

Journey Towards Safer Roads: An Historical Review of Australian & NZ Road Safety

1990-2023

Last Update: 21 February, 2024

Macro Trends

Road Fatalities from 1990 - 2022

This Briefing Paper strives to summarise multiple quality sources of Australian & New Zealand road safety information into a useful summary, harvesting key findings across the measurement period 1990 to 2022. Sources are ABS, BITRE, and OECD/ITAD. Some useful data summary tables as well as reference sources for more information are attached to this Briefing document.

Across the 33 years from 1990 to 2022, Australian annual road fatalities have fallen 48.7%, from 2,331 (1990) to 1,195 (2022). Add to this macro-trend, that today we have more than double the number of vehicles on our roads (109% more). Viewed through the lens of total Kms driven, this reduction of fatalities is actually 68.8% down from 1990, and a strong result for the nation against premature and avoidable deaths.

Adjusted for Kms driven, we are nearly 2 times more likely to die on the roads in the United States than in Australia. (See Slide 9).

Against this progress, in NZ deaths have soared 52% from 2013 to 2021.

Globally, we have a strong undercurrent of adverse safety trends amongst:

- Pedestrians
- Cyclists
- Aged 75+ drivers

Road Fatalities by User Group							
Road User Group	1990	2000	2010	2020	2022	Change 1990 to 2022	Change 2010 to 2022
Driver	1,569	1,302	722	524	557	-64.5%	-22.9%
Passenger	-	6	194	203	189	-2.6%	-2.6%
Pedestrian	420	287	172	136	163	-61.2%	-5.2%
Motorcyclist	262	191	224	190	246	-6.1%	9.8%
Cyclist	80	31	38	41	40	-50.0%	5.3%
Totals	2,331	1,817	1,350	1,094	1,195	-48.7%	-11.5%
Urban Roads			636	391			
Rural Roads			709	700			
Deaths/100k Pop	13.7	9.5	6.1	4.3	4.7	-65.5%	-22.6%
Deaths/B-kms	14.4	9.8	5.9	4.5	4.5	-68.8%	-23.7%
Reg Vehicles ('000)	10,081	12,373	16,061	19,805	21,100	109.3%	31.4%

Sources:
 Bureau of Infrastructure and Transport Research Economics Australian Road Deaths Database, 14 April 2023.
 International Transport Forum (OECD), Report March 2021

Strong Progress 1990 to 2010

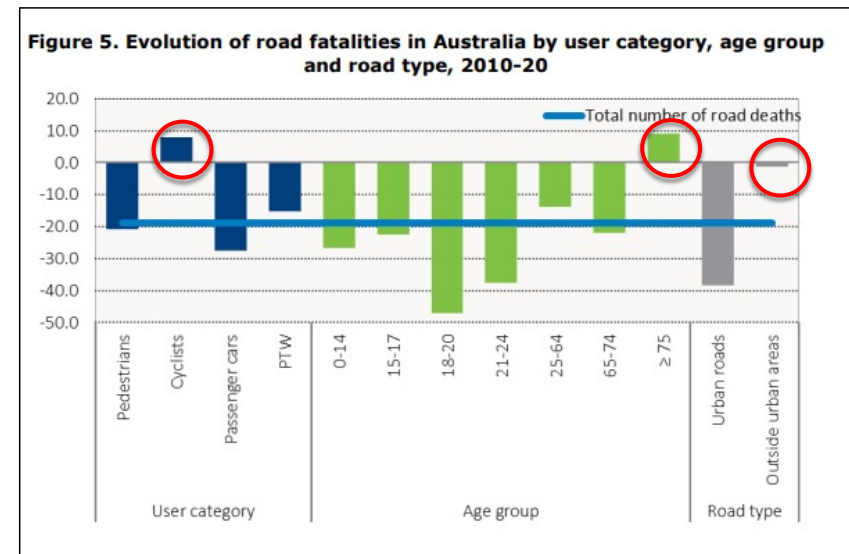
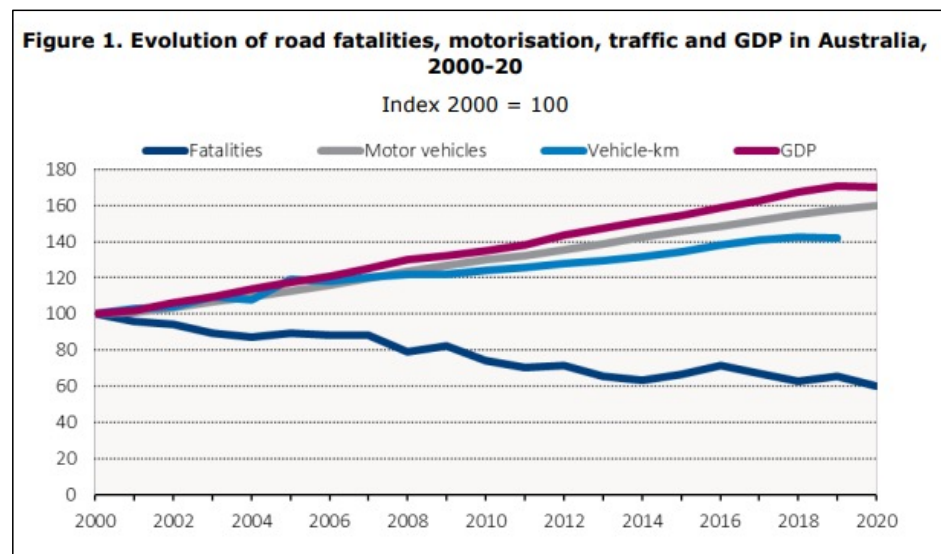
The greatest improvements in Australian road deaths occurred from 1990 to 2010, with the pace slowing since then. The reasons for these improvements are many, but experts say this is broadly attributable to:

