lockdowns, many student drivers, parents and authorities were unsure of the guidelines pertaining to driving lessons. This caused limited training opportunities for student drivers to build up their safe driving skills and confidence on the roads.
- With traffic volumes also reduced at the beginning of COVID-19, learner drivers who continued to learn during that time would be accustomed to driving in less congested conditions. When traffic volumes resumed to pre-COVID-19 levels, student drivers may not be adequately prepared for driving in those conditions.
- With many driving schools and instructions suspending or limiting their operations, it meant that student drivers had to rely on parental supervision for driving lessons. Depending on the supervisory adult's experience and their own road user behaviour, it may have an impact on the quality of the driving lesson as they would be unable to provide the same level of instruction as a professional or unknowingly provide poor road user behaviour advice to learner drivers.

In summary, significant variations in serious injuries throughout the Australian Capital Territory during 2020 are showcase in Table 18.

Significant Increases:	• Month of the Year – August, November • Time of Day – 8:00PM to 11:59PM • Age – 15 to 19 years old, 50 to 54 years old • Licence Type – Leaners
Significant Decreases:	• Month of the Year – April, May, June, July, October • Day of the Week – Monday, Tuesday • Time of Day – 8:00AM to 11:59AM, 4:00PM to 7:59PM • Road User – Passenger, Motorcyclist • Gender – Female • Age – 0 to 14 years old, 20 to 24 years old, 30 to 34 years old, 55 to 59 years old, 60 to 64 years old, 70 to 74 years old, over 80 years old • Licence Type – Full Licence

Table 18: Summary of Significant Variations of Serious Injuries in the Australian Capital Territory

5.3.7 Serious Injuries in Western Australia

Serious injuries, as defined by Western Australia, is when an individual is injured and admitted into hospital from a road crash (Government of Western Australia 2023b). As shown by Figure 165, serious injury casualty rates in Western Australia did not significantly change in 2020 compared to previous years. With the constraints by the available data from the Road Safety Commission, variations of 15% are deemed significant, particularly when assessing the disparities between 2020 and 2019. Such a variation is warranted to ensure the identification of meaningful patterns and trends in serious injury data for Western Australia.

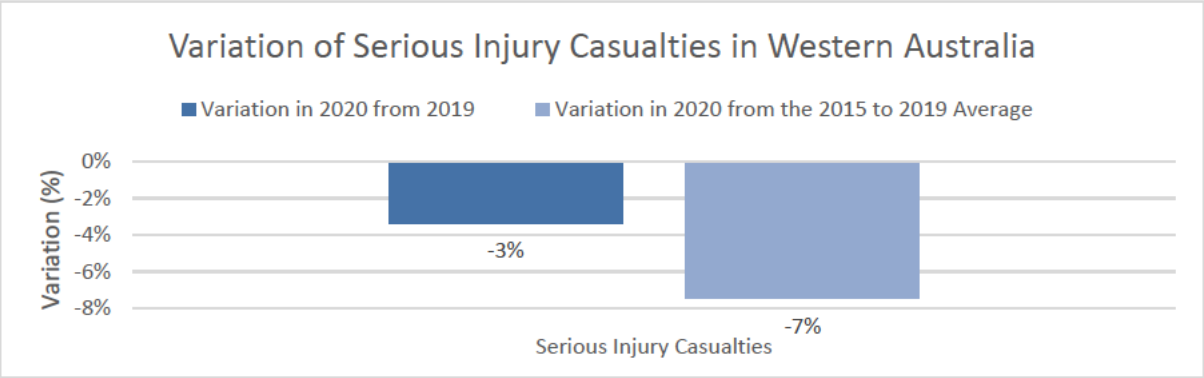

Figure 165: Variation of Serious Injuries Casualties in Western Australia (Road Safety Commission 2021)

With the strict lockdown orders that significantly changed the movement of people and goods in Western Australia and Australia occurring at the end of March 2020, a noticeable reduction in serious injury casualties is evident during the immediate months from April to May, as shown in Figure 166.

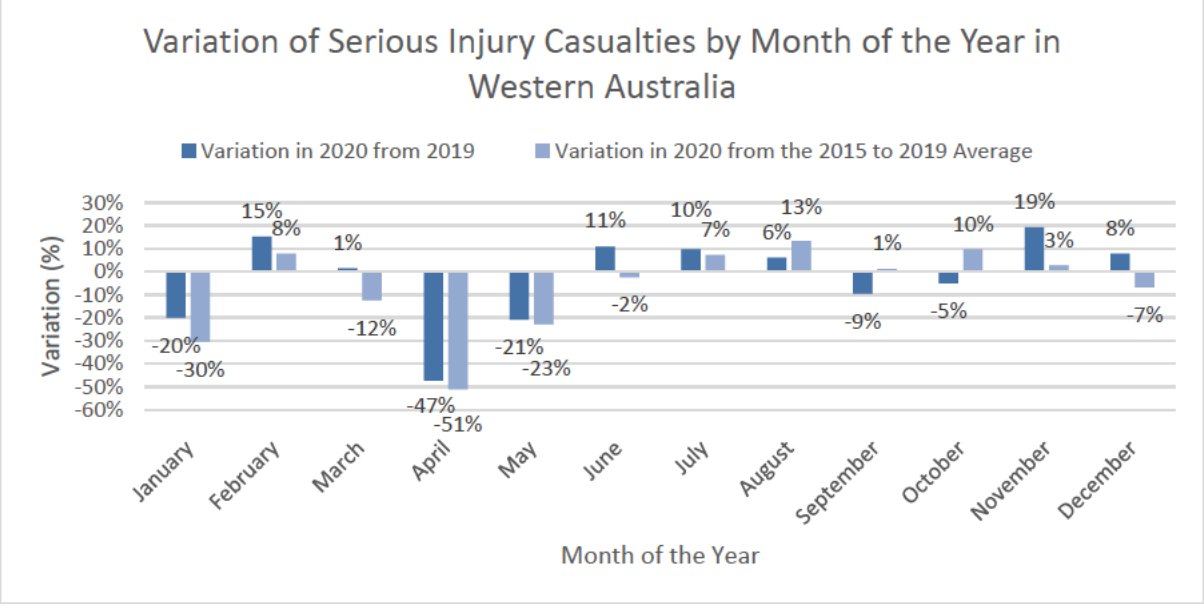

Figure 166: Variation of Serious Injury Casualties by Month of the Year in Western Australia (Road Safety Commission 2021)

- In April 2020, there were 77 individuals who were seriously injured in road crashes throughout Western Australia. This was 69 (47%) less than 2019 and 80 (51%) less than the 2015 to 2019 average.
- In May 2020, there were 125 individuals who were seriously injured in road crashes throughout Western Australia. This was 33 (21%) less than 2019 and 37 (23%) less than the 2015 to 2019 average.

The significant decrease in serious injuries in April and May 2020 throughout Western Australia was likely due to the following factors.

- There were significantly reduced traffic volumes for the first three months of COVID-19 in Western Australia. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.

COVID-19 brought significant changes to the way individuals travel in Western Australia. Whether it be the reason for travelling, methods of transportation or the distance travelled. A significant reduction in pedestrian serious injury casualties occurred, as shown by Figure 167.

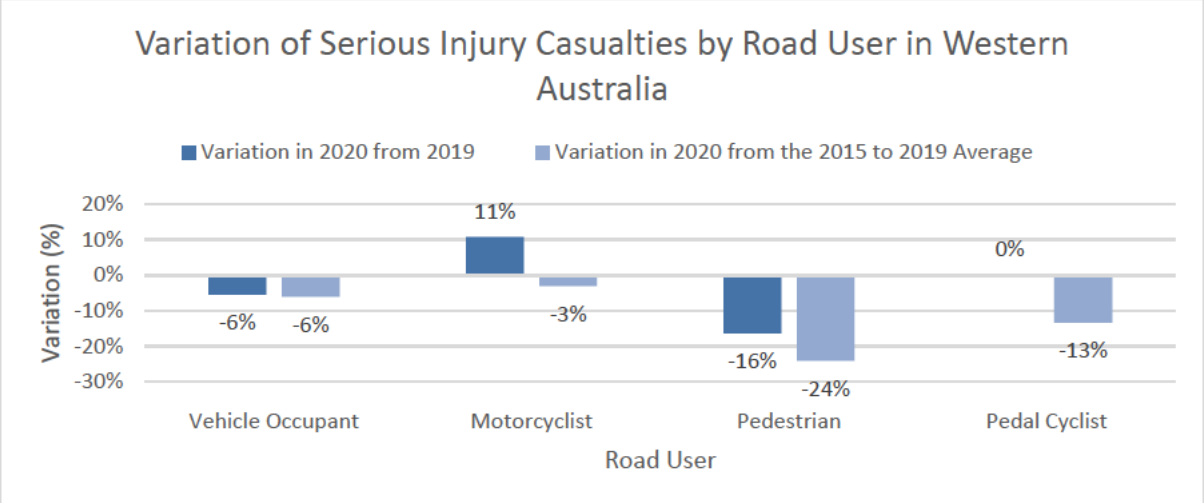

Figure 167: Variation of Serious Injury Casualties by Road User in Western Australia (Road Safety Commission 2021)

The significant reduction of pedestrians who were seriously injured in Tasmania was likely due to the following factors.

- There were significantly reduced traffic volumes for the first three months of COVID-19 in Western Australia. It would mean the likelihood of collisions with other vehicles would decrease.
- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to the stringent messaging of safety measures to the Australian public, it is likely that individuals became more conscious of safety which led to safer driving and riding practices which would reduce the likelihood of being involved in a road crash.

Regardless of gender, all Australians experienced the same restrictions and lockdowns that COVID-19 imposed. In Western Australia, there were no significant variation in serious injuries rates per gender, as shown by Figure 168.

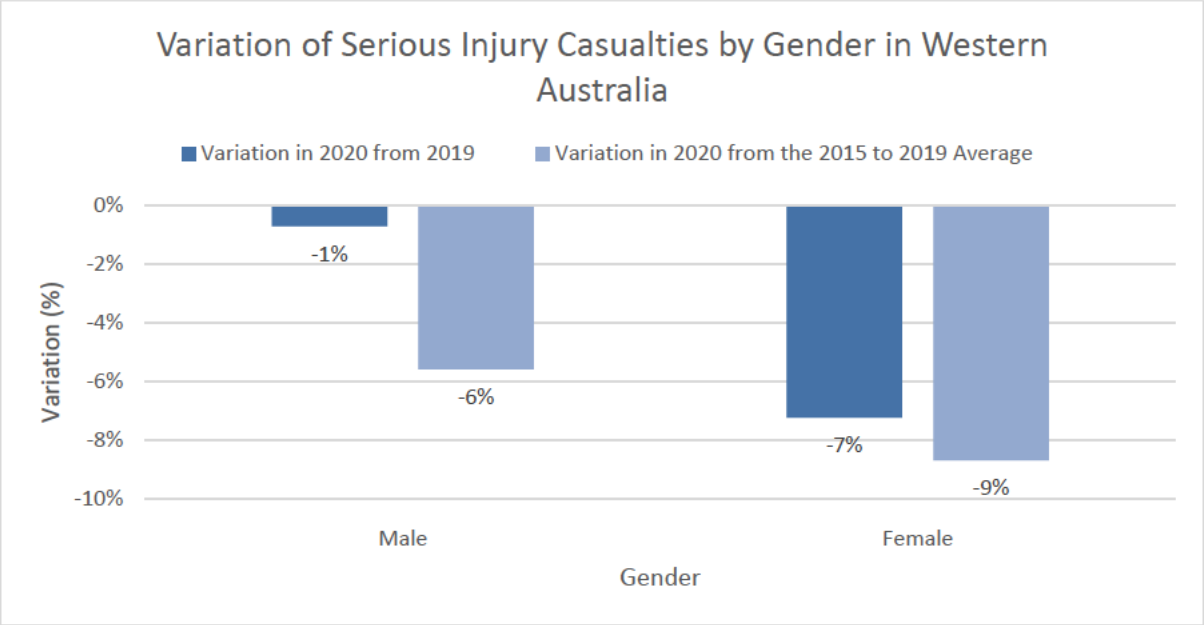

Figure 168: Variation of Serious Injury Casualties by Gender in Western Australia (Road Safety Commission 2021)

Each age group had significant disruptions to their usual routines due to COVID-19, which would affect their mobility and risk to be involved in a road crash. In Western Australia, significant variation to the serious injury casualty rates were observed individuals aged 0 to 16 years old, 17 to 19 years old, 60 to 69 years old, 70 to 70 years old and over 80 years old.

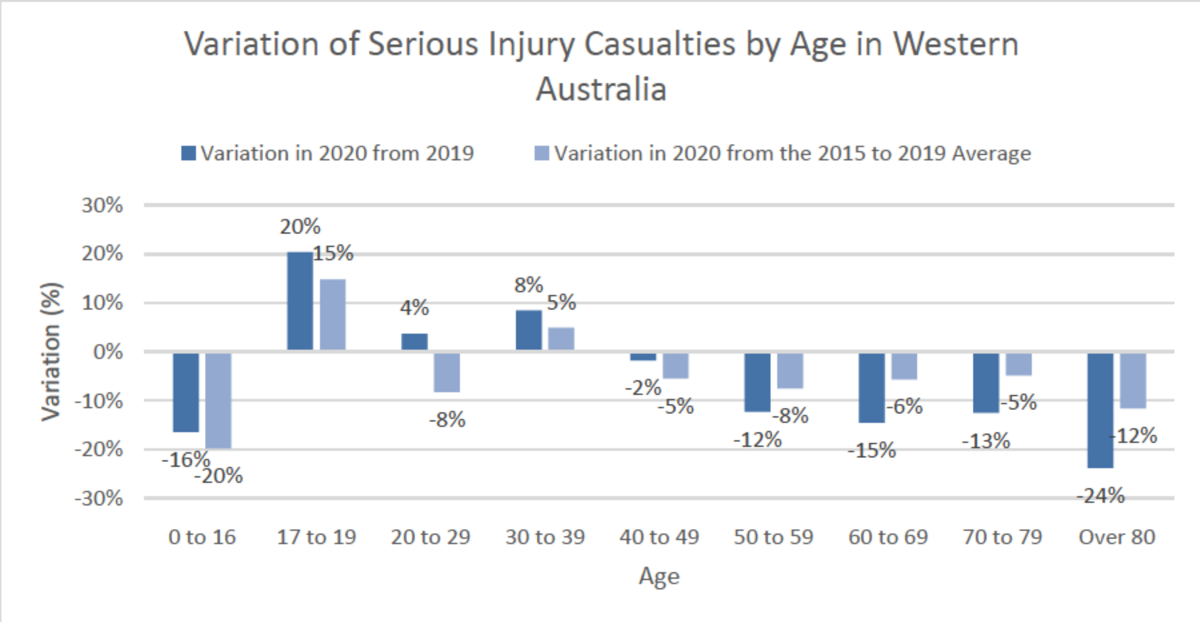

Figure 169: Variation of Serious Injuries by Age in Western Australia (Road Safety Commission 2021)

- In 2020, there were 125 individuals aged 0 to 16 years old who were seriously injured in road crashes throughout Western Australia. This was 20 (16%) less than 2019 and 25 (20%) less than the 2015 to 2019 average.
- In 2020, there were 124 individuals aged 17 to 19 years old who were seriously injured in road crashes throughout Western Australia. This was 21 (20%) more than 2019 and 16 (15%) more than the 2015 to 2019 average.
- In 2020, there were 125 individuals aged 0 to 16 years old who were seriously injured in road crashes throughout Western Australia. This was 20 (16%) less than 2019 and 25 (20%) less than the 2015 to 2019 average.
- In 2020, there were 125 individuals aged 0 to 16 years old who were seriously injured in road crashes throughout Western Australia. This was 20 (16%) less than 2019 and 25 (20%) less than the 2015 to 2019 average.
- In 2020, there were 125 individuals aged 0 to 16 years old who were seriously injured in road crashes throughout Western Australia. This was 20 (16%) less than 2019 and 25 (20%) less than the 2015 to 2019 average.

The significant increase of seriously injuries from individuals aged 17 to 19 years old in Tasmania was likely due to the following factors.

- There was reduced traffic volumes for the first three months of COVID-19. When fewer vehicles are on the road, some drivers and riders tend to engage in more risky behaviour such as speeding and reckless driving. This is especially true for young drivers. Riskier road user behaviour can increase the likelihood of road crashes.
- Due to concerns of COVID-19 transmission from taking public transport, there was an increased number of individuals who took up driving their own vehicle. If those drivers were not confident and proficient on road safety, it would increase the likelihood of being involved in a road crash.

The significant reduction of seriously injuries from individuals aged 0 to 16 years old, 60 to 69 years old, 70 to 79 years old and over 80 years old in Tasmania was likely due to the following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

Regarding the involvement of riskier behavioural characteristics in Western Australia, it was notable that serious injury casualties occurring from speeding and inattentive driving had significantly increased, as depicted in Figure 170. Whereas other riskier road user behaviours such as fatigued had remained consistent with preceding years.

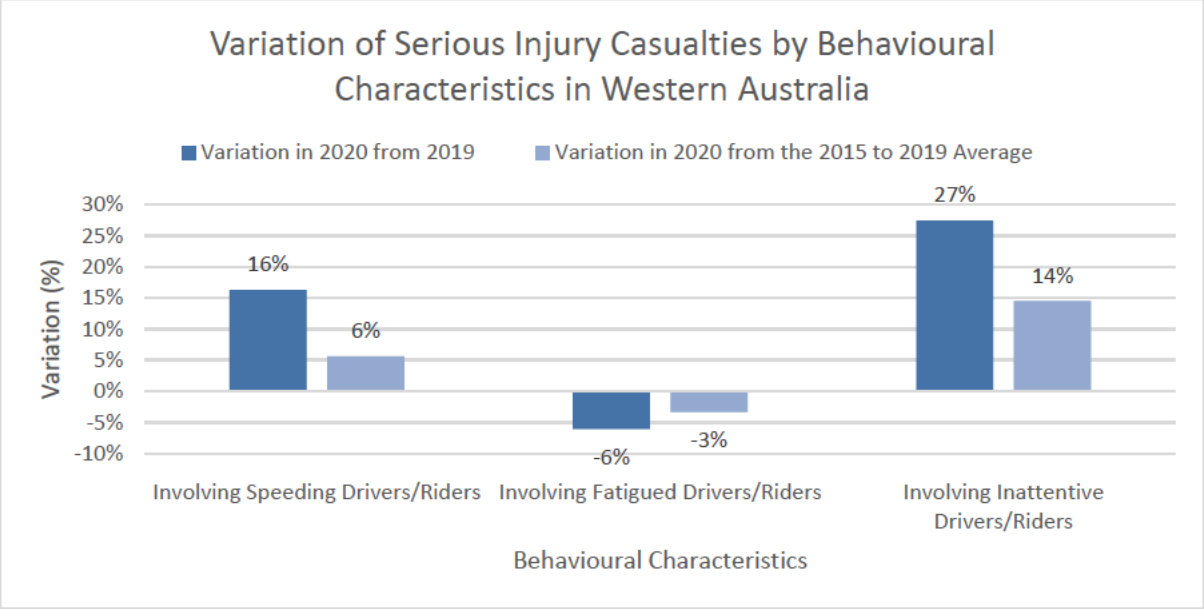

Figure 170: Variation of Serious Injury Casualties by Behavioural Characteristics in Western Australia (Road Safety Commission 2021)

- In 2020, there were 271 individuals who were seriously injured from the involvement of speeding throughout Western Australia. This was 38 (16%) more than 2019 and 14 (6%) more than the 2015 to 2019 average.
- In 2020, there were 79 individuals who were seriously injured from the involvement of inattentive driving throughout Western Australia. This was 17 (27%) more than 2019 and 10 (14%) more than the 2015 to 2019 average.

The significant increase in riskier road user behaviour in Tasmania was likely due to the following factors.

- Due to strict restrictions relating to travel in Queensland, some individuals may have taken the opportunity to speed to their non-essential destination to ensure they are not caught breaching COVID-19 mandated restrictions. This may have put individuals at increased likelihood of causing a road crash.
- Due to reduce traffic volumes, some drivers could increase their speed, perceiving it as less risky without congestion. This may have put individuals at increased likelihood of causing a road crash.
- The COVID-19 pandemic had a notable impact on law enforcement practices due to concerns of transmission. Speed infringements issued by police officers in Western Australia decreased by 2% in 2020 compared to 2019 (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023b).

The reduction in law enforcement meant that individuals were able to violate the traffic laws without being apprehended which could ultimately increase the risk of being involved in a road crash as a consequence.

- The rise of delivery services for food, groceries and online shopping grew exponentially through 2020. These drivers are obliged to use their mobile phones for navigation and communication purposes which leads to distracted driving.

In summary, the significant increased and decreased variation of serious injuries in Western Australia during 2020 is shown in Table 19.

Significant Increases:	• Age – 17 to 19 years old
Significant Decreases:	• Month – April, May • Age – 0 to 16 years old, 60 to 69 years old, 70 to 79 years old, over 80 years old • Riskier Road User Behaviours – Speeding, Distracted Driving

Table 19: Summary of Significant Variations of Serious Injury Casualties in Western Australia

5.3.8 *Serious Injuries in Tasmania*

Serious injuries, as defined in Tasmania, is when an individual is injured and admitted into hospital for more than 24 hours because of a road crash (Department of State Growth 2016). As shown by Figure 171 and Figure 172, serious injury casualties in Tasmania significantly increased in 2020 compared to prior years. In 2020, there were 289 seriously injured casualties in Tasmania which is 40 (16%) more than 2019 and 13 (5%) more than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 33 (12%) less seriously injured casualties than the 2015-2018 average. Furthermore, additional analysis into the road crash characteristics is still warranted.

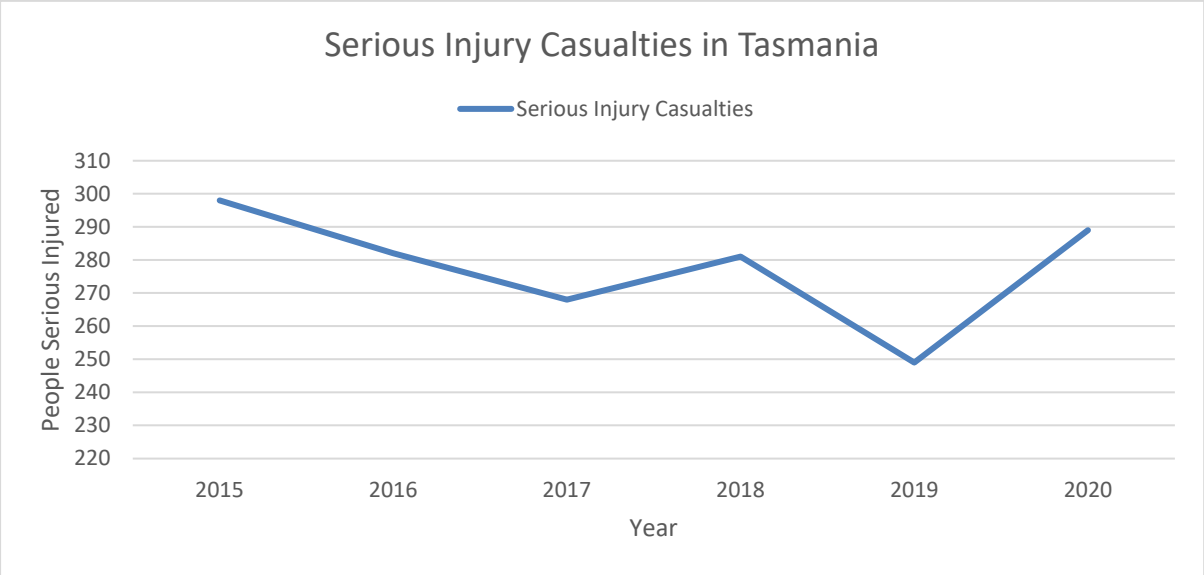

Figure 171: Serious Injury Casualties in Tasmania (Department of State Growth 2017) (Department of State Growth 2022a) (Department of State Growth 2022b)

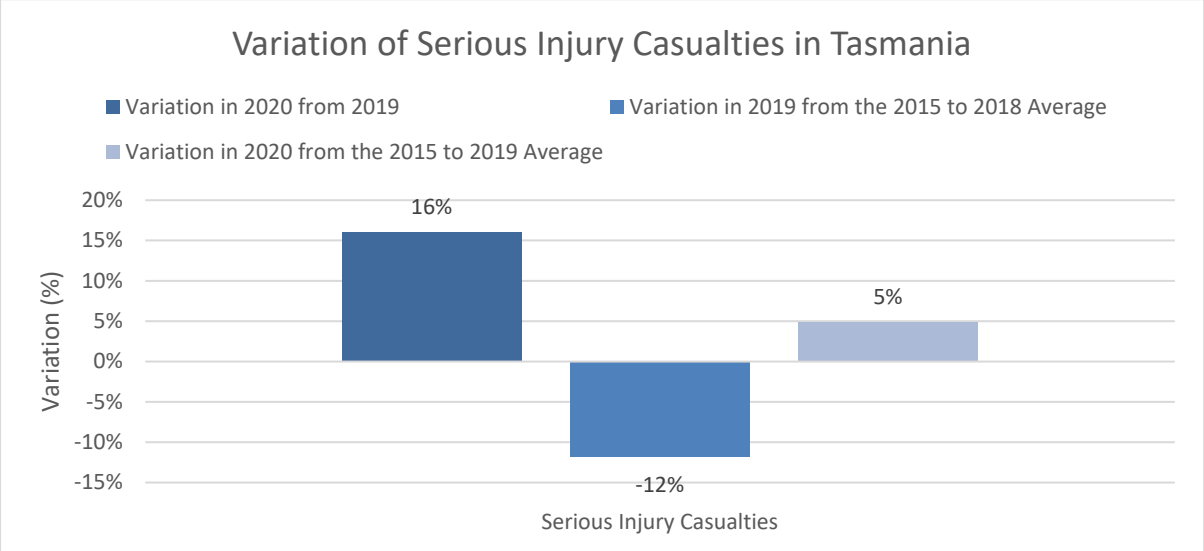

Figure 172: Variation of Serious Injury Casualties in Tasmania (Department of State Growth 2017) (Department of State Growth 2022a) (Department of State Growth 2022b)

Significant variations were observed among the different road user categories in Tasmania concerning serious injuries, with the exception of motorcyclists, as illustrated in Figure 173.

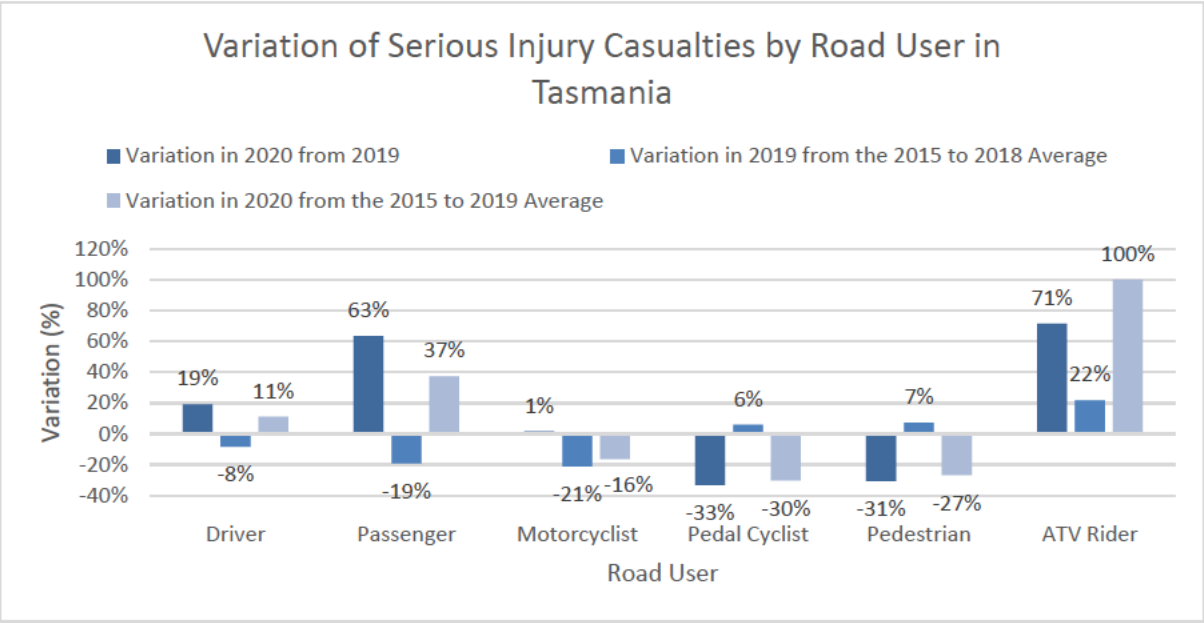

Figure 173: Variation of Serious Injury Casualties by Road User in Tasmania (Department of State Growth 2017) (Department of State Growth 2022a) (Department of State Growth 2022b)

- In 2020, there were 118 seriously injured casualties who were drivers in Tasmania. This was 19 (19%) more than 2019 and 12 (11%) more than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 9 (8%) less seriously injured drivers than the 2015-2018 average.
- In 2020, there were 67 seriously injured casualties who were passenger in Tasmania. This was 26 (63%) more than 2019 and 18 (37%) more than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 10 (19%) less seriously injured passengers than the 2015-2018 average.
- In 2020, there were 6 seriously injured casualties who were pedal cyclists in Tasmania. This was 3 (33%) less than 2019 and 3 (30%) less than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 1 (6%) more seriously injured pedal cyclist than the 2015-2018 average.
- In 2020, there were 18 seriously injured casualties who were pedestrians in Tasmania. This was 8 (31%) less than 2019 and 7 (27%) less than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 2 (7%) more seriously injured pedestrians than the 2015-2018 average.

- In 2020, there were 12 seriously injured casualties who were ATV riders in Tasmania. This was 5 (71%) more than 2019 and 6 (100%) more than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 1 (22%) more seriously injured ATV rider than the 2015-2018 average.

The significant increase of serious injuries from drivers, passengers and ATV riders in Tasmania was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19. When fewer vehicles are on the road, some drivers and riders tend to engage in more risky behaviour such as speeding and reckless driving. Riskier road user behaviour can increase the likelihood of road crashes.
- As the long term impacts of COVID-19 persisted, individuals may have become complacent with risker road user behaviour that resulted from stress and anxiety.
- Due to concerns of COVID-19 transmission from taking public transport, there was an increased number of individuals who took up driving their own vehicle. If those drivers were not confident and proficient on road safety, it would increase the likelihood of being involved in a road crash.
- With COVID-19 stay at home orders, individuals would have been spending all their free time at home. Individuals on farms may have then had increased availability to use ATV riders when before COVID-19 they were able to leave their home for non-essential reasons. This increased availability can increase the likelihood of an accident occurring which would result in an individual being seriously injured.

The significant decrease in serious injuries from pedal cyclists and pedestrians in Tasmania was likely due to the following factors.

- There was reduced traffic volumes for the first three months of COVID-19. It would mean the likelihood of collisions with other vehicles would decrease.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to the stringent messaging of safety measures to the Australian public, it is likely that individuals became more conscious of safety which led to safer driving and riding practices which would reduce the likelihood of being involved in a road crash.

Evident variations in serious injury casualty rates based on gender were observed in Tasmania, as shown by Figure 174. In 2020, males experienced a significant increase in serious injuries compared to previous years, whereas females exhibited serious injury rates consistent with those of previous years.

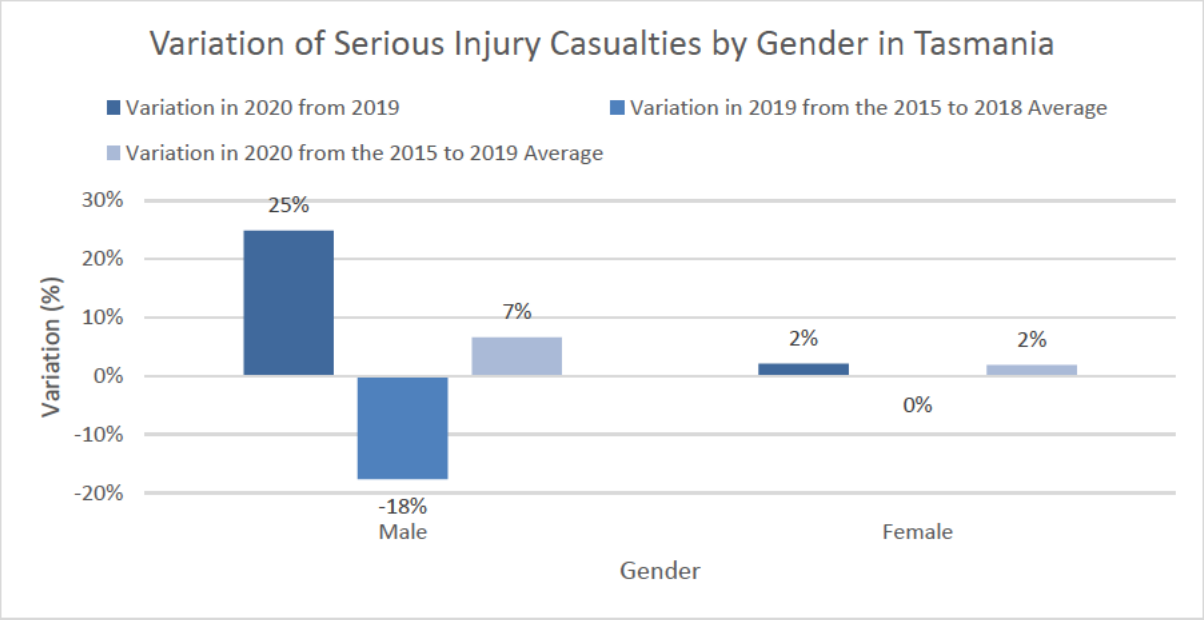

Figure 174: Variation of Serious Injury Casualties by Gender in Tasmania (Department of State Growth 2017) (Department of State Growth 2022a) (Department of State Growth 2022b)

- In 2020, there were 191 seriously injured casualties who were male in Tasmania which is 38 (25%) more than 2019 and 12 (7%) more than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 33 (18%) less seriously injured casualties who were male than the 2015-2018 average.

The significant increase in male seriously injured individuals in Tasmania was likely due to the following factors.

- There were reduced traffic volumes for the first three months of COVID-19. When fewer vehicles are on the road, some drivers and riders tend to engage in more risky behaviour such as speeding and reckless driving. Men are more likely to partake in riskier road user behaviour. Riskier road user behaviour can increase the likelihood of road crashes.
- As the long term impacts of COVID-19 persisted, individuals may have become complacent with risker road user behaviour that resulted from stress and anxiety.

Much like other states and territories, Tasmania witnessed a notable increase in serious injury casualties among younger age groups. However, unlike other states and territories, Tasmania did not experience significant variations in serious injury casualties within the older population in 2020. This could be attributed to Tasmania's relatively more regional disposition, where older individuals often had to travel into towns for essential tasks. Furthermore, Tasmania recorded lower COVID-19 transmission rates during 2020. For these older individuals, daily life may have continued as usual, resembling the years preceding the onset of the COVID-19 pandemic.

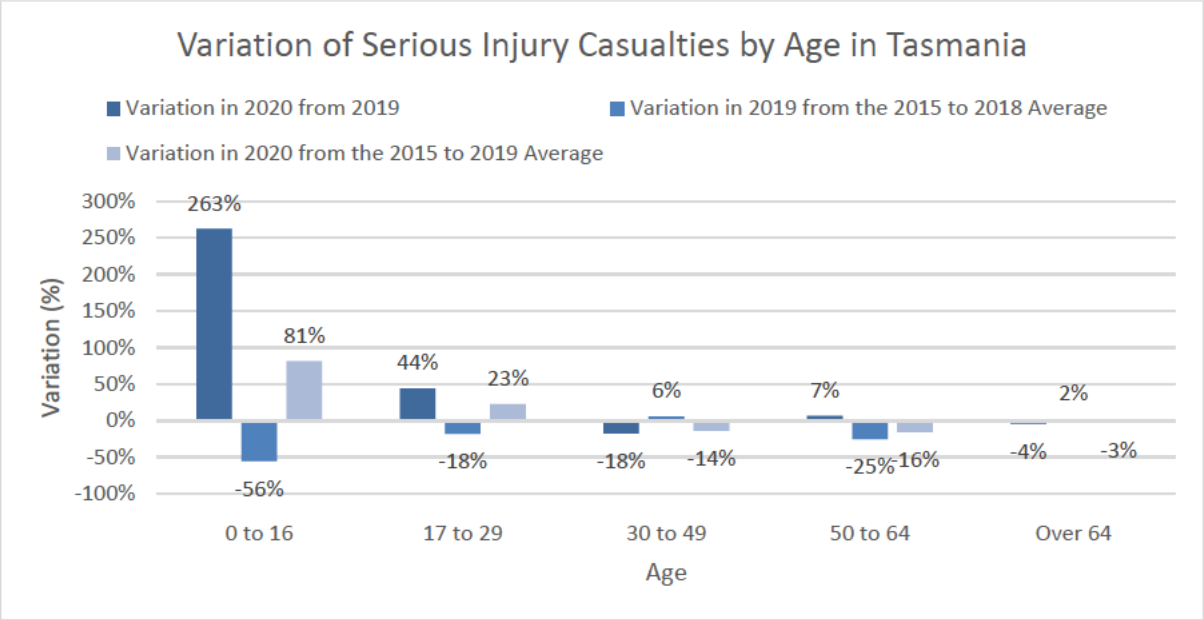

Figure 175: Variation of Serious Injury Casualties by Age in Tasmania (Department of State Growth 2017) (Department of State Growth 2022a) (Department of State Growth 2022b)

- In 2020, there were 29 seriously injured casualties aged 0 to 16 in Tasmania which were 21 (263%) more than 2019 and 13 (81%) more than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 10 (56%) less seriously injured casualties aged 0 to 16 than the 2015-2018 average.
- In 2020, there were 98 seriously injured casualties who were aged 17 to 29 in Tasmania which were 30 (44%) more than 2019 and 18 (23%) more than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 15 (18%) less seriously injured casualties who were aged 17 to 29 than the 2015-2018 average.
- In 2020, there were 65 seriously injured casualties who were aged 30 to 49 in Tasmania which were 14 (18%) less than 2019 and 10 (14%) less than the 2015-2019 average. In contrast, 2019 in Tasmania experienced 5 (6%) more seriously injured casualties who were aged 30 to 49 than the 2015-2018 average.

The significant increase of serious injuries from individuals aged 0 to 16 years old and 17 to 29 years old in Tasmania was likely due to the following factors.

- The restrictions put in place by Governments to reduce the spread of COVID-19 meant that the usual routines for families changed as children transitioned to remote learning and parents worked from home. When children would usually be at school or in after-school activities under direct supervision, children were at home with increased access to roadways, which would increase their likelihood of being involved in car crashes.
- During term 2, when schools transitioned to remote learning and parents worked similarly from home, children would find themselves with increased unsupervised time. The reduced supervision may have enabled children to be near roadways without parents noticing, increasing the likelihood of their involvement in car crashes.
- There was a significant increase in the uptake of bicycle riding during COVID-19. For children, this presented an alternative to indoor activities or public transportation. Increased bicycle riding in children would mean a higher likelihood of being involved in a car crash due to potential lack of experience and cycling infrastructure.
- Travel restrictions meant closing public places like playgrounds and sporting fields. This limiting access would likely mean children would have to play in areas closer to their homes, such as along roadways, increasing their likelihood of being involved in a road crash.
- Children are taught the importance of road safety and safe behaviours near roadways during school. With the significant disruption of the 2020 school year due to COVID-19, it was likely that road safety education was of little importance for schools. Instead, the importance of safe behaviours shifted to safe conduct in mitigating the transmission of COVID-19.
- There was reduced traffic volumes for the first three months of COVID-19. When fewer vehicles are on the road, some drivers and riders tend to engage in more risky behaviour such as speeding and reckless driving. This is especially true for young drivers. Riskier road user behaviour can increase the likelihood of road crashes.
- Due to concerns of COVID-19 transmission from taking public transport, there was an increased number of individuals who took up driving their own vehicle. If those drivers were not confident and proficient on road safety, it would increase the likelihood of being involved in a road crash.

The significant decrease of serious injuries from individuals aged 30 to 49 years old in Tasmania was likely due to the following factors.

- With the heightened risks associated with being infected with COVID-19, many individuals exercised greater caution, limiting non-essential travel, which would have reduced the number of trips they took and consequently being involved in a road crash.
- As individuals began working from home and attending school remotely, there would be a substantial reduction in daily commutes during the week, ultimately influencing the reduction of rush hour traffic where road crashes likely occur.
- Due to strict mobility restrictions during COVID-19, many recreational and outdoor activities were limited. It likely meant older individuals limited their travel throughout the pandemic, which may have resulted in few opportunities for road crashes to occur.

In summary, the significant increased and decreased variation of serious injuries in Tasmania during 2020 is shown in Table 20.