- better vehicle designs (ABS braking, seatbelts, air bags, impact crumple zones)
- better road construction (divided roads, guardrails, overpasses and lighting)
- reduced drink driving (offset with more prevalent drug use)

Other segments are more mixed, with deaths from cyclists, older drivers (75+) and on rural roads bucking the improvement trends.

In 2010, Australia formed a National Road Safety Strategy based on “Smart System” principles. A target for reducing road deaths of 30% for the decade ending 2020 was agreed. Over the next 10 years, deaths were in fact reduced by 19%. A similar Road Safety review in 2021 has formed a new goal for 2030 with a 50% reduction of road deaths target. (See slide 12.)

Looking across the various sources of improvement and regression, these can be visually summarised:



Source: International Transport Forum (OECD), Report March 2021

More Recent Trends

2010 - 2022

Across the period 2010-22, Australian registered vehicles grew by 31%, while Km-driven adjusted deaths declined by 24%.

Whilst overall road deaths were reduced 19% across the 2010-20 decade, pockets of regression and lack of improvement include:

- Aged Drivers (75+) Deaths grew by 10% across the period, yet all other age groups fell
- Cyclists Cycling deaths grew by 8%, while all other groups fell
- Rural Roads Declined by only 2%, while Urban Road deaths fell nearly 40%
- Pedestrians Has been increasing in the last few years for a combination of reasons

Under the banner of avoidable deaths, it is noteworthy that the presence of drugs (16.3%) is now greater than alcohol (12.7%) as a factor in fatal accidents. Of particular alarm is the high and growing prevalence of drugs in motorcycle fatalities.

In total, 43% of road deaths in 2020 had indicators of three avoidable causes.