Significant Increases:	• Annual Serious Injury Casualties in Tasmania • Road Users – Drivers, Passengers, ATV Riders • Gender – Males • Age – 0 to 16 years old, 17 to 20 years old
Significant Decreases:	• Road User – Pedal Cyclists, Pedestrians • Age – 30 to 49 years old

Table 20: Summary of Significant Variations of Serious Injury Casualties in Tasmania

Chapter 6 – Conclusion

6.1 General Summary

In Australia, the significant increases and decreases in road fatalities is summarised in Table 21.

	Road Fatalities
Significant Increases	• Month – November • Road User – Motorcycle Pillion Passenger • Age – 0 to 16 years old • Holiday Period - Christmas
Significant Decreases	• Month – April, May • Day of the Week – Tuesday and Thursday • Age – 65 to 74 years old, over 75 years old • Posted Speed Limit – 40km/hr, 110km/hr • Remoteness Area – Remote Australia • Holiday Period - Easter

Table 21: Significant Increases and Decreases in Road Fatalities throughout Australia during 2020

In New South Wales, the significant increases and decreases in road fatalities and serious injuries is summarised in Table 22 and Table 23.

	Significant Increases
Road Fatalities	• Age – 0 to 16 years old
Serious Injuries	• Road User – Pedal Cyclist • Age – 5 to 16 years olds

Table 22: Significant Increases in Road Fatalities and Serious Injuries throughout New South Wales during 2020

	Significant Decreases
Road Fatalities	• Annual Road Fatalities in New South Wales • Month of the Year – March, October, December • Day of the Week – Tuesday, Thursday, Sunday • Time of Day – 12:00AM to 3:59AM, 4:00AM to 7:59AM, 4:00PM to 7:59PM • Road User – Driver, Passenger, Motorcyclist, Motorcycle Pillion Passenger • Gender – Males • Age – 40 to 64 years old, 65 to 74 years old, over 75 years old • Posted Speed Limit: 80 to 99km/hr, 110km/hr • Vehicle Crash Type – Single • Remoteness Area – Inner Regional, Outer Regional, Remote, Very Remote • Holiday Period – Easter, Christmas
Serious Injuries	• Age – Over 80 years old

Table 23: Significant Decreases in Road Fatalities and Serious Injuries throughout New South Wales during 2020

In Queensland, the significant increases and decreases in road fatalities and serious injuries is summarised in Table 24 and Table 25.

	Significant Increases
Road Fatalities	• Annual Serious Injury Casualties and Crashes • Month – April, June, July, August, October, November, December • Day of the Week – Monday, Wednesday, Thursday, Friday, Sunday • Time of Day – 12:00PM to 3:59PM, 4:00PM to 7:59PM, 8:00PM to 11:59PM • Road User – Driver, Passenger, Motorcycle Pillion Passengers, Pedestrians, Pedal Cyclist • Gender – Male, Female • Age – 0 to 16 years old, 17 to 25 years old, 26 to 39 years old, 40 to 64 years old, 65 to 74 years old, over 75 years old • Posted Speed Limit – 40km/hr, 41 to 59km/hr, 60 to 79km/hr, 80 to 99km/hr, 110km/hr • Type of Crash – Single Vehicle Crash, Multiple Vehicle Crash • Remoteness Area – Major Cities, Remote Australia • Holiday Period – Easter, Christmas • Risky Road User Behaviour – Speeding, Drunk Driving • Licence Type – Unlicenced
Serious Injuries	• License Type – Learner Drivers • Risky Road User Behaviour – Speeding, Drink Driving

Table 24: Significant Increases in Road Fatalities and Serious Injuries throughout Queensland during 2020

	Significant Decreases
Road Fatalities	• Time of Day – 4:00AM to 7:59AM • Remoteness Area - Very Remote Australia
Serious Injuries	• Age – Over 75 years old

Table 25: Significant Decreases in Road Fatalities and Serious Injuries throughout Queensland during 2020

In Victoria, the significant increases and decreases in road fatalities and serious injuries is summarised in Table 26 and Table 27.

	Significant Increases
Road Fatalities	• Days of the Week – Tuesday, Wednesday • Time of Day – 4:00AM to 7:59AM • Road User – Pedal Cyclist • Speed – 40km/hr • Remoteness Areas – Remote Australia, Very Remote Australia • Holiday Period – Christmas
Serious Injuries	• Nil

Table 26: Significant Increases in Road Fatalities and Serious Injuries throughout Victoria during 2020

	Significant Decreases
Road Fatalities	• Annual Road Fatalities Casualties and Crashes • Months of the Year – April, May, September, October, November, December • Days of the Week – Monday, Thursday, Friday, Sunday • Time of Day – 12:00AM to 3:59AM, 12:00PM to 3:59PM • Road User – Passenger, Motorcycle Rider, Motorcycle Pillion Passenger, Pedestrian • Gender – Male, Female • Age – aged 0 to 16 years old, 17 to 25 years old, 65 to 74 years old, over 75 years old • Speed – 41 to 59km/hr, 80 to 99km/hr • Crash Type – Single Vehicle Crash, Multiple Vehicle Crash • Remoteness Area – Major Cities, Inner Regional
Serious Injuries	• Serious Injury Casualties • Road User – Driver, Passenger, Motorcyclist, Pedestrian, Pedal Cyclist, Tram or Train Passenger • Gender – Male, Female • Age – All Age Groups

Table 27: Significant Decreases in Road Fatalities and Serious Injuries throughout Victoria during 2020

In South Australia, the significant increases and decreases in road fatalities and serious injuries is summarised in Table 28 and Table 29.

	Significant Increases
Road Fatalities	• Month of the Year – July • Day of the Week – Tuesday, Sunday • Time of Day – 8:00PM to 11:59PM • Road User – Passenger • Age – 0 to 16 years old • Posted Speed Limit – 80 to 99km/hr
Serious Injuries	• Nil

Table 28: Significant Increases in Road Fatalities and Serious Injuries throughout South Australia during 2020

	Significant Decreases
Road Fatalities	• Annual Road Fatality Casualties and Crashes • Month of the Year – April, May, June, August, September, December • Day of the Week – Monday, Wednesday, Thursday, Friday • Time of Day – 12:00AM to 3:59AM, 8:00AM to 11:59AM, 4:00PM to 7:59PM • Road User – Driver, Pedestrians, Pedal Cyclist • Gender – Male • Age – 40 to 64 years old, 65 to 74 years old, over 75 years old • Posted Speed Limit – 40km/hr, 41 to 59km/hr, 60 to 79km/hr, 110km/hr • Crash Type – Single Vehicle Crash • Remoteness Area – Major Cities of Australia, Remote Australia, Very Remote Australia • Holiday Periods – Easter, Christmas
Serious Injuries	• Road User – Driver, Pedestrian, Pedal Cyclist • Age – 16 to 19 years old, 20 to 24 years old, 50 to 59 years old, 60 to 69 years old, over 70 years old

Table 29: Significant Decreases in Road Fatalities and Serious Injuries throughout South Australia during 2020

In the Northern Territory, the significant increases and decreases in road fatalities and serious injuries is summarised in Table 30 and Table 31.

	Significant Increases
Road Fatalities	• Months of the Year – June, August, October, December • Day of the Week – Saturday, Sunday • Time of Day – 8:00PM to 11:59PM • Gender – Female • Age – 26 to 39 years old, over 75 years old • Posted Speed Limit – 60 to 79km/hr • Remoteness Area – Major Cities
Serious Injuries	• Road User – Motorcyclist, Pedestrian • Risky Road User Behaviour – Drink Driving, Speeding, Absence of Seatbelt

Table 30: Significant Increases in Road Fatalities and Serious Injuries throughout the Northern Territory during 2020

	Significant Decreases
Road Fatalities	• Months of the Year – April, May, September • Day of the Week – Monday, Tuesday, Wednesday • Time of Day – 12:00PM to 3:59PM, 8:00AM to 11:59AM • Road User – Driver, Motorcycle Rider, Pedestrians • Gender – Male • Age – 0 to 16 years old, 17 to 25 years old, 40 to 64 years old, 65 to 74 years old • Posted Speed Limit – 41 to 59km/hr, 80 to 99 km/hr, 110km/hr • Crash Type – Single Vehicle Crash • Remoteness Area – Outer Regional Australia, Remote Australia • Holiday Period – Easter, Christmas
Serious Injuries	• Nil

Table 31: Significant Decreases in Road Fatalities and Serious Injuries throughout the Northern Territory during 2020

In the Australian Capital Territory, the significant increases and decreases in road fatalities and serious injuries is summarised in Table 32 and Table 33.

	Significant Increases
Road Fatalities	• Nil
Serious Injuries	• Month of the Year – August, November • Time of Day – 8:00PM to 11:59PM • Age – 15 to 19 years old, 50 to 54 years old • Licence Type – Leaner Drivers

Table 32: Significant Increases in Road Fatalities and Serious Injuries throughout the Australian Capital Territory during 2020

	Significant Decreases
Road Fatalities	• Nil
Serious Injuries	• Month of the Year – April, May, June, July, October • Day of the Week – Monday, Tuesday • Time of Day – 8:00AM to 11:59AM, 4:00PM to 7:59PM • Road User – Passenger, Motorcyclist • Gender – Female • Age – 0 to 14 years old, 20 to 24 years old, 30 to 34 years old, 55 to 59 years old, 60 to 64 years old, 70 to 74 years old, over 80 years old • Licence Type – Full Licence

Table 33: Significant Decreases in Road Fatalities and Serious Injuries throughout the Australian Capital Territory during 2020

In Western Australia, the significant increases and decreases in road fatalities and serious injuries is summarised in Table 34 and Table 35.

	Significant Increases
Road Fatalities	• Month of the Year – July, October, November • Day of the Week – Friday, Sunday • Time of the Day – 4:00AM to 7:59AM, 12:00PM to 3:59PM • Road User – Motorcyclist, Pedal Cyclist • Age – 17 to 25 years olds, 26 to 39 years old, 40 to 64 years old • Posted Speed Limit – 80 to 99km/hr • Holiday Period – Christmas
Serious Injuries	• Age – 17 to 19 years old

Table 34: Significant Increases in Road Fatalities and Serious Injuries throughout Western Australia during 2020

	Significant Decreases
Road Fatalities	• Month of the Year – March, April, June, August, December • Day of the Week – Tuesday, Thursday • Time of Day – 12:00AM to 3:59AM, 8:00AM to 11:59AM • Road User – Passenger, Motorcycle Pillion Passenger, Pedestrians • Age – 65 to 74 years old, older than 75 years old • Posted Speed Limit – 40km/hr • Crash Type – Single Vehicle Crash • Remoteness Area – Remote Australia, Very Remote Australia • Holiday Period – Easter • Risky Road User Behaviour – Inattentive Drivers
Serious Injuries	• Month of the Year – April, May • Age – 0 to 16 years old, 60 to 69 years old, 70 to 79 years old, over 80 years old • Riskier Road User Behaviours – Speeding, Distracted Driving

Table 35: Significant Decreases in Road Fatalities and Serious Injuries throughout Western Australia during 2020

In Tasmania, the significant increases and decreases in road fatalities and serious injuries is summarised in Table 36 and Table 37.

	Significant Increases
Road Fatalities	• Annual Road Fatalities • Month of the Year – August, October, November • Day of the Week – Monday, Wednesday, Friday, Saturday • Time of Day – 12:00PM to 3:59PM, 8:00PM to 11:59PM • Road User – Passenger, Pedestrian • Gender – Male, Female • Age – 17 to 25 years old, 26 to 39 years old, over 75 years old • Posted Speed Limit – 41 to 59km/hr, 80 to 99km/hr, 100 to 109km/hr, 110km/hr • Crash Type – Single, Multiple • Remoteness Area – Major Cities, Inner Regional Australia • Holiday Period - Easter
Serious Injuries	• Annual Serious Injury Casualties in Tasmania • Road Users – Drivers, Passengers, ATV Riders • Gender – Males • Age – 0 to 16 years old, 17 to 20 years old

Table 36: Significant Increases in Road Fatalities and Serious Injuries throughout Tasmania during 2020

	Significant Decreases
Road Fatalities	• Month of the Year – March, April, June September, December • Day of the Week – Tuesday, Sunday • Time of Day – 12:00AM to 3:59AM, 4:00AM to 7:59AM, 8:00AM to 11:59AM • Road User – Motorcycle Rider • Age – 65 to 74 years old • Remoteness Area – Remote Australia
Serious Injuries	• Road User – Pedal Cyclists, Pedestrians • Age – 30 to 49 years old

Table 37: Significant Decreases in Road Fatalities and Serious Injuries throughout Tasmania during 2020

6.2 General Conclusion

The aim of the undergraduate research dissertation was to examine the influence COVID-19 had on Australian road fatalities and serious injuries in 2020. The research methodology approach entailed a two-step approach. The first step of the methodology approach is the collection of quantitative data relating to Australian road fatalities and serious injuries from 2015 to 2020. The second step of the methodology approach is the detailed analysis of the quantitative data. For this undergraduate research dissertation, significant variations must represent road fatalities or serious injuries rate changes of at least 15% during 2020 compared to 2019 and changes of at least 15% from the 2015-2018 to the 2015-2019 average.

To achieve the aim of the undergraduate research dissertation, several objectives need to be addressed:

- Undertake a literature review on road safety, the safe system approach and the influence COVID-19 had on Australia.
- Collect quantitative data relating to road fatalities and serious injuries from the Bureau of Infrastructure and Transport Economics and the relevant state and territory government databases during 2020 and previous years for comparison.
- Conduct a detailed analysis of the quantitative data and summarise the findings.
- Finalise the undergraduate research dissertation providing recommendations and a conclusion on the influence COVID-19 had on Australian road fatalities and serious injuries during 2020.

The undergraduate research dissertation found that COVID-19 had significantly influenced road fatalities and serious injuries nationwide. While not all states and territories had significant variations in annual road fatality and serious injury rates, there were still characteristic within each state and territory that had significant variations.

Across all states and territories, Table 38 outlines the most significant characteristic changes that occurred in Australia because of COVID-19.

Significant Increases:	• 0 to 16 years old • 17 to 24 years old • Vulnerable Road Users (motorcycle pillion passengers, pedestrians pedal cyclists) • Risky Road User Behaviour (speeding, drink driving, not wearing a seatbelt) • Christmas Holiday Period
Significant Decreases:	• Months spanning from April to June • Weekdays • Over 60 year olds • Easter Holiday Period

Table 38: Summary of Significant Increases and Decreases of Road Fatalities and Serious Injuries in Australia during COVID-19

Most notably, Table 39**Error! Reference source not found.** and Table 40 outlines the most significant changes that occurred for each state and territory because of COVID-19.

Significant Increase:	• Queensland (+27%) • Tasmania (+31%)
Significant Decreases:	• New South Wales (-20%) • Victoria (-21%) • South Australia (-18%)

Table 39: Summary of Significant Increases and Decreases of Road Fatality Rates across Australian State and Territories during COVID-19

Significant Increase:	• Tasmania (+16%)
Significant Decreases:	• Victoria (-23%)

Table 40: Summary of Significant Increases and Decreases of Serious Injury Rates across Australian State and Territories during COVID-19

6.2 Recommendations

The key findings, linked theory and recommendations from this undergraduate research dissertation are outlined in Table 41. These recommendations are intended for industry professionals to implement, with the aim of effectively addressing road fatalities and serious injuries during times of varied movement of people and goods on Australian roads.

Australia, State or Jurisdiction	Key Findings, Linked Theory, Recommendations
Australia	*Individuals aged 0 to 16 years old* Linked Theory: reduced supervision, increased outdoor play, increased bicycle use, limited access to playgrounds and reduced road safety education. Recommendations: educational programs to teach children safe pedestrian and cyclist behaviours, upgrade safe road infrastructure around schools and parks, reduce vehicle speeds around schools, parks and residential neighbourhoods and upgrade play equipment infrastructure in parks to encourage children to play there rather than near roadways. *Motorcycle Pillion Passengers* Linked Theory: riskier road user behaviour, impaired riding, increased inexperienced riders and limited training opportunities. Recommendations: increased safety features in motorcycles, educational programs for cyclists, greater emphasis on the requirements to allow motorcycle pillion passengers during licencing, increased police enforcement and the development of more protective riding gear for motorcyclists and motorcycle pillion passengers.
New South Wales	*Individuals aged 0 to 16 years old* Linked Theory: reduced supervision, increased outdoor play, increased bicycle use, limited access to playgrounds and reduced road safety education. Recommendations: educational programs to teach children safe pedestrian and cyclist behaviours, upgrade safe road infrastructure around schools and parks, reduce vehicle speeds around schools, parks and residential neighbourhoods and upgrade play equipment infrastructure in parks to encourage children to play there rather than near roadways.

	Pedal Cyclists Linked Theory: increased bicycle use, inexperienced cyclists, lack of cycling infrastructure and increase riskier road user behaviours. Recommendations: educational programs to teach beginners about safe road behaviours, upgrade and maintain cycling infrastructure, implement traffic calming measures to reduce the speed of motor vehicles such as speed bumps and motorist safety campaigns to emphasise the importance of cyclist safety.
Victoria	*Pedal Cyclists* Linked Theory: increased bicycle use, inexperienced cyclists, lack of cycling infrastructure and increase riskier road user behaviours. Recommendations: educational programs to teach beginners about safe road behaviours, upgrade and maintain cycling infrastructure, implement traffic calming measures to reduce the speed of motor vehicles such as speed bumps and motorist safety campaigns to emphasise the importance of cyclist safety. *Remote and Very Remote Regions* Linked Theory: isolated areas, increased riskier road user behaviour and limited communication services. Recommendations: upgrade existing road to a higher standard of safety, increased speed monitoring, increased police enforcement, upgrade of rest stops to ensure phone service coverage, road signage denoting speed limits and upcoming road hazards.
South Australia	*Individuals aged 0 to 16 years old* Linked Theory: reduced supervision, increased outdoor play, increased bicycle use, limited access to playgrounds and reduced road safety education. Recommendations: educational programs to teach children safe pedestrian and cyclist behaviours, upgrade safe road infrastructure around schools and parks, reduce vehicle speeds around schools, parks and residential neighbourhoods and upgrade play equipment infrastructure in parks to encourage children to play there rather than near roadways.

	Motor Vehicle Passengers Linked Theory: risker road user behaviours, distracted driving and reluctantly to use public transport. Recommendations: upgrade existing road infrastructure, implement traffic calming measures to reduce the speed of motor vehicles, increased police enforcement and more hygienic public transport systems.
Northern Territory	*Motorcyclist* Linked Theory: riskier road user behaviour, impaired riding, increased inexperienced riders and limited training opportunities. Recommendations: increased safety features in motorcycles, educational programs for cyclists, increased police enforcement and the development of more protective riding gear for motorcyclists and motorcycle pillion passengers. *Pedestrians* Linked Theory: increased walking and jogging as daily exercise, lack of walking infrastructure and increase riskier road user behaviours. Recommendations: upgrade and maintain walking infrastructure, implement traffic calming measures to reduce the speed of motor vehicles such as speed bumps and motorist safety campaigns to emphasise the importance of pedestrians. *Drink Driving* Linked Theory: increased consumption of alcohol due to the pandemic, increased stressed and anxiety rates, isolation, lack of daily structure and reduction to access of treatment services. Recommendations: increased law enforcement (RBT), harsher penalties if RBT comes back positive, increased vehicle safety features and educational programs that outline the risk of drink driving.

	Speeding Linked Theory: reduced traffic volumes and riskier road user behaviour. Recommendations: increased law enforcement (speed cameras and police), increased vehicle safety features to prompt the driver when speeding, increased speed monitoring on high risk roads and implement traffic calming measures to reduce the speed of motor vehicles such as speed bumps.
Australian Capital Territory	*Individuals aged 17 to 25 years old* Linked Theory: inexperienced drivers, distracted driving and increased riskier road user behaviours. Recommendations: educational programs to teach young adults about the consequences of riskier road user behaviours, increased law enforcement (alcohol, drug and speeding) and increased vehicle safety features.
Western Australia	*Motorcyclist* Linked Theory: riskier road user behaviour, impaired riding, increased inexperienced riders and limited training opportunities. Recommendations: increased safety features in motorcycles, educational programs for cyclists, increased police enforcement and the development of more protective riding gear for motorcyclists and motorcycle pillion passengers. *Pedal Cyclists* Linked Theory: increased bicycle use, inexperienced cyclists, lack of cycling infrastructure and increase riskier road user behaviours. Recommendations: educational programs to teach beginners about safe road behaviours, upgrade and maintain cycling infrastructure, implement traffic calming measures to reduce the speed of motor vehicles such as speed bumps and motorist safety campaigns to emphasise the importance of cyclist safety. *Individuals aged 17 to 25 year olds* Linked Theory: inexperienced drivers, distracted driving and increased riskier road user behaviours. Recommendations: educational programs to teach young adults about the consequences of riskier road user behaviours, increased law enforcement (alcohol, drug and speeding) and increased vehicle safety features.

Tasmania	*Motor Vehicle Drivers and Passengers* Linked Theory: risker road user behaviours, distracted driving and reluctance to use public transport. Recommendations: upgrade existing road infrastructure, implement traffic calming measures to reduce the speed of motor vehicles, increased police enforcement and more hygienic public transport systems. *Pedestrians* Linked Theory: increased walking and jogging as daily exercise, lack of walking infrastructure and increase riskier road user behaviours. Recommendations: upgrade and maintain walking infrastructure, implement traffic calming measures to reduce the speed of motor vehicles such as speed bumps and motorist safety campaigns to emphasise the importance of pedestrians. *Individuals aged 0 to 16 years old* Linked Theory: reduced supervision, increased outdoor play, increased bicycle use, limited access to playgrounds and reduced road safety education. Recommendations: educational programs to teach children safe pedestrian and cyclist behaviours, upgrade safe road infrastructure around schools and parks, reduce vehicle speeds around schools, parks and residential neighbourhoods and upgrade play equipment infrastructure in parks to encourage children to play there rather than near roadways. *Individuals aged 17 to 25 years old* Linked Theory: inexperienced drivers, distracted driving and increased riskier road user behaviours. Recommendations: educational programs to teach young adults about the consequences of riskier road user behaviours, increased law enforcement (alcohol, drug and speeding) and increased vehicle safety features.

Table 41: Key Findings Recommendations

6.3 Further Research

To gain a more comprehensive understanding of how changes in the movement of both people and goods on Australian roads can substantially impact road user behaviour and road safety, there exist several avenues for further investigation pertaining to COVID-19. Regrettably, owing to constraints in terms of data availability and time constraints, the ensuing research topics could not be fully explored within the scope of this undergraduate research dissertation. The areas warranting additional research encompass:

- To gain a better understanding of how COVID-19 influenced road safety, a qualitative research approach would be appropriate. Understanding what Australia drivers' perceptions were of road safety during COVID-19 would provide an insight into the different perspectives and interpretations that might differ from the investigator. Due to the scope of the undergraduate research dissertation, completing a qualitative research component would have provided limitations due to the unlikely access to sufficient sample population across Australia to provide sufficient and unbiased reporting. In addition, it would be likely that unreliable reporting on individuals' perceptions on road safety during COVID-19 would occur as considerable time would have surpassed.
- The scope of this undergraduate research dissertation was to examine Australian road fatalities and serious injuries that occurred during COVID-19. Solely focusing on road fatalities and serious injuries limits the full impact COVID-19 may have had on road safety. Instead, further investigating all types of crashes (minor injury and property) would lead to a better understanding of road user behaviour and road safety during COVID-19.
- Further analysis into the data specific to individual state and territories can provide a further comprehensive insight into the influence COVID-19 had on road safety. This is due to the variation of road fatalities, serious injuries and the broader socioeconomic consequences that occurred across Australia.
- Further analysis into the human and economic implications that COVID-19 had on road fatalities and serious injuries during 2020.

- In Queensland, COVID-19 had a significant influence on road fatalities and, to some extent, serious injuries during 2020. The extent of this undergraduate research dissertation is to examine the influence COVID-19 had on Australian road fatalities and serious injuries during 2020. With the significant increase in road fatalities consistent across all months, days of the week, time of day and road user characteristics, providing recommendations in this undergraduate research dissertation would be worthless. It would be recommended that further research is conducted. Because recommendations for every single characteristic would be unrealistic for industry professionals to follow.
- Investigate the difference in variations between road fatalities and serious injuries Within Queensland. Road fatalities significantly increased where serious injuries remained consistent with previous years. The only significant increase in serious injuries was from learner drivers and riskier road user behaviours. So further research can investigate why only road fatalities changed and not serious injuries.

Further research on these topics will allow professionals to make more informed decisions when it to comes to road safety to ultimately accomplish the Australian Government's plan to achieve zero deaths and serious injuries on Australian roads by 2050.

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Appendix A – Project Specification

ENG4111/4112 Research Project

Project Specification

For: Isabella Freeman (U1057254)

Title: Estimating the influence of COVID-19 had on Australian road fatalities and serious injuries in 2020.

Major: Civil Engineering

Supervisors: Hannah Seligmann

Enrollment: ENG4111 – EXT S1, 2023

ENG4112 – EXT S2, 2023

Project Aim: The aim of this undergraduate research dissertation is to better understand how changes in the movement of people and goods on the roads within Australia can change road user behavior and road safety.

Programme: Version 2, 13th March 2023 (Key Phases as Outlined in ENG4110 A3)

1. Conduct a literature review on the following topics:
    - Introduction to Australian roads
    - Federal/State/Local Government Responsibilities
    - Australia's history and present landscape for road safety (zero by 2050)
    - Define serious injuries and fatalities
    - Safe System Approach
    - COVID-19 may have impacted these aspects (before and during COVID-19)

2. Collect quantitative data relating to road safety and transport statistics from Bureau of Infrastructure and Transport Economics and the relevant state and territory government databases from 2020 and previous years for comparison. Quantitative data from 2020 and previous years for comparison include:
    - Jurisdiction (NSW, QLD, VIC, SA, NT, ACT, WA, TAS)
    - Age group (0 to 16, 17 to 25, 26 to 39, 40 to 64, 65 to 74, over 75)
    - Gender (male, female)
    - Road User Classification (driver passenger, motorcyclists, pedestrian, cyclist)
    - Number of vehicles (single vehicle crash, multiple vehicle crash)

- During week (weekday, weekend)
- Posted speed limit (<= 40km/hr, 50km/hr, 60 to 70km/hr, 80 to 90km/hr, 100km/hr, >= 110km/hr)
- Area (major cities, inner regional Australia, outer regional Australia, remote Australia, very remote Australia)
- Road Type (national or state highway, arterial road, sub-arterial road, collector road, local road, other)
- Crash type (DCA/RUM from Austroads) (Non-collision (curve), non-collision (straight), opposing directions, pedestrian, adjacent directions, same directions)
- Restraint Usage (yes, no, unknown)
- Alcohol Test (Fail, Pass, Unknown)
- No Valid Driver's License
- Helmet Not Worn (motorcyclists)
- Fatality/Serious Injuries rate per 100,000 population (jurisdiction, age group, remoteness)
- Fatality/Serious Injuries rate per 10,000 vehicles (jurisdiction)
- Fatality/Serious Injuries rate per billion VKT (jurisdiction)

3. Conduct a detailed analysis of the quantitative data and summaries the findings. Determine whether the statistics investigated from the literature review is statistically significant from previous years and determine whether there are any correlations with COVID-19.

4. Finalise the undergraduate research dissertation providing recommendations and a conclusion on the influence COVID-19 had on Australian road fatalities and serious injuries in 2020.

Appendix B – Tabulated Australian Road and Serious Injury Data

Year	2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
Fatalities	1206	1294	1223	1135	1186	1097	-89	-8%	-29	-2%	-112	-9%

Table 42: Australian Annual Road Fatalities from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Jurisdiction	New South Wales	350	380	389	347	353	284	26%	-69	-20%	-14	-4%	-80	-22%
	Queensland	243	251	247	245	219	278	25%	59	27%	-28	-11%	37	15%
	Victoria	252	290	259	213	266	211	19%	-55	-21%	13	5%	-45	-18%
	South Australia	102	86	100	80	114	93	8%	-21	-18%	22	24%	-3	-4%
	Northern Territory	49	45	31	50	36	31	3%	-5	-14%	-8	-18%	-11	-27%
	Australian Capital Territory	15	10	5	9	6	7	1%	1	17%	-4	-38%	-2	-22%
	Western Australia	161	195	160	159	163	155	14%	-8	-5%	-6	-3%	-13	-8%
	Tasmania	34	37	32	32	29	38	3%	9	31%	-5	-14%	5	16%
	Total	1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 43: Road Fatalities per Jurisdiction from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Lives Lost Per 10,000 Registered Vehicles	Australia	0.66	0.7	0.57	0.59	0.6	0.56	-0.04	-7%	0	-5%	0	-10%
	New South Wales	0.66	0.7	0.44	0.61	0.62	0.51	-0.11	-18%	0	3%	0	-16%
	Queensland	0.64	0.64	0.62	0.6	0.51	0.59	0.08	16%	0	-18%	0	-2%
	Victoria	0.55	0.61	0.53	0.43	0.52	0.41	-0.11	-21%	0	-2%	0	-22%
	South Australia	0.75	0.63	0.72	0.56	0.62	0.32	-0.3	-48%	0	-7%	0	-51%
	Northern Territory	3.14	2.87	2.01	3.08	2.17	1.94	-0.23	-11%	-1	-22%	-1	-27%
	Australian Capital Territory	0.53	0.38	0.17	0.29	0.19	0.22	0.03	16%	0	-45%	0	-29%
	Western Australia	0.73	0.78	0.76	0.71	0.72	0.67	-0.05	-7%	0	-3%	0	-9%
	Tasmania	0.73	0.78	0.76	0.68	0.58	0.7	0.12	21%	0	-21%	0	-1%

Table 44: Road Fatalities per Jurisdiction per 10,000 Registered Vehicles from 2015 to 2020

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Lives Lost Per 100,000 Population	Australia	5.07	5.35	4.43	4.55	4.67	4.31	-0.36	-8%	0	-4%	-1	-10%
	New South Wales	4.59	4.91	3.14	4.34	4.36	3.65	-0.71	-16%	0	3%	-1	-14%
	Queensland	5.08	5.18	5.03	4.89	4.3	5.35	1.05	24%	-1	-15%	0	9%
	Victoria	4.24	4.69	4.1	3.3	4.03	3.15	-0.88	-22%	0	-1%	-1	-23%
	South Australia	6.11	5.02	5.86	4.61	6.51	5.26	-1.25	-19%	1	21%	0	-6%
	Northern Territory	20.05	18.31	12.6	20.22	14.24	12.6	-1.64	-12%	-4	-20%	-4	-26%
	Australian Capital Territory	3.84	2.53	1.22	2.14	1.41	1.62	0.21	15%	-1	-42%	-1	-27%
	Western Australia	6.38	7.66	6.24	6.13	6.22	5.79	-0.43	-7%	0	-6%	-1	-11%
	Tasmania	6.39	6.96	6.91	6.25	5.43	6.66	1.23	23%	-1	-18%	0	4%

Table 45: Road Fatalities per Jurisdiction per 100,000 Population from 2015 to 2020

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Month of the Year	January	105	107	97	101	116	82	7%	-34	-29%	14	13%	-23	-22%
	February	72	100	70	86	91	93	8%	2	2%	9	11%	9	11%
	March	96	110	93	113	113	102	9%	-11	-10%	10	10%	-3	-3%
	April	101	113	102	88	98	80	7%	-18	-18%	-3	-3%	-20	-20%
	May	105	107	99	90	106	82	7%	-24	-23%	6	6%	-19	-19%
	June	101	97	104	78	93	82	7%	-11	-12%	-2	-2%	-13	-13%
	July	94	116	111	96	84	96	9%	12	14%	-20	-19%	-4	-4%
	August	124	113	112	104	99	96	9%	-3	-3%	-14	-13%	-14	-13%
	September	92	93	98	106	91	83	8%	-8	-9%	-6	-6%	-13	-14%
	October	125	117	95	74	101	104	9%	3	3%	-2	-2%	2	2%
	November	96	104	112	99	84	102	9%	18	21%	-19	-18%	3	3%
	December	95	117	130	100	110	95	9%	-15	-14%	-1	0%	-15	-14%
	Total	1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 46: Road Fatalities per Month from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Day of the Week	Monday	168	157	154	164	146	129	12%	-17	-12%	-15	-9%	-29	-18%
	Tuesday	140	165	160	137	158	131	12%	-27	-17%	8	5%	-21	-14%
	Wednesday	158	160	166	137	144	154	14%	10	7%	-11	-7%	1	1%
	Thursday	163	161	159	133	176	135	12%	-41	-23%	22	14%	-23	-15%
	Friday	174	214	189	176	184	166	15%	-18	-10%	-4	-2%	-21	-11%
	Saturday	221	239	199	196	201	207	19%	6	3%	-13	-6%	-4	-2%
	Sunday	182	198	196	192	177	175	16%	-2	-1%	-15	-8%	-14	-7%
	Total	1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 47: Road Fatalities per Day of the Week from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	123	118	123	104	356	100	9%	-256	-72%	239	204%	-65	-39%
	4:00AM to 7:59AM	140	163	154	153	113	125	11%	12	11%	-40	-26%	-20	-14%
	8:00AM to 11:59AM	219	213	222	224	175	195	18%	20	11%	-45	-20%	-16	-7%
	12:00PM to 3:59PM	294	304	293	252	214	277	25%	63	29%	-72	-25%	6	2%
	4:00PM to 7:59PM	279	279	283	240	194	233	21%	39	20%	-76	-28%	-22	-9%
	8:00PM to 11:59PM	151	217	148	162	134	167	15%	33	25%	-36	-21%	5	3%
	Total	1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 48: Road Fatalities per Time of Day from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Road User	Driver	555	623	566	519	569	534	49%	-35	-6%	3	1%	-32	-6%
	Passenger	252	209	235	205	205	192	18%	-13	-6%	-20	-9%	-29	-13%
	Motorcycle Rider	198	241	206	190	208	180	16%	-28	-13%	-1	0%	-29	-14%
	Motorcycle Pillion Passenger	7	8	5	1	4	7	1%	3	75%	-1	-24%	2	40%
	Pedestrian	160	182	162	178	158	138	13%	-20	-13%	-13	-7%	-30	-18%
	Pedal Cyclist	31	29	39	35	39	41	4%	2	5%	6	16%	6	18%
	Other	3	2	10	7	3	5	0%	-	-	-	-	-	-
	Total	1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 49: Road Fatalities per Road User from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Gender	Male	868	956	899	842	904	793	72%	-111	-12%	13	1%	-101	-11%
	Female	338	337	324	292	282	300	27%	18	6%	-41	-13%	-15	-5%
	Other	0	1	0	1	0	4	-	-	-	-	-	-	-
	Total	1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 50: Road Fatalities per Gender from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Age	0 to 16	64	60	49	53	44	55	5%	11	25%	-13	-22%	1	2%
	17 to 25	227	265	244	226	237	208	19%	-29	-12%	-4	-1%	-32	-13%
	26 to 39	272	290	237	258	256	291	27%	35	14%	-8	-3%	28	11%
	40 to 64	373	411	391	351	372	331	30%	-41	-11%	-10	-2%	-49	-13%
	65 to 74	119	103	120	114	106	75	7%	-31	-29%	-8	-7%	-37	-33%
	Over 75	151	165	182	129	169	133	12%	-36	-21%	12	8%	-26	-16%
	Other	0	0	0	4	2	4	0%	-	-	-	-	-	-
	Total	1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 51: Road Fatalities per Age from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Annual Fatality Rate Per 100,000 Population by Age Group	0 to 7	0.8	1	0.9	0.6	0.7	0.7	0	0%	0	-15%	0	-13%
	8 to 16	1.7	1.4	1	1.4	1	1.3	0.3	30%	0	-27%	0	0%
	17 to 25	7.7	9	8.2	7.4	7.8	6.9	-0.9	-12%	0	-3%	-1	-14%
	26 to 39	5.7	6	4.8	5	4.9	5.5	0.6	12%	0	-9%	0	4%
	40 to 64	5	5.4	5.1	4.6	4.8	4.2	-0.6	-13%	0	-4%	-1	-16%
	65 to 74	5.9	4.9	5.6	5.1	4.6	3.2	-1.4	-30%	-1	-14%	-2	-39%
	Over75	9.8	10.3	11	7.6	9.6	7.2	-2.4	-25%	0	-1%	-2	-25%
	All Deaths	5.1	5.3	5	4.5	4.7	4.3	-0.4	-9%	0	-6%	-1	-13%

Table 52: Road Fatalities per Age Group per 100,000 Population from 2015 to 2020

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Posted Speed Limit	≤ 40km/hr	20	17	38	17	21	17	2%	-4	-19%	-2	-9%	-6	-25%
	41 to 59km/hr	117	139	157	134	133	131	12%	-2	-2%	-4	-3%	-5	-4%
	60 to 79km/hr	297	296	280	260	243	241	22%	-2	-1%	-40	-14%	-34	-12%
	80 to 99km/hr	217	232	191	180	207	198	18%	-9	-4%	2	1%	-7	-4%
	100 to 109km/hr	387	409	388	364	383	365	33%	-18	-5%	-4	-1%	-21	-5%
	≥ 110km/hr	160	192	160	171	188	139	13%	-49	-26%	17	10%	-35	-20%
	Other	8	9	9	9	11	6	1%	-	-	-	-	-	-
Total		1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 53: Road Fatalities per Posted Speed Limit from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
	Single Vehicle Crash	675	720	659	658	701	603	55%	-98	-14%	23	3%	-80	-12%
	Multiple Vehicle Crash	531	574	564	477	485	494	45%	9	2%	-52	-10%	-32	-6%
Total		1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 54: Road Fatalities per Crash Type from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Geographic Location	Major Cities of Australia	336	235	332	390	405	381	35%	-24	-6%	82	25%	41	12%
	Inner Regional Australia	303	223	345	341	375	350	32%	-25	-7%	72	24%	33	10%
	Outer Regional Australia	219	181	225	273	275	250	23%	-25	-9%	51	22%	15	7%
	Remote Australia	38	32	28	57	62	47	4%	-15	-24%	23	60%	4	8%
	Very Remote Australia	44	62	28	55	55	59	5%	4	7%	8	16%	10	21%
	Other	266	561	265	19	14	10	-	-	-	-	-	-	-
	Total	1206	1294	1223	1135	1186	1097	-	-	-	-	-	-	-

Table 55: Road Fatalities per Remoteness Area from 2015 to 2020 (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Fatality Rate Per 100,000 Population by Remoteness Area	Major Cities of Australia	2.4	2.6	2.4	2.2	2.2	2	-0.2	-9%	0	-8%	0	-15%
	Inner Regional Australia	9	9.8	9.4	7.8	8.4	7.8	-0.6	-7%	-1	-7%	-1	-12%
	Outer Regional Australia	13.9	14.2	14.2	13.5	13.6	12.1	-1.5	-11%	0	-3%	-2	-13%
	Remote Australia	20.5	16.7	15.4	20.3	21.3	15.8	-5.5	-26%	3	17%	-3	-16%
	Very Remote Australia	28.4	34.2	18.4	28.5	29.9	30.4	0.5	2%	3	9%	3	9%
	All Deaths	5.1	5.3	5	4.5	4.7	4.3	-0.4	-9%	0	-6%	-1	-13%

Table 56: Road Fatalities per 100,000 Population by Remoteness Area

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Holiday Period	Easter Period	21	8	12	16	19	7	-12	-63%	5	33%	-8	-54%
	Christmas Period	37	37	50	49	30	35	5	17%	-13	-31%	-6	-14%

Table 57: Road Fatalities per Holiday Period (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Fatalities	Total Fatal Crashes	326	356	351	326	329	264	-65	-20%	-11	-3%	-74	-22%
	Total Fatalities	350	380	389	347	353	284	-69	-20%	-14	-4%	-80	-22%

Table 58: Road Fatalities and Fatal Crashes in New South Wales (Transport for NSW n.d. -a)

NSW		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Day of the Week	Monday	44	45	49	50	36	35	12%	-1	-3%	-11	-23%	-10	-22%
	Tuesday	45	53	56	42	58	35	12%	-23	-40%	9	18%	-16	-31%
	Wednesd	53	35	58	44	44	43	15%	-1	-2%	-4	-7%	-4	-8%
	Thursday	41	45	56	38	52	38	13%	-14	-27%	7	16%	-8	-18%
	Friday	45	64	42	65	47	35	12%	-12	-26%	-7	-13%	-18	-33%
	Saturday	62	72	75	55	63	58	20%	-5	-8%	-3	-5%	-7	-11%
	Sunday	60	65	53	53	53	40	14%	-13	-25%	-5	-8%	-17	-30%
Total		350	379	389	347	353	284	-	-	-	-	-	-	-

Table 59: Road Fatalities per Day of the Week in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