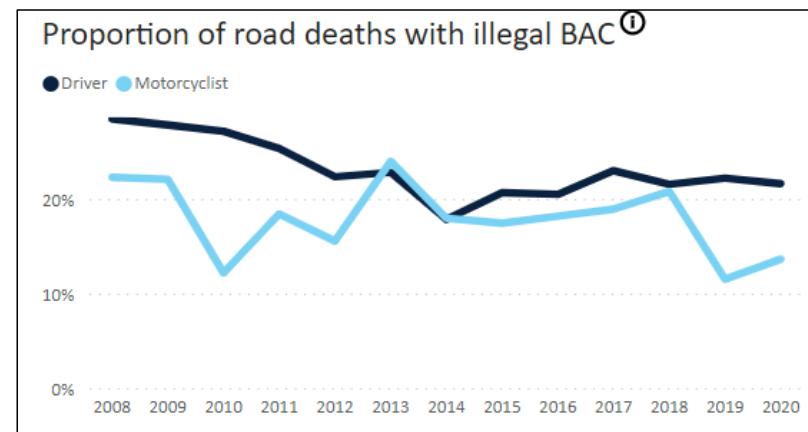
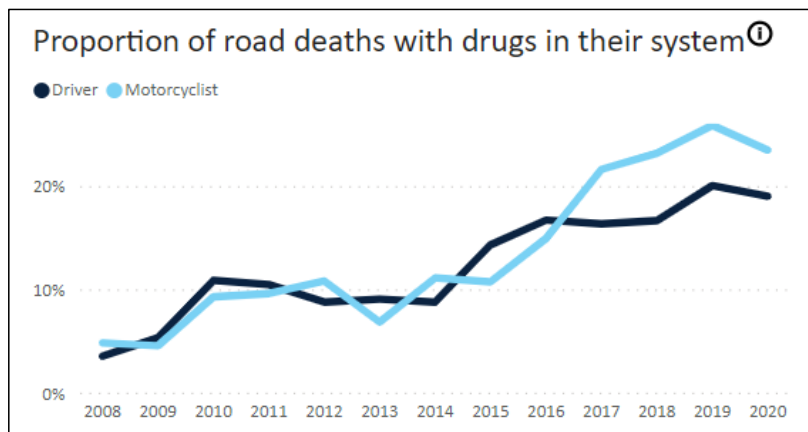
Motorcyclists and bicyclists have experienced more deaths over the period 2010 to 2022, largely arising from strong growth in those vehicle categories on our roads.

Avoidable Cause of Deaths (2020)		
Alcohol (BAC)	139	12.7%
Drugs	178	16.3%
No Seatbelt	154	14.1%
Deaths	1094	43.1%

Drugs & Alcohol Trends

Recent Australian data is capturing factors such as alcohol and drugs present at fatal crash scenes. As of 2020, drugs or alcohol were present at 29% of fatal crashes. A further 14% arose from a failure to wear seat belts. Combined, these causes are present in 43% of road fatalities.

Whilst Blood Alcohol Content levels are declining moderately, the trend line is upwards for drug use in fatal accidents. The data suggests that drug use is a larger contributing factor to fatal accidents than excessive alcohol use.



As we seek to understand road deaths, another 14% are pedestrians.

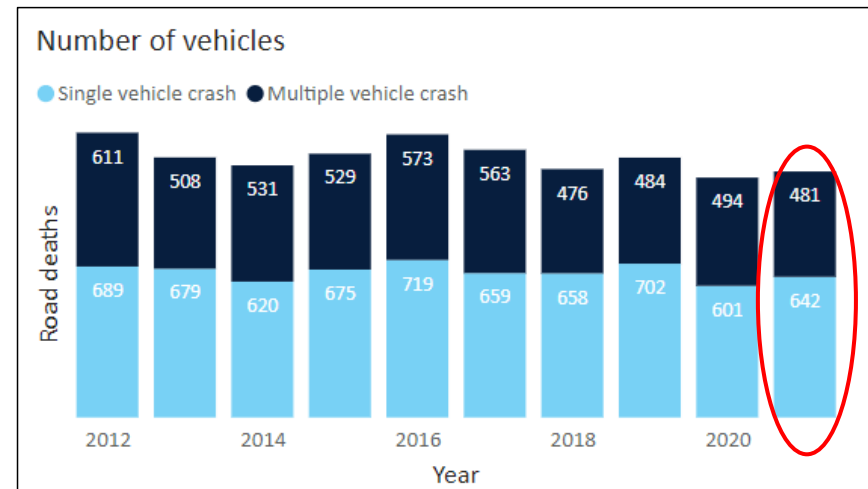
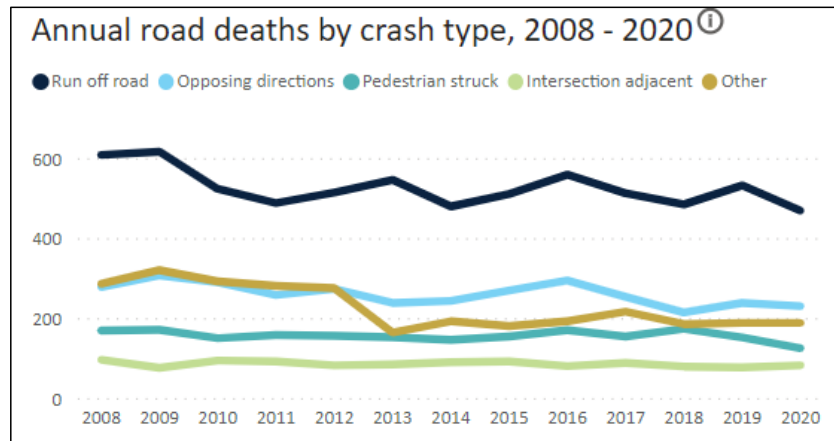
Anecdotal evidence suggests pedestrian fatalities may be related to aged individuals misjudging road crossings, children, distracted adults, or those with alcohol present. Detailed information is currently not publicly made available.