NSW		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	27	37	39	31	41	26	9%	-15	-37%	8	22%	-9	-26%
	4:00AM to 7:59AM	38	45	59	42	48	34	12%	-14	-29%	2	4%	-12	-27%
	8:00AM to 11:59AM	73	73	71	75	62	59	21%	-3	-5%	-11	-15%	-12	-17%
	12:00PM to 3:59PM	83	88	106	78	83	72	25%	-11	-13%	-6	-6%	-16	-18%
	4:00PM to 7:59PM	80	79	70	79	75	49	17%	-26	-35%	-2	-3%	-28	-36%
	8:00PM to 11:59PM	49	57	44	42	44	44	15%	0	0%	-4	-8%	-3	-7%
Total		350	379	389	347	353	284	-	-	-	-	-	-	-

Table 60: Road Fatalities per Time of the Day in New South Wales(Bureau of Infrastructure and Transport Research Economics 2023)

NSW		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Road User	Driver	155	182	186	158	166	135	48%	-31	-19%	-4	-2%	-34	-20%
	Passenger	60	54	82	57	60	40	14%	-20	-33%	-3	-5%	-23	-36%
	Motorcycle Rider	66	64	58	54	65	46	16%	-19	-29%	5	7%	-15	-25%
	Motorcycle Pillion Passenger	1	3	1	0	3	2	1%	-1	-33%	2	140%	0	25%
	Pedestrian	61	71	54	69	45	48	17%	3	7%	-19	-29%	-12	-20%
	Pedal Cyclist	7	5	8	9	14	13	5%	-1	-7%	7	93%	4	51%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		350	379	389	347	353	284	-	-	-	-	-	-	-

Table 61: Road Fatalities per Road User in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

NSW		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Gender	Male	242	282	274	263	273	205	72%	-68	-25%	8	3%	-62	-23%
	Female	108	97	115	84	80	79	28%	-1	-1%	-21	-21%	-18	-18%
	Other	0	0	0	0	0	0	-	-	-	-	-	-	-
Total		350	379	389	347	353	284	-	-	-	-	-	-	-

Table 62: Road Fatalities per Gender in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

NSW		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Age	0_to_16	20	18	19	11	9	15	5%	6	67%	-8	-47%	0	-3%
	17_to_25	55	78	79	78	61	53	19%	-8	-13%	-12	-16%	-17	-25%
	26_to_39	62	72	73	68	68	76	27%	8	12%	-1	-1%	7	11%
	40_to_64	115	118	122	100	122	80	28%	-42	-34%	8	7%	-35	-31%
	65_to_74	47	40	44	40	39	23	8%	-16	-41%	-4	-9%	-19	-45%
	75_or_older	51	53	52	50	54	37	13%	-17	-31%	3	5%	-15	-29%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		350	379	389	347	353	284	-	-	-	-	-	-	-

Table 63: Road Fatalities per Age Group in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

NSW		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Posted Speed Limit	Less than 40km/hr	3	9	11	4	7	8	3%	1	14%	0	4%	1	18%
	41 to 59km/hr	52	64	63	67	51	49	17%	-2	-4%	-11	-17%	-10	-18%
	60 to 79km/hr	89	73	74	83	69	62	22%	-7	-10%	-11	-13%	-16	-20%
	80 to 99km/hr	67	78	61	52	72	46	16%	-26	-36%	8	12%	-20	-30%
	100 to 109km/hr	113	127	131	116	113	105	37%	-8	-7%	-9	-7%	-15	-13%
	More than 110km/hr	26	28	49	25	41	14	5%	-27	-66%	9	28%	-20	-59%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		350	379	389	347	353	284	-	-	-	-	-	-	-

Table 64: Road Fatalities by Posted Speed Limit in New South Wales(Bureau of Infrastructure and Transport Research Economics 2023)

NSW		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Crash Type	Single	193	215	211	199	200	153	54%	-47	-24%	-5	-2%	-51	-25%
	Multiple	157	164	178	148	153	131	46%	-22	-14%	-9	-5%	-29	-18%
Total		350	379	389	347	353	284	-	-	-	-	-	-	-

Table 65: Road Fatalities by Crash Type in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

NSW		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Geographical Location	Major Cities of Australia	126	146	137	144	132	119	42%	-13	-10%	-6	-5%	-18	-13%
	Inner Regional Australia	129	141	140	108	121	94	33%	-27	-22%	-9	-7%	-34	-26%
	Outer Regional Australia	87	86	103	84	86	64	23%	-22	-26%	-4	-4%	-25	-28%
	Remote Australia	6	5	7	8	9	6	2%	-3	-33%	3	38%	-1	-14%
	Very Remote Australia	2	1	2	3	5	1	0%	-4	-80%	3	150%	-2	-62%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		350	379	389	347	353	284	-	-	-	-	-	-	-

Table 66: Road Fatalities per Remoteness Area in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

NSW		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Holiday Period	Easter Period	10	3	7	3	10	1	-9	-90%	4	74%	-6	-85%
	Christmas Period	11	6	13	18	12	10	-2	-17%	0	0%	-2	-17%

Table 67: Road Fatalities by Holiday period in New South Wales (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Fatalities	Total Fatal Crashes	219	238	228	224	197	251	54	27%	-30	-13%	30	13%
	Total Fatalities	243	251	247	245	220	278	58	26%	-27	-11%	37	15%

Table 68: Road Fatalities and Fatal Crashes in Queensland (Department of Transport and Main Roads 2021)

Queensland		2015	2016	2017	2018	2019	2020	2015-2019 Average	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Month of the Year	January	16	25	23	16	15	10	19	-5	-33%	-5	-25%	-9	-47%
	February	10	16	18	19	10	15	14.6	5	50%	-6	-37%	0	3%
	March	21	15	14	29	23	23	20.4	0	0%	3	16%	3	13%
	April	29	21	12	16	14	20	18.4	6	43%	-6	-28%	2	9%
	May	22	21	24	14	22	22	20.6	0	0%	2	9%	1	7%
	June	19	20	27	23	15	27	20.8	12	80%	-7	-33%	6	30%
	July	24	28	23	29	19	25	24.6	6	32%	-7	-27%	0	2%
	August	18	17	17	26	23	27	20.2	4	17%	4	18%	7	34%
	Septembe	21	18	29	20	22	25	22	3	14%	0	0%	3	14%
	October	26	20	22	11	25	30	20.8	5	20%	5	27%	9	44%
	Novembe	24	20	14	18	15	24	18.2	9	60%	-4	-21%	6	32%
	Decembe	13	30	24	24	16	30	21.4	14	88%	-7	-30%	9	40%
Total		243	251	247	245	219	278	-	-	-	-	-	-	-

Table 69: Road Fatalities by Month of the Year in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

QLD		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Day of the Week	Monday	24	30	35	46	27	37	13%	10	37%	-7	-20%	5	14%
	Tuesday	31	27	32	36	33	31	11%	-2	-6%	2	5%	-1	-3%
	Wednesday	28	31	31	18	23	28	10%	5	22%	-4	-15%	2	7%
	Thursday	31	30	27	28	27	33	12%	6	22%	-2	-7%	4	15%
	Friday	44	44	33	35	37	49	17%	12	32%	-2	-5%	10	27%
	Saturday	50	47	45	37	37	38	13%	1	3%	-8	-17%	-5	-12%
	Sunday	34	40	43	45	35	62	22%	27	77%	-6	-14%	23	57%
Total		242	249	246	245	219	278	-	-	-	-	-	-	-

Table 70: Road Fatalities by Day of the Week in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

QLD		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Road User	Driver	117	105	100	121	112	134	47%	22	20%	1	1%	23	21%
	Passenger	46	38	52	41	37	49	17%	12	32%	-7	-16%	6	14%
	Motorcycle Rider	53	62	48	43	44	49	17%	5	11%	-8	-15%	-1	-2%
	Motorcycle Pillion Passenger	1	0	2	0	1	5	2%	4	400%	0	33%	4	525%
	Pedestrian	21	37	35	35	18	34	12%	16	89%	-14	-44%	5	16%
	Pedal Cyclist	4	7	8	5	6	7	2%	1	17%	0	0%	1	17%
	Other	0	0	1	0	1	0	0%	-	-	-	-	-	-
Total		242	249	246	245	219	278	-	-	-	-	-	-	-

Table 71: Road Fatalities by Road User in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

QLD		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Gender	Male	186	198	173	183	174	202	71%	28	16%	-11	-6%	19	11%
	Female	56	50	73	61	45	76	27%	31	69%	-15	-25%	19	33%
	Other	0	1	0	1	0	0	-	-	-	-	-	-	-
Total		242	249	246	245	219	278	-	-	-	-	-	-	-

Table 72: Road Fatalities per Gender in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

QLD		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Age	0_to_16	14	9	10	11	10	13	5%	3	30%	-1	-9%	2	20%
	17_to_25	54	48	52	62	45	59	21%	14	31%	-9	-17%	7	13%
	26_to_39	61	62	51	56	54	70	25%	16	30%	-4	-6%	13	23%
	40_to_64	64	79	66	65	67	81	29%	14	21%	-2	-2%	13	19%
	65_to_74	25	18	28	26	15	23	8%	8	53%	-9	-38%	1	3%
	75_or_older	24	33	39	24	28	31	11%	3	11%	-2	-7%	1	5%
	Other	0	0	0	1	0	1	0%	-	-	-	-	-	-
Total		242	249	246	245	219	278	-	-	-	-	-	-	-

Table 73: Road Fatalities by Age in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

QLD		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	27	27	33	21	28	28	10%	0	0%	1	4%	1	3%
	4:00AM to 7:59AM	20	33	25	44	29	23	8%	-6	-21%	-2	-5%	-7	-24%
	8:00AM to 11:59AM	49	38	62	41	41	36	13%	-5	-12%	-7	-14%	-10	-22%
	12:00PM to 3:59PM	61	61	41	53	50	73	26%	23	46%	-4	-7%	20	37%
	4:00PM to 7:59PM	57	56	52	55	47	76	27%	29	62%	-8	-15%	23	42%
	8:00PM to 11:59PM	28	34	33	31	24	41	14%	17	71%	-8	-24%	11	37%
Total		242	249	246	245	219	277	-	-	-	-	-	-	-

Table 74: Road Fatalities by Time of Day in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

QLD		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Posted Speed Limit	Less than 40km/hr	5	2	6	2	1	2	1%	1	100%	-3	-73%	-1	-38%
	41 to 59km/hr	16	13	28	19	11	24	8%	13	118%	-8	-42%	7	38%
	60 to 79km/hr	71	77	70	64	52	75	26%	23	44%	-19	-26%	8	12%
	80 to 99km/hr	40	38	46	40	37	61	21%	24	65%	-4	-10%	21	52%
	100 to 109km/hr	100	111	86	113	111	108	38%	-3	-3%	9	8%	4	4%
	More than 110km/hr	7	8	10	7	7	8	3%	1	14%	-1	-13%	0	3%
	Other	3	0	0	0	0	0	0%	-	-	-	-	-	-
Total		242	249	246	245	219	278	-	-	-	-	-	-	-

Table 75: Road Fatalities by Posted Speed Limit in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

QLD		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Crash Type	Single	130	139	136	133	123	156	55%	33	27%	-12	-9%	24	18%
	Multiple	112	110	110	112	96	122	43%	26	27%	-15	-14%	14	13%
Total		242	249	246	245	219	278	-	-	-	-	-	-	-

Table 76: Road Fatalities by Crash Type in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

QLD		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Geographical Location	Major Cities of Australia	56	48	68	93	59	109	38%	50	85%	-7	-11%	44	68%
	Inner Regional Australia	73	47	87	75	71	75	26%	4	6%	1	1%	4	6%
	Outer Regional Australia	56	38	37	47	58	65	23%	7	12%	14	30%	18	38%
	Remote Australia	8	5	5	8	11	14	5%	3	27%	5	69%	7	89%
	Very Remote Australia	11	15	8	16	16	12	4%	-4	-25%	4	28%	-1	-9%
	Other	38	96	41	6	4	3	1%	-	-	-	-	-	-
Total		242	249	246	245	219	278	-	-	-	-	-	-	-

Table 77: Road Fatalities by Remoteness Area in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

QLD		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Holiday Period	Easter Period	4	0	0	5	2	3	1	50%	0	-11%	1	36%
	Christmas Period	6	8	14	7	3	13	10	333%	-6	-66%	5	71%

Table 78: Road Fatalities in Holiday Periods in Queensland (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Fatalities	Involving Speeding Drivers/Riders	62	64	52	51	51	69	18	35%	-6	-11%	13	23%
	Involving Drink Drivers/Riders	57	46	63	43	46	62	16	35%	-6	-12%	11	22%
	Involving Distracted/Inattentive Drivers/Riders	27	28	38	33	21	23	2	10%	-11	-33%	-6	-22%
	Involving Fatigued Drivers/Riders	28	33	23	30	30	34	4	13%	2	5%	5	18%

Table 79: Road Fatalities by Road User Behaviour in Queensland (Department of Transport and Main Roads 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Fatalities	Involving Learner Drivers/Riders	3	4	9	7	9	10	1	11%	3	57%	4	56%
	Involving Provisional/P1/P2 Drivers/Riders	28	37	30	37	43	34	-9	-21%	10	30%	-1	-3%
	Involving Unlicensed Drivers/Riders	30	24	20	26	24	37	13	54%	-1	-4%	12	49%

Table 80: Road Fatalities by Licence Type in Queensland (Department of Transport and Main Roads 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Fatalities	Total Fatal Crashes	231	275	240	202	248	195	-53	-21%	11	5%	-44	-18%
	Total Fatalities	252	290	259	213	266	211	-55	-21%	13	5%	-45	-18%

Table 81: Road Fatalities and Fatal Crashes in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

Victoria		2015	2016	2017	2018	2019	2020	2015-2019 Average	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Month of the Year	January	24	21	17	20	22	23	20.8	1	5%	2	7%	2	11%
	February	20	33	18	15	33	18	23.8	-15	-45%	12	53%	-6	-24%
	March	22	25	22	21	20	26	22	6	30%	-3	-11%	4	18%
	April	22	16	28	9	24	17	19.8	-7	-29%	5	28%	-3	-14%
	May	21	26	21	23	33	15	24.8	-18	-55%	10	45%	-10	-40%
	June	22	23	15	12	18	16	18	-2	-11%	0	0%	-2	-11%
	July	18	26	21	15	17	15	19.4	-2	-12%	-3	-15%	-4	-23%
	August	26	31	26	18	16	14	23.4	-2	-13%	-9	-37%	-9	-40%
	September	14	17	18	19	18	14	17.2	-4	-22%	1	6%	-3	-19%
	October	27	22	12	21	26	22	21.6	-4	-15%	6	27%	0	2%
	November	17	25	32	23	18	15	23	-3	-17%	-6	-26%	-8	-35%
	December	19	25	29	17	21	16	22.2	-5	-24%	-2	-7%	-6	-28%
Total		252	290	259	213	266	211	-	-	-	-	-	-	-

Table 82: Road Fatalities per Month of the Year in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

VIC		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Day of the Week	Monday	37	48	29	33	43	31	11%	-12	-28%	6	17%	-7	-18%
	Tuesday	26	42	31	24	20	28	10%	8	40%	-11	-35%	-1	-2%
	Wednesday	37	45	32	33	29	35	12%	6	21%	-8	-21%	0	-1%
	Thursday	39	33	31	21	45	31	11%	-14	-31%	14	45%	-3	-8%
	Friday	33	47	53	29	42	27	10%	-15	-36%	2	4%	-14	-34%
	Saturday	45	44	32	42	38	40	14%	2	5%	-3	-7%	0	0%
	Sunday	33	31	50	31	49	19	7%	-30	-61%	13	35%	-20	-51%
Total		250	290	258	213	266	211	-	-	-	-	-	-	-

Table 83: Road Fatalities per Day of the Week in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

VIC		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2018		Variation in 2018 from the 2015 to 2017 Average		Variation in 2020 from the 2015 to 2018 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	24	26	23	21	232	16	6%	-5	-24%	-3	-14%	-8	-32%
	4:00AM to 7:59AM	36	40	29	19	1	26	9%	7	37%	-16	-46%	-5	-16%
	8:00AM to 11:59AM	42	44	43	43	0	49	17%	6	14%	0	0%	6	14%
	12:00PM to 3:59PM	54	72	68	52	1	42	15%	-10	-19%	-13	-20%	-20	-32%
	4:00PM to 7:59PM	61	58	66	42	0	45	16%	3	7%	-20	-32%	-12	-21%
	8:00PM to 11:59PM	33	50	29	36	32	33	12%	-3	-8%	-1	-4%	-4	-11%
Total		250	290	258	213	266	211	-	-	-	-	-	-	-

Table 84: Road Fatalities per Time of Day in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

VIC		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Road User	Driver	120	150	128	98	113	104	37%	-9	-8%	-11	-9%	-18	-15%
	Passenger	57	36	45	32	48	30	11%	-18	-38%	6	13%	-14	-31%
	Motorcycle Rider	29	55	37	37	43	32	11%	-11	-26%	4	9%	-8	-20%
	Motorcycle Pillion Passenger	1	1	1	1	0	0	0%	0	0%	-1	-100%	-1	-100%
	Pedestrian	33	40	30	37	49	29	10%	-20	-41%	14	40%	-9	-23%
	Pedal Cyclist	10	8	12	7	11	13	5%	2	18%	2	19%	3	35%
	Other	0	0	5	1	2	3	1%	-	-	-	-	-	-
Total		250	290	258	213	266	211	-	-	-	-	-	-	-

Table 85: Road Fatalities per Road User in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

VIC		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Gender	Male	178	207	190	154	198	156	55%	-42	-21%	16	9%	-29	-16%
	Female	72	83	68	59	68	51	18%	-17	-25%	-3	-4%	-19	-27%
	Other	0	0	0	0	0	4	1%	-	-	-	-	-	-
Total		250	290	258	213	266	211	-	-	-	-	-	-	-

Table 86: Road Fatalities per Gender in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

VIC		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Age	0_to_16	16	8	10	6	9	6	2%	-3	-33%	-1	-10%	-4	-39%
	17_to_25	47	55	49	41	59	32	11%	-27	-46%	11	23%	-18	-36%
	26_to_39	65	64	49	44	59	51	18%	-8	-14%	4	6%	-5	-9%
	40_to_64	70	109	79	76	77	75	26%	-2	-3%	-7	-8%	-7	-9%
	65_to_74	18	23	24	19	19	15	5%	-4	-21%	-2	-10%	-6	-27%
	75_or_older	33	31	47	26	43	30	11%	-13	-30%	9	26%	-6	-17%
	Other	1	0	0	1	0	2	1%	-	-	-	-	-	-
Total		250	290	258	213	266	211	-	-	-	-	-	-	-

Table 87: Road Fatalities per Age in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

VIC		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Posted Speed Limit	Less than 40km/hr	6	1	7	7	3	5	2%	2	67%	-2	-43%	0	4%
	41 to 59km/hr	21	23	19	17	33	25	9%	-8	-24%	13	65%	2	11%
	60 to 79km/hr	53	85	63	43	62	55	19%	-7	-11%	1	2%	-6	-10%
	80 to 99km/hr	41	50	31	57	49	26	9%	-23	-47%	4	9%	-20	-43%
	100 to 109km/hr	117	116	123	80	104	92	32%	-12	-12%	-5	-5%	-16	-15%
	More than 110km/hr	9	12	9	4	8	7	2%	-1	-13%	-1	-6%	-1	-17%
	Other	3	3	6	5	7	1	0%	-	-	-	-	-	-
Total		250	290	258	213	266	211	-	-	-	-	-	-	-

Table 88: Road Fatalities per Posted Speed Limit in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

VIC		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Crash Type	Single	133	167	143	133	147	117	41%	-30	-20%	3	2%	-28	-19%
	Multiple	117	123	115	80	119	94	33%	-25	-21%	10	9%	-17	-15%
Total		250	290	258	213	266	211	-	-	-	-	-	-	-

Table 89: Road Fatalities per Crash Type in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

VIC		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Geographical Location	Major Cities of Australia	65	59	65	83	120	69	24%	-51	-43%	52	76%	-9	-12%
	Inner Regional Australia	60	47	82	55	91	70	25%	-21	-23%	30	49%	3	4%
	Outer Regional Australia	40	41	35	52	45	45	16%	0	0%	3	7%	2	6%
	Remote Australia	12	11	9	7	6	11	4%	5	83%	-4	-38%	2	22%
	Very Remote Australia	11	16	5	12	4	14	5%	10	250%	-7	-64%	4	46%
	Other	62	116	62	4	0	2	1%	-	-	-	-	-	-
Total		250	290	258	213	266	211	-	-	-	-	-	-	-

Table 90: Road Fatalities per Remoteness Area in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

VIC		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Holiday Period	Easter Period	6	1	3	3	2	2	0	0%	-1	-38%	-1	-33%
	Christmas Period	6	11	9	8	5	6	1	20%	-4	-41%	-2	-23%

Table 91: Road Fatalities by Holiday Period in Victoria (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Fatalities	Total Fatal Crashes	96	77	93	75	110	85	-25	-23%	25	29%	-5	-6%
	Total Fatalities	102	86	100	80	114	93	-21	-18%	22	24%	-3	-4%

Table 92: Road Fatalities and Fatal Crashes in South Australia (Department for Infrastructure and Transport n.d.)

South Australia		2015	2016	2017	2018	2019	2020	2015-2019 Average	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Month of the Year	January	13	7	5	5	14	8	8.8	-6	-43%	7	87%	-1	-9%
	February	4	4	4	3	3	8	3.6	5	167%	-1	-20%	4	122%
	March	3	8	8	11	13	14	8.6	1	8%	6	73%	5	63%
	April	9	10	8	7	11	7	9	-4	-36%	3	29%	-2	-22%
	May	8	7	5	7	12	7	7.8	-5	-42%	5	78%	-1	-10%
	June	11	7	9	5	8	2	8	-6	-75%	0	0%	-6	-75%
	July	4	4	11	4	8	10	6.2	2	25%	2	39%	4	61%
	August	11	6	15	3	8	5	8.6	-3	-38%	-1	-9%	-4	-42%
	September	7	7	6	10	3	3	6.6	0	0%	-5	-60%	-4	-55%
	October	19	10	9	4	8	7	10	-1	-13%	-3	-24%	-3	-30%
	November	8	10	11	12	13	14	10.8	1	8%	3	27%	3	30%
	December	5	6	9	9	13	8	8.4	-5	-38%	6	79%	0	-5%
Total		102	86	100	80	114	93	-	-	-	-	-	-	-

Table 93: Road Fatalities per Month of the Year in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

SA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Day of the Week	Monday	15	11	13	15	13	5	2%	-8	-62%	-1	-4%	-8	-63%
	Tuesday	15	14	14	10	12	14	5%	2	17%	-1	-9%	1	8%
	Wednesday	8	10	19	10	16	11	4%	-5	-31%	4	36%	-2	-13%
	Thursday	15	8	13	8	16	12	4%	-4	-25%	5	45%	0	0%
	Friday	17	9	15	9	19	12	4%	-7	-37%	7	52%	-2	-13%
	Saturday	14	19	11	14	27	24	8%	-3	-11%	13	86%	7	41%
	Sunday	18	15	15	14	11	15	5%	4	36%	-5	-29%	0	3%
Total		102	86	100	80	114	93	-	-	-	-	-	-	-

Table 94: Road Fatalities per Day of the Week in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

SA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	8	8	10	7	13	6	2%	-7	-54%	5	58%	-3	-35%
	4:00AM to 7:59AM	10	14	11	12	14	12	4%	-2	-14%	2	19%	0	-2%
	8:00AM to 11:59AM	19	17	11	17	27	20	7%	-7	-26%	11	69%	2	10%
	12:00PM to 3:59PM	32	20	26	18	32	29	10%	-3	-9%	8	33%	3	13%
	4:00PM to 7:59PM	25	14	24	18	20	12	4%	-8	-40%	0	-1%	-8	-41%
	8:00PM to 11:59PM	8	13	18	8	8	13	5%	5	63%	-4	-32%	2	18%
Total		102	86	100	80	114	92	-	-	-	-	-	-	-

Table 95: Road Fatalities per Time of the Day in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

SA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Road User	Driver	52	41	46	41	60	47	17%	-13	-22%	15	33%	-1	-2%
	Passenger	17	23	11	16	9	17	6%	8	89%	-8	-46%	2	12%
	Motorcycle Rider	11	8	24	10	17	19	7%	2	12%	4	28%	5	36%
	Motorcycle Pillion Passenger	0	0	0	0	0	0	0%	0	0%	0	0%	0	0%
	Pedestrian	18	9	17	6	21	8	3%	-13	-62%	9	68%	-6	-44%
	Pedal Cyclist	4	5	2	7	7	2	1%	-5	-71%	3	56%	-3	-60%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		102	86	100	80	114	93	-	-	-	-	-	-	-

Table 96: Road Fatalities per Road User in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

SA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Gender	Male	69	64	77	57	89	64	23%	-25	-28%	22	33%	-7	-10%
	Female	33	22	23	23	25	29	10%	4	16%	0	-1%	4	15%
	Other	0	0	0	0	0	0	0%	0	0%	0	0%	0	0%
Total		102	86	100	80	114	93	-	-	-	-	-	-	-

Table 97: Road Fatalities per Gender in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

SA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Age	0_to_16	3	2	2	2	6	7	2%	1	17%	4	167%	4	133%
	17_to_25	12	24	15	19	19	21	7%	2	11%	2	9%	3	18%
	26_to_39	27	17	23	12	25	26	9%	1	4%	5	27%	5	25%
	40_to_64	31	28	35	21	34	15	5%	-19	-56%	5	18%	-15	-50%
	65_to_74	13	5	14	15	12	10	4%	-2	-17%	0	2%	-2	-15%
	75_or_older	16	10	11	11	18	14	5%	-4	-22%	6	50%	1	6%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		102	86	100	80	114	93	-	-	-	-	-	-	-

Table 98: Road Fatalities per Age in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

SA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Posted Speed Limit	Less than 40km/hr	2	1	8	3	6	1	0%	-5	-83%	3	71%	-3	-75%
	41 to 59km/hr	11	13	15	5	12	9	3%	-3	-25%	1	9%	-2	-20%
	60 to 79km/hr	25	10	22	16	22	15	5%	-7	-32%	4	21%	-4	-21%
	80 to 99km/hr	12	22	16	5	12	20	7%	8	67%	-2	-13%	7	49%
	100 to 109km/hr	20	18	19	23	22	27	10%	5	23%	2	10%	7	32%
	More than 110km/hr	32	22	20	28	40	21	7%	-19	-48%	15	57%	-7	-26%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		102	86	100	80	114	93	-	-	-	-	-	-	-

Table 99: Road Fatalities per Posted Speed Limit in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

SA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Crash Type	Single	61	47	50	50	65	49	17%	-16	-25%	13	25%	-6	-10%
	Multiple	41	39	50	30	49	44	15%	-5	-10%	9	23%	2	5%
Total		102	86	100	80	114	93	-	-	-	-	-	-	-

Table 100: Road Fatalities per Crash Type in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

SA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Geographical Location	Major Cities of Australia	22	23	28	28	42	25	9%	-17	-40%	17	66%	-4	-13%
	Inner Regional Australia	27	11	27	22	35	34	12%	-1	-3%	13	61%	10	39%
	Outer Regional Australia	22	18	19	22	30	30	11%	0	0%	10	48%	8	35%
	Remote Australia	6	1	3	1	7	1	0%	-6	-86%	4	155%	-3	-72%
	Very Remote Australia	4	3	3	5	0	3	1%	3	30%	-4	-100%	0	0%
	Other	21	30	20	2	0	0	0%	-	-	-	-	-	-
Total		102	86	100	80	114	93	-	-	-	-	-	-	-

Table 101: Road Fatalities per Remoteness Area in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

SA		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Holiday Period	Easter Period	1	0	0	0	2	0	-2	-100%	2	700%	-1	-100%
	Christmas Period	1	0	1	3	5	1	-4	-80%	4	300%	-1	-50%

Table 102: Road Fatalities by Holiday Periods in South Australia (Bureau of Infrastructure and Transport Research Economics 2023)

Nothern Territory		2015	2016	2017	2018	2019	2020	2015-2019 Average	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Month of the Year	January	1	3	3	3	5	1	3	-4	-80%	3	100%	-2	-67%
	February	3	3	3	3	1	4	2.6	3	300%	-2	-67%	1	54%
	March	4	3	2	9	1	1	3.8	0	0%	-4	-78%	-3	-74%
	April	2	4	3	3	3	1	3	-2	-67%	0	0%	-2	-67%
	May	5	4	1	5	3	1	3.6	-2	-67%	-1	-20%	-3	-72%
	June	8	1	5	5	2	3	4.2	1	50%	-3	-58%	-1	-29%
	July	4	5	3	3	4	4	3.8	0	0%	0	7%	0	5%
	August	7	6	0	3	3	5	3.8	2	67%	-1	-25%	1	32%
	September	3	0	2	2	1	0	1.6	-1	-100%	-1	-43%	-2	-100%
	October	4	7	4	8	1	3	4.8	2	200%	-5	-83%	-2	-38%
	November	1	5	1	3	0	3	2	3	#DIV/0!	-3	-100%	1	50%
	December	7	4	4	3	12	5	6	-7	-58%	8	167%	-1	-17%
Total		49	45	31	50	36	31	-	-	-	-	-	-	-

Table 103: Road Fatalities per Month of the Year in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

NT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Day of the Week	Monday	6	2	0	5	8	2	1%	-6	-75%	5	146%	-2	-52%
	Tuesday	5	3	3	4	6	2	1%	-4	-67%	2	60%	-2	-52%
	Wednesday	7	6	3	6	6	4	1%	-2	-33%	1	9%	-2	-29%
	Thursday	10	9	5	10	7	6	2%	-1	-14%	-2	-18%	-2	-27%
	Friday	4	11	6	7	5	5	2%	0	0%	-2	-29%	-2	-24%
	Saturday	12	12	7	8	3	7	2%	4	133%	-7	-69%	-1	-17%
	Sunday	5	2	7	10	1	5	2%	4	400%	-5	-83%	0	0%
Total		49	45	31	50	36	31	-	-	-	-	-	-	-

Table 104: Road Fatalities per Day of the Week in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

NT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	11	4	3	4	5	3	1%	-2	-40%	-1	-9%	-2	-44%
	4:00AM to 7:59AM	8	2	3	5	7	6	2%	-1	-14%	3	56%	1	20%
	8:00AM to 11:59AM	4	0	3	6	5	3	1%	-2	-40%	2	54%	-1	-17%
	12:00PM to 3:59PM	9	12	4	6	7	6	2%	-1	-14%	-1	-10%	-2	-21%
	4:00PM to 7:59PM	9	17	11	14	9	6	2%	-3	0%	-4	-29%	-6	-50%
	8:00PM to 11:59PM	8	10	7	15	3	7	2%	4	100%	-7	-70%	-2	-19%
Total		49	45	31	50	36	31	-	-	-	-	-	-	-

Table 105: Road Fatalities per Time of the Day in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

NT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Road User	Driver	14	19	11	12	16	11	4%	-5	-31%	2	14%	-3	-24%
	Passenger	16	16	8	15	13	12	4%	-1	-8%	-1	-5%	-2	-12%
	Motorcycle Rider	6	4	3	8	3	3	1%	0	0%	-2	-43%	-2	-38%
	Motorcycle Pillion Passenger	0	0	0	0	0	0	0%	0	0%	0	0%	0	0%
	Pedestrian	11	6	9	11	4	3	1%	-1	-25%	-5	-57%	-5	-63%
	Pedal Cyclist	0	0	0	0	0	1	0%	1	0%	0	0%	1	0%
	Other	2	0	0	4	0	1	0%	-	-	-	-	-	-
Total		49	45	31	50	36	31	-	-	-	-	-	-	-

Table 106: Road Fatalities per Road User in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

NT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Gender	Male	35	34	24	29	28	21	7%	-7	-25%	-3	-8%	-9	-30%
	Female	14	11	7	21	8	10	4%	2	25%	-5	-40%	-2	-18%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		49	45	31	50	36	31	-	-	-	-	-	-	-

Table 107: Road Fatalities per Gender in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

NT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Age	0_to_16	2	2	1	1	2	1	0%	-1	-50%	1	33%	-1	-38%
	17_to_25	9	12	6	14	10	7	2%	-3	-30%	0	-2%	-3	-31%
	26_to_39	9	10	8	10	10	12	4%	2	20%	1	8%	3	28%
	40_to_64	21	17	6	14	10	4	1%	-6	-60%	-5	-31%	-10	-71%
	65_to_74	4	1	5	7	3	1	0%	-2	-67%	-1	-29%	-3	-75%
	75_or_older	4	3	5	4	1	6	2%	5	500%	-3	-75%	3	76%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		49	45	31	50	36	31	-	-	-	-	-	-	-

Table 108: Road Fatalities per Age in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

NT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Posted Speed Limit	Less than 40km/hr	1	2	1	0	0	0	0%	0	0%	-1	-100%	-1	-100%
	41 to 59km/hr	0	1	1	2	2	1	0%	-1	-50%	1	100%	0	-17%
	60 to 79km/hr	12	5	3	10	5	7	2%	2	40%	-3	-33%	0	0%
	80 to 99km/hr	9	3	9	3	7	4	1%	-3	-43%	1	17%	-2	-35%
	100 to 109km/hr	9	6	5	6	7	7	2%	0	0%	1	8%	0	6%
	More than 110km/hr	18	26	12	29	15	12	4%	-3	-20%	-6	-29%	-8	-40%
	Other	0	2	0	0	0	0	0%	-	-	-	-	-	-
Total		49	45	31	50	36	31	-	-	-	-	-	-	-

Table 109: Road Fatalities per Posted Speed Limit in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

NT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Crash Type	Single	30	24	15	37	22	18	6%	-4	-18%	-5	-17%	-8	-30%
	Multiple	19	21	16	13	14	13	5%	-1	-7%	-3	-19%	-4	-22%
Total		49	45	31	50	36	31	-	-	-	-	-	-	-

Table 110: Road Fatalities per Crash Type in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

NT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Geographical Location	Major Cities of Australia	17	7	12	22	10	13	5%	3	30%	-5	-31%	-1	-4%
	Inner Regional Australia	8	8	7	16	10	11	4%	1	10%	0	3%	1	12%
	Outer Regional Australia	8	4	7	7	9	4	1%	-5	-56%	3	38%	-3	-43%
	Remote Australia	2	0	0	1	6	1	0%	-5	-83%	5	700%	-1	-44%
	Very Remote Australia	2	3	0	3	1	2	1%	1	0%	-1	-50%	0	11%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		37	22	26	49	36	31	-	-	-	-	-	-	-

Table 111: Road Fatalities per Remoteness Area in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

NT		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Holiday Period	Easter Period	0	0	0	0	1	0	-1	-100%	1	100%	0	-100%
	Christmas Period	2	1	1	3	3	0	-3	-100%	1	71%	-2	-100%

Table 112: Road Fatalities during Holiday Periods in the Northern Territory (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Fatalities	Involving Drink Drivers/Riders	20	25	12	23	24	18	-6	-25%	4	20%	-3	-13%
	Involving Speeding Drivers/Riders	15	8	13	13	14	8	-6	-43%	2	14%	-5	-37%
	Involving Fatigued Drivers/Riders	2	7	1	2	3	1	-2	-67%	0	0%	-2	-67%
	Involving Seatbelts Not Worn	12	13	9	8	6	8	2	33%	-5	-43%	-2	-17%

Table 113: Road Fatalities per Road User Behaviour in the Northern Territory (Department of Infrastructure, Planning and Logistics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Fatalities	Total Fatal Crashes	14	11	5	9	6	6	0	0%	-4	-38%	-3	-33%
	Total Fatalities	15	11	5	9	6	7	1	17%	-4	-40%	-2	-24%

Table 114: Road Fatalities and Fatal Crashes in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

Australian Capital Territory		2015	2016	2017	2018	2019	2020	-2019 Ave	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Month of the Year	January	1	0	1	1	1	0	0.8	-1	-100%	0	33%	-1	-100%
	February	0	0	1	2	0	0	0.6	0	0%	-1	-100%	-1	-100%
	March	0	1	1	0	0	0	0.4	0	0%	-1	-100%	0	-100%
	April	1	0	0	1	0	2	0.4	2	0%	-1	-100%	2	400%
	May	2	2	1	2	0	0	1.4	0	0%	-2	-100%	-1	-100%
	June	2	0	0	0	2	0	0.8	-2	-100%	2	300%	-1	-100%
	July	2	2	0	1	0	1	1	1	0%	-1	-100%	0	0%
	August	0	0	0	0	0	0	0	0	0%	0	0%	0	0%
	September	2	2	0	1	1	2	1.2	1	100%	0	-20%	1	67%
	October	0	2	0	1	1	1	0.8	0	0%	0	33%	0	25%
	November	1	1	1	0	0	0	0.6	0	0%	-1	-100%	-1	-100%
	December	4	0	0	0	1	1	1	0	0%	0	0%	0	0%
Total		15	10	5	9	6	7	-	-	-	-	-	-	-

Table 115: Road Fatalities per Month of the Year in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

ACT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Day of the Week	Monday	1	1	1	1	2	1	0%	-1	-50%	1	100%	0	-17%
	Tuesday	1	0	0	1	1	1	0%	0	0%	1	100%	0	67%
	Wednesday	3	3	2	0	1	0	0%	-1	-100%	-1	-50%	-2	-100%
	Thursday	5	1	1	1	0	0	0%	0	0%	-2	-100%	-2	-100%
	Friday	2	1	1	2	1	0	0%	-1	-100%	-1	-33%	-1	-100%
	Saturday	2	2	0	3	1	3	1%	2	200%	-1	-43%	1	88%
	Sunday	1	2	0	1	0	2	1%	2	0%	-1	-100%	1	150%
Total		15	10	5	9	6	7	-	-	-	-	-	-	-

Table 116: Road Fatalities per Day of the Week in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

ACT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	2	1	0	0	1	1	0%	0	0%	0	33%	0	25%
	4:00AM to 7:59AM	1	3	1	1	1	1	0%	0	0%	-1	-33%	0	-29%
	8:00AM to 11:59AM	3	1	2	2	2	2	1%	0	0%	0	0%	0	0%
	12:00PM to 3:59PM	2	1	1	0	1	2	1%	1	100%	0	0%	1	100%
	4:00PM to 7:59PM	7	4	0	5	1	1	0%	0	0%	-3	-75%	-2	-71%
	8:00PM to 11:59PM	0	0	1	1	0	0	0%	0	#DIV/0!	-1	-100%	0	-100%
Total		15	10	5	9	6	7	-	-	-	-	-	-	-

Table 117: Road Fatalities per Time of the Day in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

ACT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Road User	Driver	8	6	2	2	4	3	1%	-1	-25%	-1	-11%	-1	-32%
	Passenger	2	0	1	2	0	4	1%	4	400%	-1	-100%	3	300%
	Motorcycle Rider	4	3	1	2	0	0	0%	0	0%	-3	-100%	-2	-100%
	Motorcycle Pillion Passenger	0	0	0	0	0	0	0%	0	0%	0	0%	0	0%
	Pedestrian	0	1	0	2	2	0	0%	-2	-100%	1	167%	-1	-100%
	Pedal Cyclist	1	0	1	1	0	0	0%	0	0%	-1	-100%	-1	-100%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		15	10	5	9	6	7	-	-	-	-	-	-	-

Table 118: Road Fatalities per Road User in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

ACT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Gender	Male	12	7	5	7	5	5	2%	0	0%	-3	-35%	-2	-31%
	Female	3	3	0	2	1	2	1%	1	100%	-1	-50%	0	11%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		15	10	5	9	6	7	-	-	-	-	-	-	-

Table 119: Road Fatalities per Gender in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

ACT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Age	0_to_16	1	1	0	1	0	0	0%	0	0%	-1	-100%	-1	-100%
	17_to_25	3	2	2	2	1	0	0%	-1	-100%	-1	-56%	-2	-100%
	26_to_39	5	3	1	2	1	3	1%	2	200%	-2	-64%	1	25%
	40_to_64	3	2	1	3	3	3	1%	0	0%	1	33%	1	25%
	65_to_74	1	0	0	0	0	1	0%	1	0%	0	-100%	1	400%
	75_or_older	2	2	1	1	1	0	0%	-1	-100%	-1	-33%	-1	-100%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		15	10	5	9	6	7	-	-	-	-	-	-	-

Table 120: Road Fatalities per Age in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

ACT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Posted Speed Limit	Less than 40km/hr	0	1	0	0	1	0	0%	-1	-100%	1	300%	0	-100%
	41 to 59km/hr	0	1	0	1	1	1	0%	0	0%	1	100%	0	67%
	60 to 79km/hr	6	2	1	3	2	1	0%	-1	-50%	-1	-33%	-2	-64%
	80 to 99km/hr	7	2	1	3	1	3	1%	2	200%	-2	-69%	0	7%
	100 to 109km/hr	2	4	2	2	1	1	0%	0	0%	-2	-60%	-1	-55%
	More than 110km/hr	0	0	0	0	0	0	0%	0	0%	0	0%	0	0%
	Other	0	0	1	0	0	1	0%	-	-	-	-	-	-
Total		15	10	5	9	6	7	-	-	-	-	-	-	-