Location of Fatalities

In 2020 Australian fatal road crashes were single vehicle crashes 57% of the time, frequently running off the road in rural areas.

Consistent with these statistics, 64% of fatalities are in regional Australia, and only 36% are in Urban areas.

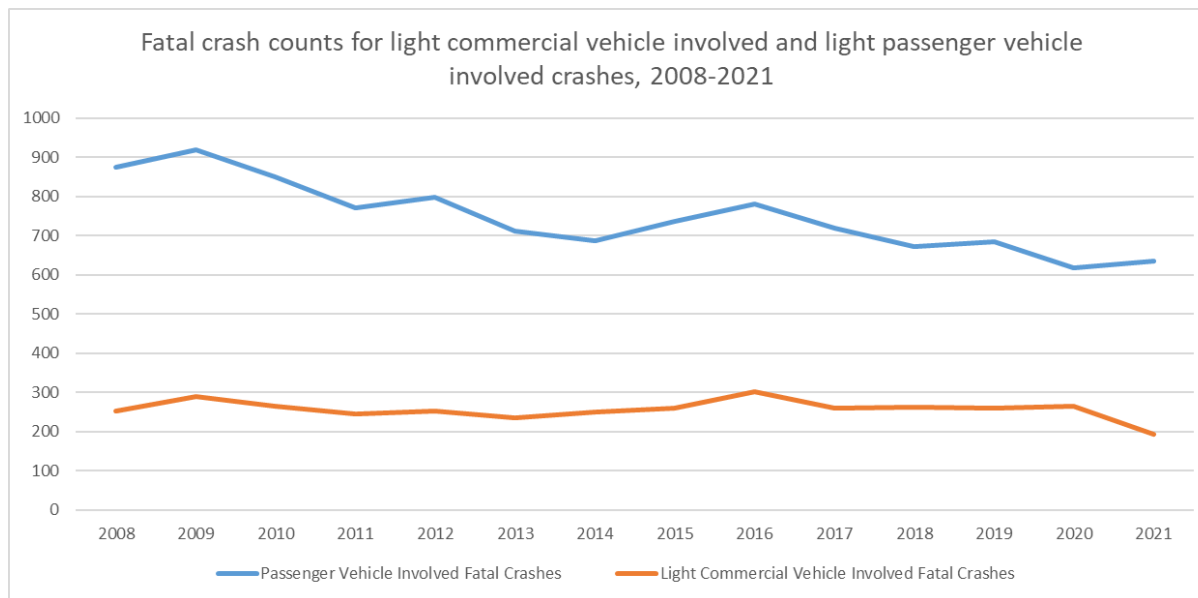
More research is needed with better standardised reporting from all states to gain greater insight into causality.



Light Commercial vs Passenger Vehicles

The Australian Motor Vehicle Registry census from the ABS, breaks down 20.1 million vehicles in Australia into multiple categories. Light Commercial Vehicles (LCVs) have grown at the fastest rate of any category of registered vehicle, and by 17.9% between 2016 to 2021, to 3.7 million LCVs in 2021. LCVs now represent 18.4% of the national road fleet as of 2021.