Table 121: Road Fatalities per Posted Speed Limit in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

ACT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Crash Type	Single	6	7	1	5	1	4	1%	3	300%	-4	-79%	0	0%
	Multiple	9	3	4	4	5	3	1%	-2	-40%	0	0%	-2	-40%
Total		15	10	5	9	6	7	-	-	-	-	-	-	-

Table 122: Road Fatalities per Crash Type in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

ACT		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Geographical Location	Major Cities of Australia	4	0	3	2	4	3	1%	-1	-25%	2	78%	0	15%
	Inner Regional Australia	2	4	0	1	1	2	1%	1	100%	-1	-43%	0	25%
	Outer Regional Australia	6	3	2	5	1	2	1%	1	100%	-3	-75%	-1	-41%
	Remote Australia	0	0	0	0	0	0	0%	0	0%	0	0%	0	0%
	Very Remote Australia	0	0	0	1	0	0	0%	0	0%	0	0%	0	0%
	Other	3	3	0	0	0	0	0%	-	-	-	-	-	-
Total		15	10	5	9	6	7	-	-	-	-	-	-	-

Table 123: Road Fatalities per Remoteness Area in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

ACT		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Holiday Period	Easter Period	0	1	0	0	0	0	0	0%	0	-100%	0	-100%
	Christmas Period	2	0	1	0	0	0	0	0%	-1	-100%	-1	-100%

Table 124: Road Fatalities during the Holiday Period in the Australian Capital Territory (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Safety Device	Involving Seatbelts Not Worn	4	1	0	2	0	1	1	100%	-2	-100%	0	-29%
	Involving Helmet Not Worn	0	0	0	0	0	0	0	0%	0	0%	0	0%

Table 125: Road Fatalities per Safety Restriants in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

Western Australia		2015	2016	2017	2018	2019	2020	2015-2019 Average	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Month of the Year	January	10	19	16	13	20	11	15.6	-9	-45%	6	38%	-5	-29%
	February	14	12	7	10	13	12	11.2	-1	-8%	2	21%	1	7%
	March	19	22	15	15	11	11	16.4	0	0%	-7	-38%	-5	-33%
	April	14	11	19	20	15	9	15.8	-6	-40%	-1	-6%	-7	-43%
	May	10	14	7	12	14	15	11.4	1	7%	3	30%	4	32%
	June	12	10	12	11	19	12	12.8	-7	-37%	8	69%	-1	-6%
	July	5	19	11	11	10	14	11.2	4	40%	-2	-13%	3	25%
	August	21	17	11	14	16	13	15.8	-3	-19%	0	2%	-3	-18%
	September	15	12	13	15	11	10	13.2	-1	-9%	-3	-20%	-3	-24%
	October	12	21	16	8	9	18	13.2	9	100%	-5	-37%	5	36%
	November	12	17	12	15	10	19	13.2	9	90%	-4	-29%	6	44%
	December	17	21	21	15	15	11	17.8	-4	-27%	-4	-19%	-7	-38%
Total		161	195	160	159	163	155	-	-	-	-	-	-	-

Table 126: Road Fatalities per Month of the Year in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

WA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Day of the Week	Monday	35	16	23	11	14	13	5%	-1	-7%	-7	-34%	-7	-34%
	Tuesday	16	24	20	18	21	16	6%	-5	-24%	2	8%	-4	-19%
	Wednesday	16	27	17	25	24	25	9%	1	4%	3	13%	3	15%
	Thursday	17	24	22	20	26	12	4%	-14	-54%	5	25%	-10	-45%
	Friday	22	30	32	21	27	31	11%	4	15%	1	3%	5	17%
	Saturday	31	38	25	32	28	30	11%	2	7%	-4	-11%	-1	-3%
	Sunday	24	36	20	32	23	28	10%	5	22%	-5	-18%	1	4%
Total		161	195	159	159	163	155	-	-	-	-	-	-	-

Table 127: Road Fatalities per Day of the Week in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

WA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	22	11	14	18	31	18	6%	-13	-42%	15	91%	-1	-6%
	4:00AM to 7:59AM	23	22	22	24	11	20	7%	9	82%	-12	-52%	0	-2%
	8:00AM to 11:59AM	24	32	24	33	31	21	7%	-10	-32%	3	10%	-8	-27%
	12:00PM to 3:59PM	40	42	39	37	36	44	15%	8	22%	-4	-9%	5	13%
	4:00PM to 7:59PM	32	43	48	21	37	32	11%	-5	-14%	1	3%	-4	-12%
	8:00PM to 11:59PM	20	45	12	26	17	19	7%	2	12%	-9	-34%	-5	-21%
Total		161	195	159	159	163	154	-	-	-	-	-	-	-

Table 128: Road Fatalities per Time of the Day in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

WA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Road User	Driver	84	105	74	70	71	79	28%	8	11%	-12	-15%	-2	-2%
	Passenger	24	36	24	34	36	27	10%	-9	-25%	7	22%	-4	-12%
	Motorcycle Rider	27	30	23	27	26	35	12%	9	35%	-1	-3%	8	32%
	Motorcycle Pillion Passenger	1	0	1	0	1	0	0%	-1	-100%	1	100%	-1	-100%
	Pedestrian	21	20	28	25	25	9	3%	-16	-64%	2	6%	-15	-62%
	Pedal Cyclist	4	4	8	2	4	5	2%	1	25%	-1	-11%	1	14%
	Other	0	0	1	1	0	0	0%	-	-	-	-	-	-
Total		161	195	159	159	163	155	-	-	-	-	-	-	-

Table 129: Road Fatalities per Road User in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

WA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Gender	Male	125	147	118	118	122	115	40%	-7	-6%	-5	-4%	-11	-9%
	Female	36	48	41	41	41	39	14%	-2	-5%	-1	-1%	-2	-6%
	Other	0	0	0	0	0	1	0%	-	-	-	-	-	-
Total		161	195	159	159	163	155	-	-	-	-	-	-	-

Table 130: Road Fatalities per Gender in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

WA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Age	0_to_16	8	8	3	7	10	9	3%	-1	-10%	4	54%	2	25%
	17_to_25	38	30	37	24	20	26	9%	6	30%	-12	-38%	-4	-13%
	26_to_39	40	49	33	39	43	45	16%	2	5%	3	7%	4	10%
	40_to_64	42	67	49	47	40	49	17%	9	23%	-11	-22%	0	0%
	65_to_74	14	20	17	22	14	9	3%	-5	-36%	-4	-23%	-8	-48%
	75_or_older	19	21	20	19	36	17	6%	-19	-53%	16	82%	-6	-26%
	Other	0	0	0	1	0	0	0%	-	-	-	-	-	-
Total		161	195	159	159	163	155	-	-	-	-	-	-	-

Table 131: Road Fatalities per Age in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

WA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Posted Speed Limit	Less than 40km/hr	1	0	5	0	3	0	0%	-3	-100%	2	100%	-2	-100%
	41 to 59km/hr	11	19	25	18	17	15	5%	-2	-12%	-1	-7%	-3	-17%
	60 to 79km/hr	37	40	38	38	28	23	8%	-5	-18%	-10	-27%	-13	-36%
	80 to 99km/hr	35	29	22	18	24	32	11%	8	33%	-2	-8%	6	25%
	100 to 109km/hr	11	10	10	9	14	12	4%	-2	-14%	4	40%	1	11%
	More than 110km/hr	65	93	57	74	73	69	24%	-4	-5%	1	1%	-3	-5%
	Other	1	4	2	2	4	4	1%	-	-	-	-	-	-
Total		161	195	159	159	163	155	-	-	-	-	-	-	-

Table 132: Road Fatalities per Posted Speed Limit in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

WA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Crash Type	Single	88	110	89	93	94	78	27%	-16	-17%	-1	-1%	-17	-18%
	Multiple	73	85	70	66	69	77	27%	8	12%	-5	-6%	4	6%
Total		161	195	159	159	163	155	-	-	-	-	-	-	-

Table 133: Road Fatalities per Crash Type in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

WA		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Geographical Location	Major Cities of Australia	43	33	50	68	49	51	18%	2	4%	1	1%	2	5%
	Inner Regional Australia	44	33	44	37	57	55	19%	-2	-4%	18	44%	12	28%
	Outer Regional Australia	23	23	29	40	38	41	14%	3	8%	9	32%	10	34%
	Remote Australia	4	5	4	5	10	4	1%	-6	-60%	6	122%	-2	-29%
	Very Remote Australia	8	8	4	7	7	3	1%	-4	-57%	0	4%	-4	-56%
	Other	39	93	28	2	2	1	0%	-	-	-	-	-	-
Total		161	195	159	159	163	155	-	-	-	-	-	-	-

Table 134: Road Fatalities per Remoteness Area in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

WA		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Holiday Period	Easter Period	0	3	2	5	2	0	-2	-100%	-1	-20%	-2	-100%
	Christmas Period	7	8	9	8	2	4	2	100%	-6	-75%	-3	-41%

Table 135: Road Fatalities during Holiday Periods in Western Australia (Bureau of Infrastructure and Transport Research Economics 2023)

		5 Year Average	2019	2020	Variation in 2020 from 2019		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	%	no.	%
Fatalities	Involving Speeding Drivers/Riders Related	60.6	71	66	-5	-7%	5	9%
	Involving Fatigued Drivers/Riders	40.4	33	34	1	3%	-6	-16%
	Involving Inattentive Drivers/Riders	21	35	20	-15	-43%	-1	-5%

Table 136: Road Fatalities per Road User Behaviour in Western Australia (Road Safety Commission 2021)

		5 Year Average	2019	2020	Variation in 2020 from 2019		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	%	no.	%
Fatalities	Involving Seatbelts Not Worn	25.2	26	27	1	4%	2	7%
	Involving Motorcyclist Helmets Not Worn	2.4	1	1	0	0%	-1	-58%
	Involving Pedal Cyclists Helmet Not Worn	1.4	1	1	0	0%	0	-29%

Table 137: Road Fatalities per Safety Restraints in Western Australia (Road Safety Commission 2021)

Tasmania		2015	2016	2017	2018	2019	2020	2015-2019 Average	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Month of the Year	January	3	7	2	6	1	6	3.8	5	500%	-4	-78%	2	58%
	February	5	0	1	2	3	6	2.2	3	100%	1	50%	4	173%
	March	3	4	3	4	4	3	3.6	-1	-25%	1	14%	-1	-17%
	April	0	7	1	1	3	1	2.4	-2	-67%	1	33%	-1	-58%
	May	2	2	5	2	2	2	2.6	0	0%	-1	-27%	-1	-23%
	June	2	2	5	1	3	0	2.6	-3	-100%	1	20%	-3	-100%
	July	6	2	2	2	3	3	3	0	0%	0	0%	0	0%
	August	1	0	2	2	2	6	1.4	4	200%	1	60%	5	329%
	September	4	5	1	5	2	0	3.4	-2	-100%	-2	-47%	-3	-100%
	October	5	4	4	0	2	6	3	4	200%	-1	-38%	3	100%
	November	1	1	3	3	1	3	1.8	2	200%	-1	-50%	1	67%
	December	2	3	3	4	3	2	3	-1	-33%	0	0%	-1	-33%
Total		34	37	32	32	29	38	-	-	-	-	-	-	-

Table 138: Road Fatalities per Month of the Year in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

TAS		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Day of the Week	Monday	6	4	4	3	3	5	2%	2	67%	-1	-29%	1	25%
	Tuesday	1	2	3	2	7	4	1%	-3	-43%	5	250%	1	33%
	Wednesday	6	2	3	1	1	8	3%	7	700%	-2	-67%	5	208%
	Thursday	5	10	4	7	3	3	1%	0	0%	-4	-54%	-3	-48%
	Friday	5	7	6	8	6	7	2%	1	17%	-1	-8%	1	9%
	Saturday	4	5	4	5	4	7	2%	3	75%	-1	-11%	3	59%
	Sunday	7	7	8	6	5	4	1%	-1	-20%	-2	-29%	-3	-39%
Total		34	37	32	32	29	38	-	-	-	-	-	-	-

Table 139: Road Fatalities per Day of the Week in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

TAS		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	2	3	1	2	5	2	1%	-3	-60%	3	150%	-1	-23%
	4:00AM to 7:59AM	4	2	4	6	3	2	1%	-1	-33%	-1	-25%	-2	-47%
	8:00AM to 11:59AM	5	8	6	7	7	5	2%	-2	-29%	1	8%	-2	-24%
	12:00PM to 3:59PM	13	8	7	8	5	8	3%	3	60%	-4	-44%	0	-2%
	4:00PM to 7:59PM	8	8	10	6	5	12	4%	7	0%	-3	-38%	5	62%
	8:00PM to 11:59PM	2	8	4	3	4	8	3%	4	100%	0	-6%	4	90%
Total		34	37	32	32	29	37	-	-	-	-	-	-	-

Table 140: Road Fatalities per Time of the Day in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

TAS		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Road User	Driver	17	17	14	14	17	19	7%	2	12%	2	10%	3	20%
	Passenger	3	6	4	5	2	9	3%	7	350%	-3	-56%	5	125%
	Motorcycle Rider	9	9	11	8	7	5	2%	-2	-29%	-2	-24%	-4	-43%
	Motorcycle Pillion Passenger	1	1	0	0	0	0	0%	0	0%	-1	-100%	0	-100%
	Pedestrian	3	4	2	3	3	5	2%	2	67%	0	0%	2	67%
	Pedal Cyclist	1	0	1	1	0	0	0%	0	0%	-1	-100%	-1	-100%
	Other	0	0	0	1	0	0	0%	-	-	-	-	-	-
Total		34	37	32	32	29	38	-	-	-	-	-	-	-

Table 141: Road Fatalities per Road User in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

TAS		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Gender	Male	26	26	23	26	20	24	8%	4	20%	-5	-21%	0	-1%
	Female	8	11	9	6	9	14	5%	5	56%	1	6%	5	63%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		34	37	32	32	29	38	-	-	-	-	-	-	-

Table 142: Road Fatalities per Gender in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

TAS		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Age	0_to_16	1	2	3	1	0	3	1%	3	0%	-2	-100%	2	114%
	17_to_25	5	6	4	6	4	6	2%	2	50%	-1	-24%	1	20%
	26_to_39	9	6	4	7	9	12	4%	3	33%	3	38%	5	71%
	40_to_64	6	15	13	11	9	8	3%	-1	-11%	-2	-20%	-3	-26%
	65_to_74	5	4	3	2	4	0	0%	-4	-100%	1	14%	-4	-100%
	75_or_older	8	4	5	5	3	9	3%	6	200%	-3	-45%	4	80%
	Other	0	0	0	0	0	0	0%	-	-	-	-	-	-
Total		34	37	32	32	29	38	-	-	-	-	-	-	-

Table 143: Road Fatalities per Age in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

TAS		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Posted Speed Limit	Less than 40km/hr	2	1	0	1	0	1	0%	1	#DIV/0!	-1	-100%	0	25%
	41 to 59km/hr	5	4	6	5	6	7	2%	1	17%	1	20%	2	35%
	60 to 79km/hr	4	3	9	3	3	3	1%	0	0%	-2	-37%	-1	-32%
	80 to 99km/hr	5	10	4	2	5	6	2%	1	20%	0	-5%	1	15%
	100 to 109km/hr	15	16	11	15	11	13	5%	2	18%	-3	-23%	-1	-4%
	More than 110km/hr	2	3	2	4	4	8	3%	4	100%	1	45%	5	167%
	Other	1	0	0	2	0	0	0%	-	-	-	-	-	-
Total		34	37	32	32	29	38	-	-	-	-	-	-	-

Table 144: Road Fatalities per Posted Speed Limit in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

TAS		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Crash Type	Single	18	19	17	23	20	24	8%	4	20%	1	4%	5	24%
	Multiple	16	18	15	9	9	14	5%	5	56%	-6	-38%	1	4%
Total		34	37	32	32	29	38	-	-	-	-	-	-	-

Table 145: Road Fatalities per Crash Type in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

TAS		2015	2016	2017	2018	2019	2020		Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	%	no.	%	no.	%	no.	%
Geographical Location	Major Cities of Australia	13	10	11	9	11	18	6%	7	64%	0	2%	7	67%
	Inner Regional Australia	7	8	7	10	5	11	4%	6	120%	-3	-38%	4	49%
	Outer Regional Australia	8	2	8	9	8	7	2%	-1	-13%	1	19%	0	0%
	Remote Australia	0	0	0	2	4	2	1%	-2	-50%	4	700%	1	67%
	Very Remote Australia	0	2	0	2	1	0	0%	-1	0%	0	0%	-1	-100%
	Other	6	15	6	0	0	0	0%	-	-	-	-	-	-
Total		34	37	32	32	29	38	-	-	-	-	-	-	-

Table 146: Road Fatalities per Remoteness Area in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

TAS		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Holiday Period	Easter Period	0	0	0	0	0	1	1	100%	0	0%	1	100%
	Christmas Period	2	3	2	3	0	0	0	0%	-3	-100%	-2	-100%

Table 147: Road Fatalities during Holiday Periods in Tasmania (Bureau of Infrastructure and Transport Research Economics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Serious Injury Casualties	10598	10911	11104	11350	11085	10975	-110	-1%	94	1%	-35	0%

Table 148: Serious Injury Casualties in New South Wales (Transport for NSW n.d. -a)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	per 10,000 Vehicles	10.72	10.66	10.36	9.57	8.16	7.64	-0.52	-6%	-2	-21%	-2	-23%
	per 10,000 Licences	10.61	10.66	10.38	9.65	8.22	7.66	-0.56	-7%	-2	-20%	-2	-23%
	per 100,000 Population	73.08	73.58	71.79	66.84	56.96	53.39	-3.57	-6%	-14	-20%	-15	-22%
	per 100 million vehicle km	-	7.82	-	6.8	-	6.15	-	-	-	-	-	-

Table 149: Serious Injury Casualties in New South Wales (Transport for NSW n.d. -a)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Driver	3544	3718	3663	3732	3578	3512	-66	-2%	-86	-2%	-135	-4%
	Passenger	1338	1386	1383	1374	1348	1181	-167	-12%	-22	-2%	-185	-14%
	Motorcyclist	2297	2475	2479	2519	2654	2554	-100	-4%	212	9%	69	3%
	Pedestrian	989	1007	1041	1040	1045	924	-121	-12%	26	3%	-100	-10%
	Pedal Cyclist	1856	1812	1936	1974	1847	2308	461	25%	-48	-3%	423	22%
	Other	524	513	602	711	613	496						

Table 150: Serious Injury Casualties per Road User in New South Wales (Transport for NSW n.d. -a)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Male	6947	7096	7266	7425	7235	7415	180	2%	52	1%	221	3%
	Female	3650	3814	3838	3925	3850	3560	-290	-8%	43	1%	-255	-7%
	Unknown	1	1	0	0	0	1						

Table 151: Serious Injury Casualties per Gender in New South Wales (Transport for NSW n.d. -a)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	0 to 4	95	84	105	69	80	91	11	14%	-8	-9%	4	5%
	5 to 16	798	833	791	784	767	933	166	22%	-35	-4%	138	17%
	17 to 20	994	979	1036	1007	921	1009	88	10%	-83	-8%	22	2%
	21 to 25	1109	1147	1246	1119	1143	1154	11	1%	-12	-1%	1	0%
	26 to 29	739	771	781	820	807	777	-30	-4%	29	4%	-7	-1%
	30 to 39	1563	1652	1556	1700	1597	1574	-23	-1%	-21	-1%	-40	-2%
	40 to 49	1502	1520	1558	1577	1559	1467	-92	-6%	20	1%	-76	-5%
	50 to 59	1434	1491	1483	1526	1418	1386	-32	-2%	-66	-4%	-84	-6%
	60 to 69	1015	1064	1090	1137	1178	1154	-24	-2%	102	9%	57	5%
	70 to 79	714	755	791	878	868	806	-62	-7%	84	11%	5	1%
	Over 80	620	605	654	717	731	617	-114	-16%	82	13%	-48	-7%
	Unknown	15	10	13	16	16	7						

Table 152: Serious Injury Casualties per Age Group in New South Wales (Transport for NSW n.d. -a)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Serious Injury Crashes	5056	5193	5307	5555	5653	5685	32	1%	375	7%	332	6%
	Serious Injury Casualties	6197	6327	6515	6819	7014	6993	-21	0%	550	9%	419	6%

Table 153: Serious Injury Casualties in Queensland (Department of Transport and Main Roads 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Driver	3351	3455	3558	3839	3945	3973	28	1%	394	11%	343	9%
	Passenger	1171	1171	1225	1278	1355	1312	-43	-3%	144	12%	72	6%
	Motorcyclist	993	970	967	1003	1005	1012	7	1%	22	2%	24	2%
	Pedal Cylist	306	324	391	344	356	367	11	3%	15	4%	23	7%
	Pedestrian	359	392	362	345	336	317	-19	-6%	-29	-8%	-42	-12%
	Other	17	15	12	10	17	12	-5	-29%	4	26%	-2	-15%

Table 154: Serious Injury Casualties per Road User in Queensland (Department of Transport and Main Roads 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	16	44	50	55	40	52	54	2	4%	5	10%	6	12%
	17 to 20	1072	1118	1051	1110	1165	1302	137	12%	77	7%	199	18%
	21 to 24	945	1017	1076	1104	1104	1181	77	7%	69	7%	132	13%
	60 to 74	1132	1149	1201	1271	1386	1204	-182	-13%	198	17%	-24	-2%
	Over 75	389	419	439	500	480	430	-50	-10%	43	10%	-15	-3%

Table 155: Serious Injury Crashes per Driver's Age in Queensland (Department of Transport and Main Roads 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	0 to 16	485	433	483	479	488	524	36	7%	18	4%	50	11%
	17 to 24	1341	1402	1408	1426	1447	1633	186	13%	53	4%	228	16%
	25 to 59	3357	3445	3527	3694	3824	3774	-50	-1%	318	9%	205	6%
	60 to 74	687	722	744	850	871	759	-112	-13%	120	16%	-16	-2%
	Over 75	309	309	335	357	363	294	-69	-19%	36	11%	-41	-12%

Table 156: Serious Injury Casualties per Age in Queensland (Department of Transport and Main Roads 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Involving Learner Drivers/Riders	181	184	213	195	189	247	58	31%	-4	-2%	55	28%
	Involving Provisional/P1/P2 Drivers/Riders	1195	1220	1205	1271	1261	1304	43	3%	38	3%	74	6%
	Involving Unlicensed Drivers/Riders	478	446	447	500	514	560	46	9%	46	10%	83	17%

Table 157: Serious Injury Casualties per Licence Type in Queensland (Department of Transport and Main Roads 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Involving Speeding Drivers/Riders	303	269	297	380	338	388	50	15%	26	8%	71	22%
	Involving Drink Drivers/Riders	477	516	643	621	633	801	168	27%	69	12%	223	39%
	Involving Distracted/Inattentive Drivers/Riders	1178	1279	1127	1361	1482	1484	2	0%	246	20%	199	15%
	Involving Fatigued Drivers/Riders	448	440	405	470	479	472	-7	-1%	38	9%	24	5%

Table 158: Serious Injury Casualties per Road User Behaviour in Queensland (Department of Transport and Main Roads 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Serious Injury Casualties	6013	6765	7499	7959	8263	6389	-1874	-23%	1204	17%	-911	-12%
	per 100,000 Population	102	111.6	119.1	124.5	126.6	96.1	-30.5	-24%	12	11%	-21	-18%
	per 10,000 Vehicles	13.1	14.5	15.7	16.2	16.5	12.5	-4	-24%	2	11%	-3	-18%

Table 159: Serious Injury Casualties in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Driver	2710	3140	3642	3712	4001	3083	-918	-23%	700	21%	-358	-10%
	Passenger	1032	1108	1051	1143	1192	881	-311	-26%	109	10%	-224	-20%
	Motorcyclist	1099	1145	1228	1352	1413	1065	-348	-25%	207	17%	-182	-15%
	Pedestrian	636	665	772	827	793	605	-188	-24%	68	9%	-134	-18%
	Pedal Cyclist	396	429	432	547	533	434	-99	-19%	82	18%	-33	-7%
	Tram/Train	32	24	53	51	42	28	-14	-33%	2	5%	-12	-31%

Table 160: Serious Injury Casualties per Road User in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Male	3415	3786	4222	4512	4695	3626	-1069	-23%	711	18%	-500	-12%
	Female	2590	2965	3269	3438	3557	2757	-800	-22%	492	16%	-407	-13%
	Unknown	8	14	8	9	11	6	-	-	-	-	-	-

Table 161: Serious Injury Casualties per Gender in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	0 to 4	47	49	59	71	67	30	-37	-55%	11	19%	-29	-49%
	5 to 15	227	226	198	238	242	150	-92	-38%	20	9%	-76	-34%
	16 to 17	99	130	114	135	144	88	-56	-39%	25	21%	-36	-29%
	18 to 20	472	509	546	558	646	439	-207	-32%	125	24%	-107	-20%
	21 to 25	712	825	946	1012	1030	725	-305	-30%	156	18%	-180	-20%
	26 to 29	492	578	652	695	663	561	-102	-15%	59	10%	-55	-9%
	30 to 39	924	1090	1212	1274	1324	1029	-295	-22%	199	18%	-136	-12%
	40 to 49	916	945	1126	1140	1078	925	-153	-14%	46	4%	-116	-11%
	50 to 59	780	823	974	1090	1095	862	-233	-21%	178	19%	-90	-9%
	60 to 69	541	681	704	777	811	712	-99	-12%	135	20%	9	1%
	Over 70	803	909	968	969	1163	868	-295	-25%	251	27%	-94	-10%

Table 162: Serious Injury Casualties per Age in Victoria (Transport Accident Commission n.d. -a) (Transport Accident Commission n.d. -b)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Serious Injury Crashes	657	574	533	485	729	624	-105	-14%	167	30%	28	5%
	Serious Injury Casualties	759	692	622	576	833	715	-118	-14%	171	26%	19	3%

Table 163: Serious Injury Casualties and Fatal Crashes in South Australia (Department for Infrastructure and Transport n.d.)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Driver	358	325	313	277	349	293	-56	-16%	31	10%	-31	-10%
	Passenger	132	140	121	87	108	96	-12	-11%	-12	-10%	-22	-18%
	Motorcyclist	139	105	105	97	196	189	-7	-4%	85	76%	61	47%
	Motorcycle Pillion Passenger	6	4	3	6	5	5	0	0%	0	5%	0	4%
	Pedestrian	50	66	41	58	80	57	-23	-29%	26	49%	-2	-3%
	Pedal Cyclist	74	52	39	51	94	73	-21	-22%	40	74%	11	18%
	Other	0	0	0	0	1	2	-	-	-	-	-	-

Table 164: Serious Injury Casualties per Road User in South Australia (Department for Infrastructure and Transport n.d.)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Male	502	430	391	391	570	490	-80	-14%	142	33%	33	7%
	Female	256	262	231	231	263	225	-38	-14%	18	7%	-24	-9%
	Unknown	1	0	0	0	0	0	-	-	-	-	-	-

Table 165: Serious Injury Casualties per Gender in South Australia (Department for Infrastructure and Transport n.d.)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	0 to 15	28	33	26	26	32	30	-2	-6%	4	13%	1	3%
	16 to 19	71	81	43	48	64	52	-12	-19%	3	5%	-9	-15%
	20 to 24	84	86	56	63	94	77	-17	-18%	22	30%	0	1%
	25 to 29	60	76	54	50	79	70	-9	-11%	19	32%	6	10%
	30 to 39	128	82	81	72	128	112	-16	-13%	37	41%	14	14%
	40 to 49	106	94	83	79	93	96	3	3%	3	3%	5	5%
	50 to 59	105	97	88	83	122	104	-18	-15%	29	31%	5	5%
	60 to 69	78	51	60	55	103	81	-22	-21%	42	69%	12	17%
	Over 70	80	87	110	83	109	90	-19	-17%	19	21%	-4	-4%
	Unknown	19	5	21	17	9	3	-	-	-	-	-	-

Table 166: Serious Injury Casualties per Age in South Australia (Department for Infrastructure and Transport n.d.)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Serious Injury Casualties	503	524	498	488	408	424	16	4%	-95	-19%	-60	-12%
	Serious Injury Crashes	400	397	407	363	321	342	21	7%	-71	-18%	-36	-9%

Table 167: Serious Injury Casualties and Fatal Crashes in the Northern Territory (Department of Infrastructure, Planning and Logistics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Driver	228	249	249	216	197	213	16	8%	-39	-16%	-15	-6%
	Passenger	134	156	125	151	115	98	-17	-15%	-27	-19%	-38	-28%
	Motorcyclist	84	66	61	59	58	68	10	17%	-10	-14%	2	4%
	Pedestrian	45	40	47	48	28	34	6	21%	-17	-38%	-8	-18%
	Pedal Cyclist	12	13	16	14	10	11	1	10%	-4	-27%	-2	-15%

Table 168: Serious Injury Casualties per Road User in the Northern Territory (Department of Infrastructure, Planning and Logistics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injur	Involving Drink Drivers/Riders	100	101	121	107	84	117	33	39%	-23	-22%	14	14%
	Involving Speeding Drivers/Riders	86	98	94	110	71	123	52	73%	-26	-27%	31	34%
	Involving Fatigued Drivers/Riders	34	50	25	47	42	43	1	2%	3	8%	3	9%
	Involving Seatbelts Not Worn	31	29	39	18	17	29	12	71%	-12	-42%	2	8%

Table 169: Serious Injury Casualties per Safety Device in the Northern Territory (Department of Infrastructure, Planning and Logistics 2023)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Serious Injury Casualties	798	737	690	713	704	615	-89	-13%	-31	-4%	-113	-16%
	Serious Injury Crashes	636	611	576	587	582	534	-48	-8%	-21	-3%	-64	-11%

Table 170: Serious Injury Casualties and Fatal Crashes in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	January	42	34	38	40	35	39	4	11%	-4	-9%	1	3%
	February	57	54	49	43	48	48	0	0%	-3	-5%	-2	-4%
	March	52	50	52	66	49	43	-6	-12%	-6	-11%	-11	-20%
	April	51	49	58	49	56	34	-22	-39%	4	8%	-19	-35%
	May	70	66	61	48	58	41	-17	-29%	-3	-5%	-20	-32%
	June	57	48	57	50	53	44	-9	-17%	0	0%	-9	-17%
	July	60	47	43	43	53	44	-9	-17%	5	10%	-5	-11%
	August	48	44	47	61	37	56	19	51%	-13	-26%	9	18%
	September	45	57	38	45	48	44	-4	-8%	2	4%	-3	-6%
	October	56	57	51	49	59	47	-12	-20%	6	11%	-7	-14%
	November	49	50	42	56	43	57	14	33%	-6	-13%	9	19%
	December	49	55	40	37	43	37	-6	-14%	-2	-5%	-8	-17%

Table 171: Serious Injury Casualties per Month of the Year in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Monday	92	71	79	80	98	81	-17	-17%	18	22%	-3	-4%
	Tuesday	107	85	92	90	106	67	-39	-37%	13	13%	-29	-30%
	Wednesday	89	99	108	75	81	91	10	12%	-12	-13%	1	1%
	Thursday	96	105	97	109	79	80	1	1%	-23	-22%	-17	-18%
	Friday	105	109	89	96	79	84	5	6%	-21	-21%	-12	-12%
	Saturday	72	81	53	76	78	71	-7	-9%	8	11%	-1	-1%
	Sunday	75	61	58	61	61	60	-1	-2%	-3	-4%	-3	-5%

Table 172: Serious Injury Casualties per Day of the Week in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Time of the Day	12:00AM to 3:59AM	21	20	12	19	21	20	-1	-5%	3	17%	1	8%
	4:00AM to 7:59AM	57	42	58	61	49	48	-1	-2%	-6	-10%	-5	-10%
	8:00AM to 11:59AM	153	162	148	158	150	125	-25	-17%	-5	-3%	-29	-19%
	12:00PM to 3:59PM	149	145	123	132	131	136	5	4%	-6	-5%	0	0%
	4:00PM to 7:59PM	179	195	190	169	187	151	-36	-19%	4	2%	-33	-18%
	8:00PM to 11:59PM	77	47	45	48	44	54	10	23%	-10	-19%	2	3%

Table 173: Serious Injury Casualties per Time of the Day in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Driver	407	387	339	389	349	327	-22	-6%	-32	-8%	-47	-13%
	Passenger	144	118	112	101	121	81	-40	-33%	2	2%	-38	-32%
	Motorcyclist	124	106	92	99	96	74	-22	-23%	-9	-9%	-29	-28%
	Motorcycle Pillion Passenger	4	1	1	2	2	2	0	0%	0	0%	0	0%
	Pedestrian	39	40	42	38	39	36	-3	-8%	-1	-2%	-4	-9%
	Pedal Cyclist	77	75	87	78	87	78	-9	-10%	8	10%	-3	-3%
	Other	3	10	17	6	10	17	-	-	-	-	-	-

Table 174: Serious Injury Casualties per Road User in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Male	432	420	368	378	385	359	-26	-7%	-15	-4%	-38	-9%
	Female	364	317	319	334	317	255	-62	-20%	-17	-5%	-75	-23%
	Unknown	2	0	3	1	2	1	-	-	-	-	-	-

Table 175: Serious Injury Casualties per Gender in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	0 to 14	50	51	27	26	35	21	-14	-40%	-4	-9%	-17	-44%
	15 to 19	71	72	55	66	56	66	10	18%	-10	-15%	2	3%
	20 to 24	111	87	86	85	95	72	-23	-24%	3	3%	-21	-22%
	25 to 29	94	86	66	81	80	80	0	0%	-2	-2%	-1	-2%
	30 to 34	70	68	52	70	73	54	-19	-26%	8	12%	-13	-19%
	35 to 39	66	59	45	65	48	49	1	2%	-11	-18%	-8	-13%
	40 to 44	70	56	52	44	38	40	2	5%	-18	-32%	-12	-23%
	45 to 49	49	41	58	51	50	48	-2	-4%	0	1%	-2	-4%
	50 to 54	53	39	57	48	31	38	7	23%	-18	-37%	-8	-17%
	55 to 59	38	36	35	49	35	28	-7	-20%	-5	-11%	-11	-27%
	60 to 64	35	30	37	34	29	22	-7	-24%	-5	-15%	-11	-33%
	65 to 69	33	20	22	12	23	25	2	9%	1	6%	3	14%
	70 to 74	25	18	22	23	29	12	-17	-59%	7	32%	-11	-49%
	75 to 79	12	26	18	20	15	12	-3	-20%	-4	-21%	-6	-34%
	Over 80	19	31	29	17	27	13	-14	-52%	3	13%	-12	-47%
	Other	2	17	29	22	40	35	-	-	-	-	-	-

Table 176: Serious Injury Casualties per Age in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Full Licence	677	800	605	615	782	653	-129	-16%	108	16%	-43	-6%
	Provisional Licence	105	103	76	99	81	83	2	2%	-15	-15%	-10	-11%
	Learner Licence	22	19	16	18	19	22	3	16%	0	1%	3	17%

Table 177: Serious Injury Casualties per Licence Type in the Australian Capital Territory (Transport Canberra and City Services 2016) (Transport Canberra and City Services 2017) (Transport Canberra and City Services 2019a) (Transport Canberra and City Services 2019b) (Transport Canberra and City Services 2020) (Transport Canberra and City Services 2021)

		5 Year Average	2019	2020	Variation in 2020 from 2019		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	%	no.	%
Serious Injuries	Serious Injury Casualties	1773.8	1698	1641	-57	-3%	-133	-7%

Table 178: Serious Injury Casualties in Western Australia (Road Safety Commission 2021)

		5 Year Average	2019	2020	Variation in 2020 from 2019		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	%	no.	%
Serious Injuries	January	137.8	120	96	-24	-20%	-42	-30%
	February	133.6	125	144	19	15%	10	8%
	March	165.6	143	145	2	1%	-21	-12%
	April	157.4	146	77	-69	-47%	-80	-51%
	May	162	158	125	-33	-21%	-37	-23%
	June	135.2	119	132	13	11%	-3	-2%
	July	147.2	144	158	14	10%	11	7%
	August	136.8	146	155	9	6%	18	13%
	September	141.4	158	143	-15	-9%	2	1%
	October	153.2	177	168	-9	-5%	15	10%
	November	156.6	135	161	26	19%	4	3%
	December	147	127	137	10	8%	-10	-7%

Table 179: Serious Injury Casualties per Month of the Year in Western Australia (Road Safety Commission 2021)

		5 Year Average	2019	2020	Variation in 2020 from 2019		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	%	no.	%
Serious Injuries	Vehicle Occupant	1177.4	1171	1106	-65	-6%	-71	-6%
	Motorcyclist	340.6	298	330	32	11%	-11	-3%
	Pedestrian	154.2	140	117	-23	-16%	-37	-24%
	Pedal Cyclist	101.6	88	88	0	0%	-14	-13%

Table 180: Serious Injury Casualties per Road User in Western Australia (Road Safety Commission 2021)

		5 Year Average	2019	2020	Variation in 2020 from 2019		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	%	no.	%
Serious Injuries	Male	1049.6	998	991	-7	-1%	-59	-6%
	Female	702	691	641	-50	-7%	-61	-9%

Table 181: Serious Injury Casualties per Gender in Western Australia (Road Safety Commission 2021)

		5 Year Average	2019	2020	Variation in 2020 from 2019		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	%	no.	%
Serious Injuries	0 to 16	127.2	122	102	-20	-16%	-25	-20%
	17 to 19	108	103	124	21	20%	16	15%
	20 to 29	401.2	355	368	13	4%	-33	-8%
	30 to 39	280.2	271	294	23	8%	14	5%
	40 to 49	230.6	222	218	-4	-2%	-13	-5%
	50 to 59	223.8	236	207	-29	-12%	-17	-8%
	60 to 69	149.4	165	141	-24	-15%	-8	-6%
	70 to 79	95.6	104	91	-13	-13%	-5	-5%
	Over 80	72.4	84	64	-20	-24%	-8	-12%
	Unknown	85.4	36	32	-	-	-	-

Table 182: Serious Injury Casualties per Posted Speed Limit in Western Australia (Road Safety Commission 2021)

		5 Year Average	2019	2020	Variation in 2020 from 2019		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	%	no.	%
Serious Injuries	Involving Speeding Drivers/Riders	256.6	233	271	38	16%	14	6%
	Involving Fatigued Drivers/Riders	191.4	197	185	-12	-6%	-6	-3%
	Involving Inattentive Drivers/Riders	69	62	79	17	27%	10	14%

Table 183: Serious Injury Casualties per Road User Behaviour in Western Australia (Road Safety Commission 2021)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Serious Injury Casualties	298	282	268	281	249	289	40	16%	-33	-12%	13	5%

Table 184: Serious Injury Casualties in Tasmania (Department of State Growth 2017) (Department of State Growth 2022a) (Department of State Growth 2022b)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Driver	106	113	98	115	99	118	19	19%	-9	-8%	12	11%
	Passenger	51	57	52	43	41	67	26	63%	-10	-19%	18	37%
	Motorcyclist	101	84	74	81	67	68	1	1%	-18	-21%	-13	-16%
	Pedal Cyclist	12	3	9	10	9	6	-3	-33%	1	6%	-3	-30%
	Pedestrian	22	23	26	26	26	18	-8	-31%	2	7%	-7	-27%
	ATV Rider	6	2	9	6	7	12	5	71%	1	22%	6	100%

Table 185: Serious Injury Casualties per Road User in Tasmania (Department of State Growth 2017) (Department of State Growth 2022a) (Department of State Growth 2022b)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	Male	197	184	179	183	153	191	38	25%	-33	-18%	12	7%
	Female	101	98	88	98	96	98	2	2%	0	0%	2	2%

Table 186: Serious Injury Casualties per Gender in Tasmania (Department of State Growth 2017) (Department of State Growth 2022a) (Department of State Growth 2022b)

		2015	2016	2017	2018	2019	2020	Variation in 2020 from 2019		Variation in 2019 from the 2015 to 2018 Average		Variation in 2020 from the 2015 to 2019 Average	
		no.	no.	no.	no.	no.	no.	no.	%	no.	%	no.	%
Serious Injuries	0 to 16	17	19	17	19	8	29	21	263%	-10	-56%	13	81%
	17 to 29	92	93	66	81	68	98	30	44%	-15	-18%	18	23%
	30 to 49	79	70	72	77	79	65	-14	-18%	5	6%	-10	-14%
	50 to 64	69	54	59	53	44	47	3	7%	-15	-25%	-9	-16%
	Over 64	39	46	49	50	47	45	-2	-4%	1	2%	-1	-3%

Table 187: Serious Injury Casualties per Age in Tasmania (Department of State Growth 2017) (Department of State Growth 2022a) (Department of State Growth 2022b)