Our most recent available data on relative safety between Passenger and LCVs shows there was strong growth in Kms driven per LCV with 23% growth over the period 2008 to 2015, versus 5% for passenger vehicles. Hence, total Kms driven by LCVs has grown substantially more than any other vehicle category.



Source: . BITRE, Unpublished data series, released October 2023

BITRE Most recent data on Light Commercial Vehicle report is 2021. At that time, fatal crashes were significantly more frequent with LCVs than Passenger Vehicles. Over the period 2008 to 2021:

- 48% higher per light commercial vehicles compared to light passenger vehicles (0.94 fatal crashes per 10,000 registered vehicles compared to 0.63 fatal crashes for light passenger vehicles).
- 18% higher fatalities per billion Km driven with LCVs than for passenger vehicles (5.53 compared with 4.70)

Overall, road fatalities for passenger and LCVs have trended lower, with more improvement arising with passenger vehicles.

Insurance Industry Research



Euclidic Systems is working with Fuse Insurance (underwritten by IAG), to identify primary causes of driver behaviour contributing to vehicle claims. This can be considered a proxy for road safety. Using micro-pattern Artificial Intelligence, measurements are captured every 10 seconds, and analytics then can identify driving patterns which are linked to accidents (and claims).

Pattern recognition AI generates a crash probability scoring for:

- Frontal crashes
- Parking Accidents
- All other incidents

Driving behavioural interventions that can reduce risk seek to develop better:

1. Focus – limiting distractions, weaving and pumping (side to side, front to back)
2. Anticipation – planning ahead, braking, acceleration, cornering skills
3. Speed Control – speed management relative to surrounding cars or terrain conditions

Interventions include installing telematics equipment and tracking/reporting services to:

- **M**easure performance
- **R**eport back to Drivers & Supervisors
- **A**ctions where necessary

International Data

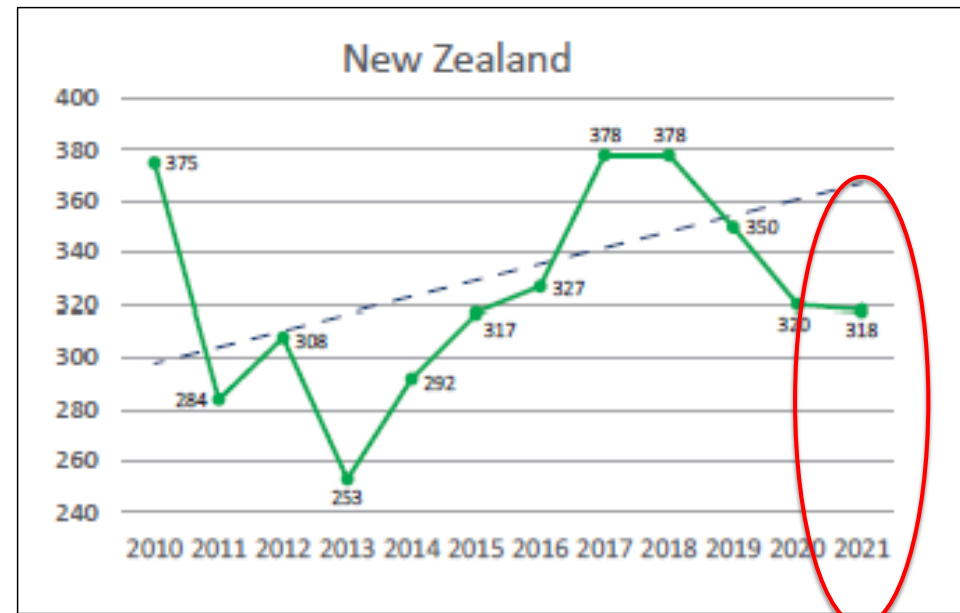
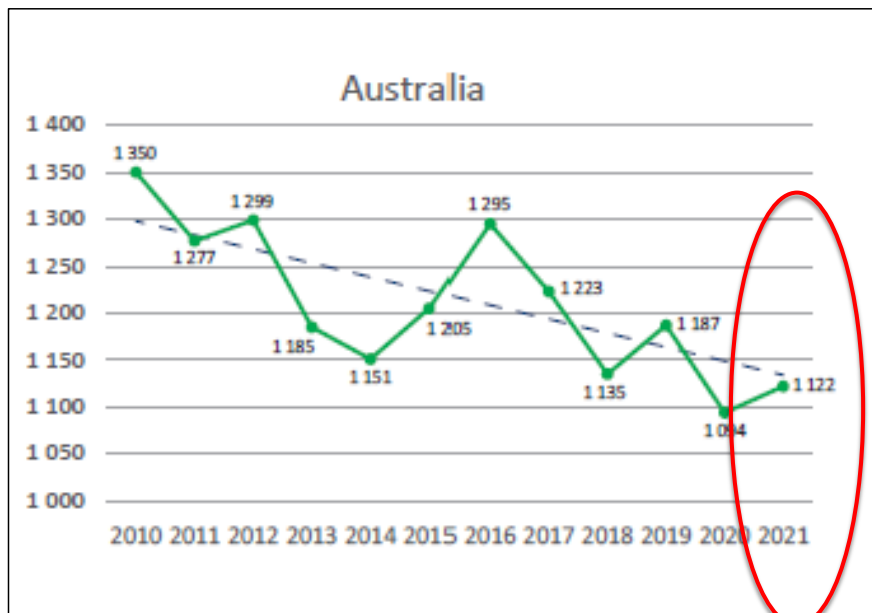
Road fatalities per billion vehicle-kilometres, 2020



Source: . ITF (2022), Road Safety Annual Report 2022, OECD Publishing, Paris

International Data

Road deaths in 2020 and 2021 compared to the linear trend since 2010

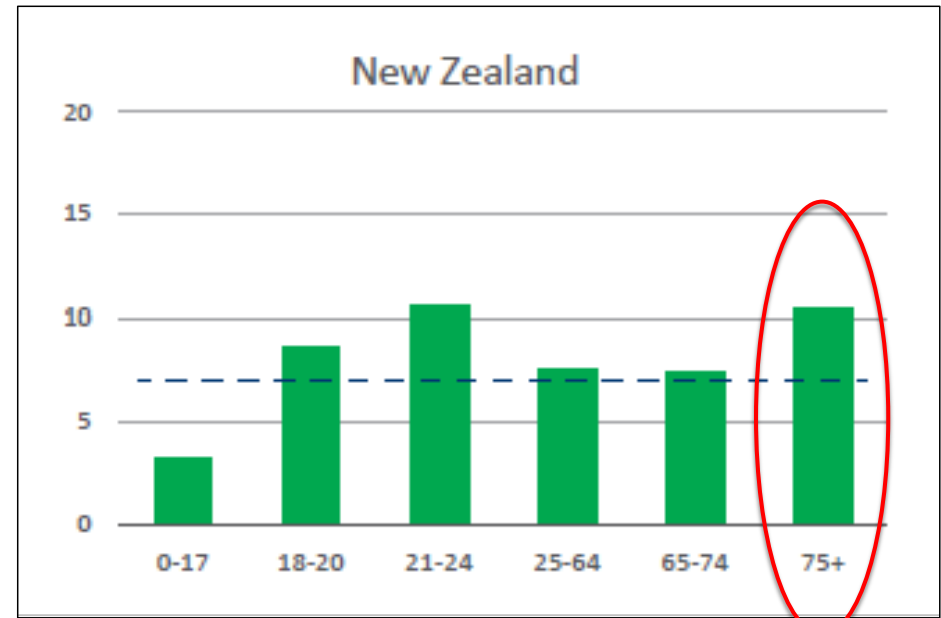
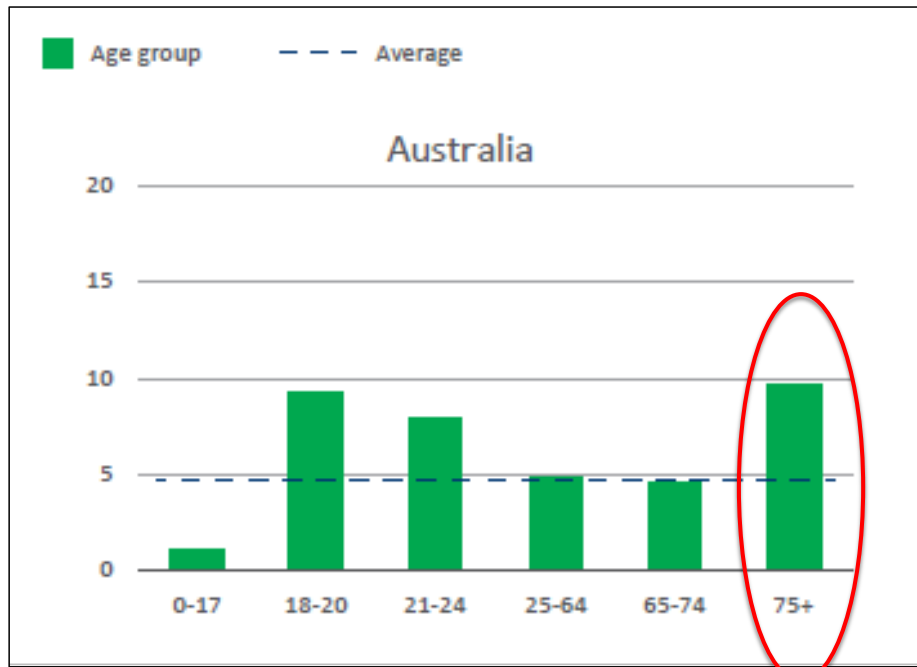


Road Deaths are trending down broadly across the world, and Australia continues its long term down trend. However, New Zealand has experienced a significant increase in annual road deaths from 2013 to 2021. In NZ where population has grown 16% since 2013, road deaths have grown 52%. Road deaths per B-kms are Australia (4.5), NZ (7.2) and the USA (8.2).

Source: . ITF (2022), Road Safety Annual Report 2022, OECD Publishing, Paris

International Data

– Age Groups



Road Deaths are not evenly spread across age groups. In fact, over 75s are experiencing equivalent death rates as young drivers in both Australia and New Zealand. This speaks to the action needed to tackle driving skills for aged drivers, as well as better identified young drivers.

Source: . ITF (2022), Road Safety Annual Report 2022, OECD Publishing, Paris

National Road Safety Programs



Australia	New Zealand
<p>Road Safety Program: The Australian National Road Safety Strategy 2021-30 was adopted in 2021 following consultation and review. The strategy continues Australia’s commitment to the Safe System approach. The Federal Department of Infrastructure, Transport, Regional Development and Communications (through the Office of Road Safety) developed the strategy with the eight state and territory governments and the Australian Local Government Association. The Office of Road Safety also held targeted consultations with over 50 road safety stakeholders. The Australian National Road Safety Action Plan 2021-25 is currently under review and further consultation with stakeholders and state/territory jurisdictions. Links: www.roadsafety.gov.au/nrss</p> <p>Targets:</p> <ul style="list-style-type: none"> • Reduce fatalities by 50% by 2030. • Reduce serious injuries by 30% by 2030. <p>As part of demonstrating a commitment to the 2050 Vision Zero target, the strategy will target by 2030:</p> <ul style="list-style-type: none"> • Zero deaths for children 7 years and under • Zero deaths in city central business district (CBD) areas • Zero deaths on National highways and on high speed roads covering 80% of travel across the network. <p>There are no interim targets, however, the 2030 Target of a 30 per cent reduction in serious injuries by 2030 will be assessed as part of the mid term review of the Strategy.</p>	<p>Road Safety Program: New Zealand’s road safety strategy for 2020-30 is titled Road to Zero and is based on Vision Zero and the Safe System approach. The Te Manatū Waka Ministry of Transport developed the strategy in close co-operation with the New Zealand Transport Agency and the New Zealand Police. It focuses on 15 priority areas:</p> <ol style="list-style-type: none"> 1. Invest in safety treatments and infrastructure improvements 2. Introduce a new approach to tackling unsafe speeds 3. Review infrastructure standards and guidelines 4. Enhance safety and accessibility of footpaths, bike lanes and cycleways 5. Raise safety standards for vehicles entering the fleet 6. Increase understanding of vehicle safety 7. Implement mandatory anti-lock braking systems (ABS) for motorcycles 8. Support best practice for work-related travel 9. Strengthen the regulation of commercial transport services 10. Prioritise road policing 11. Enhance drug driver testing 12. Increase access to driver licensing and training 13. Support motorcycle safety 14. Review road safety penalties 15. Strengthen system leadership, support and co-ordination. <p>Links: www.transport.govt.nz/assets/Uploads/Report/Road-to-Zero-strategy_final.pdf</p> <p>Targets:</p> <ul style="list-style-type: none"> • A 40 % reduction in killed and serious injuries by 2030. <p>The long term vision of the strategy is to achieve zero deaths and serious injuries on the roads by 2050.</p>

Source: . ITF (2022), Road Safety Annual Report 2022, OECD Publishing, Paris

Policy Recommendations

Based on current evidence, it is requested that Governments consider a more focused series of road safety interventions, and less “broad spectrum” actions. Broad, “wishful” goals serve to fragment attention and reduce Govt credibility.

Road Infrastructure

- Dividing more roadways, especially in rural areas
- Safety Barriers on the outside edge of bending or downhill road segments
- Improve lighting & road surfaces, especially at blind junction points
- Increase shoulder space to create safe room for cyclists, and reduce lane contention

Research

- Standardise accident reporting, and release crash data to enable stronger analysis (state level)
- Release roadside testing results
- Release granular enforcement data – Fixed & Mobile Cameras
- Eg. Why and where were pedestrians hit?
- Eg. Where are true blackspots in rural areas?

Driver Behaviour

- Extend mandatory vehicle tracking to LCV (less onerous than HVNR) with basic minimum capabilities such as Blackbox data for accident retrieval by Police, and WHS Compliance
- More assertive age testing for license approval (75+)
- Roadside testing regimes – drugs and alcohol (based on measured blackspots)
- Rural area education campaigns (Distractions, Anticipation)
- Speed enforcement in genuine black spot intersections, not broad spectrum
- Ease off contentious Road Safety measures – e.g. 30 km/hr metro speed limits – which are unlikely to pay safety dividends, and erode public support

Summary Data Tables

Road User Group	1990	2000	2010	2020	2022	Change 1990 to 2022	Change 2010 to 2022	Change 2010 to 2020
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Deaths by Group	2022	%
Driver	557	46.6%
Passenger	189	15.8%
Pedestrian	163	13.6%
Motorcyclist	246	20.6%
Cyclist	40	3.3%
Totals	1,195	

Summary Data Tables

Registered Vehicle Census	2016	2020	2021	<u>Growth</u>	<u>Composition</u>
Passenger Vehicles	13,815,107	14,679,249	14,850,675	7.5%	73.7%
Light Commercial Vehicles	2,985,592	3,407,016	3,519,457	17.9%	17.5%
Light Rigid Trucks	145,426	176,680	187,329	28.8%	0.9%
Heavy Vehicles	430,997	463,971	474,916	10.2%	2.4%
Motorcycles	828,965	880,881	913,803	10.2%	4.5%
Campervans	60,900	72,220	74,324	22.0%	0.4%
Other	120,149	125,314	122,438	1.9%	0.6%
Totals	18,387,136	19,805,331	20,142,942	9.5%	

1. Bureau of Infrastructure and Transport Research Economics Australian Road Deaths Database, 14 April 2023. (BITRE)

2. International Transport Forum (OECD), Report March 2021

3. Australian Bureau of Statistics – Vehicle Registration Census, 30 June 2021

Publications & Websites

Australian Cycling Safety	View publication
National Road Safety Strategy	View publication
Austrroads programme of road safety research	Visit website
Department of Infrastructure, Transport, Regional Development & Communications	Visit website
Office of Road Safety	Visit website
Bureau of Infrastructure, Transport & Regional Economics	Visit website
Road Safety Statistics	Visit website
Road Safety Performance	Visit website
2018 Inquiry into the National Road Safety Strategy	Visit website
2019 Review into National Road Safety Governance Arrangements	Visit website
Austrroads	Visit website
ARRB (Australian Road Research Board)	Visit website
Monash University Accident Research Centre	Visit website