Overview of road safety in New Zealand
1. About this Slidepack
2. The Current Road Safety Picture
3. Vehicle Safety
4. Vehicles as a Workplace
5. Infrastructure
6. User behaviour
7. Speed
1. About this Slidepack

Enabling New Zealanders to flourish
This is a preliminary outline of the New Zealand evidence

We have a lot of data

► Not all can be analysed before the Reference Groups meet.
► If you think vital analysis is missing you can request it.

The data is not inexhaustible.

► Some data that you want may not exist.
► Data exists in different datasets. Not all of these can be combined.
► Data is collected by numerous agencies.
Data & Analysis in this pack

► Most of the data in this pack comes from NZTA or MoT.

► Where the data/analysis was provided in full or in part from NZTA their logo appears at the bottom of the slide.

► Data is up-to-date as of 20th August 2018 – some data is provisional and subject to change.
2. The Current Road Safety Picture

Enabling New Zealanders to flourish
Road deaths were declining but now trend upwards.

Highlights:
- 42% reduction from 2008 to 2013.
- Lowest annual road toll (253) in 2013.
- 52% increase since 2013.
- Currently the highest total since 2009.
- Rolling total for last 12 months: 376 (as of August 8th 2018).
other measures are following the same trend

Deaths, police reported serious casualties and people hospitalised for over one day: rolling 12 month totals

Current rates

► Crash hospitalisations rate up 28% from its low point in 2015.

► Serious Injuries rate +44% from its low point 2013, and at its highest rate in 10 years.
Since 2013 road deaths are increasing faster than the population

Index of Trends: Population, Gross Domestic Product, Vehicle Kilometres Travelled, Deaths and Serious Injuries and Deaths (Indexed equal to 1000 at end of 2008)

Indexed Change from End of 2013 through to End of 2017

- Population Growth: + 8%
- Gross Domestic Product Growth: + 15%
- Deaths and Serious Injuries: + 40%
- Road Deaths: + 49%
...and increasing as other countries plateau

Road deaths per 100,000 population

<table>
<thead>
<tr>
<th>Year</th>
<th>Australia</th>
<th>Japan</th>
<th>New Zealand</th>
<th>Norway</th>
<th>Sweden</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>8.6</td>
<td>5.7</td>
<td>7.9</td>
<td>2.8</td>
<td>2.7</td>
<td>2.5</td>
</tr>
<tr>
<td>2009</td>
<td></td>
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<td>2010</td>
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<td>2016</td>
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<tr>
<td>2017</td>
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</tr>
</tbody>
</table>
New Zealand performs poorly compared with many other OECD nations…in deaths by population

International comparison of deaths per 100,000 population (2016)
International comparison of deaths per 1,000,000 vehicles (2016)

- Switzerland
- Sweden
- Japan
- Spain
- Finland
- Germany
- Iceland
- Italy
- Denmark
- Australia
- Ireland
- France
- Greece
- Belgium
- Czech Republic
- New Zealand
- Slovenia
- Poland
- Lithuania
- Hungary
- Serbia

Deaths by vehicle number
...and per kilometre travelled

Deaths per billion vehicle kilometres

- Sweden
- Ireland
- Denmark
- Germany
- Iceland
- Finland
- Australia
- France
- Japan
- Slovenia
- New Zealand
- Belgium
- Czech Republic

Deaths per billion vehicle kilometres
New Zealand also performs poorly compared with other similar size countries

Comparison of road fatality rates in countries with approximately 5 million people (2016)

fatalities per 100,000 people

<table>
<thead>
<tr>
<th>Country</th>
<th>Rate per 100,000 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>4.7</td>
</tr>
<tr>
<td>Ireland</td>
<td>3.9</td>
</tr>
<tr>
<td>Norway</td>
<td>2.6</td>
</tr>
<tr>
<td>Slovakia</td>
<td>5.1</td>
</tr>
<tr>
<td>Denmark</td>
<td>3.7</td>
</tr>
<tr>
<td>New Zealand</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Source: https://data.oecd.org/transport/road-accidents.htm
Some of the increase in DSI cannot currently be explained

The Deloitte Analysis of Road Toll (March 2017) looked at the drivers of the increasing levels of DSIs. They found no one single factor to explain the increase, but it was partly down to…

- Increases in the number of vehicle kilometres travelled (more people, driving more cars, more mistakes).
- Increase in the number of motorcycle registrations (more vulnerable vehicle design).

One third of the variation could not be explained.

The long-term trend shows that road travel has become far safer over the last 25 years, despite a growing population and increasing numbers of vehicles on the road – fatalities have almost halved from 747 in 1985 to 378 in 2017.
Car occupants have the highest numbers of DSI

Deaths and Serious Injuries by Mode of Transport

- Cars
- Cyclists
- Motorcyclists
- Other
- Pedestrians
- Trucks
- Buses
But motorcyclists face the highest risk of DSI by vehicle-kilometre travelled…
...and by hours spent travelling

Deaths/serious injuries per million hours spent travelling (July 2010 - June 2014)
There is a wide variation of DSI rates by region.

Deaths and serious injury by region per 100,000 people.
Crashes have a large social cost

Social cost includes a number of different elements: loss of life and life quality, loss of output due to temporary incapacitation, medical costs, legal costs and property damage costs.

Loss of life is estimated by the amount New Zealanders would be willing-to-pay for safety improvements that result in the avoidance of a premature death.

The cost of $2m per fatality was established in 1991. The most up-to-date cost stands at $4.7m per fatality as at June 2017. These costs are regularly updated.
3. Vehicle Safety

Enabling New Zealanders to flourish
Fleet size

Number of vehicles vs population
(1963 - 2016)

- All road vehicles as at year end
- Population

- The size of the New Zealand vehicle fleet has been increasing pretty much since records began
- In 2007, growth tapered off and remained almost flat for 6 years
- But fleet size has been growing again since 2012
- NZ’s population has grown since 2000s, so per capita values for ownership (and travel) fell until 2013 but have grown again since then
Fleets are ageing in many countries

- Most fleets got older, except Australia.
- Improved rust prevention is allowing fleets to age.
- In New Zealand about 50 percent of the light vehicle fleet is 13 years or older, which is older than many other OECD countries.
Average vehicle age is related to the economy

Average age of light vehicle fleet and GDP (US$) in various countries

Average age (years)

GDP

Poland
Lithuania
Latvia
Romania
Estonia
Hungary
Croatia
Greece
Slovakia
Finland
Portugal
USA
Spain
Slovenia
Italy
Australia
Canada
Sweden
Netherlands
France
Ireland
Austria
Germany
Belgium
Denmark
United Kingdom
Japan

R² = 0.5158
The age of the vehicle may play a role in whether people are injured in a crash.
Older vehicles travel less, and are in more serious crashes

Vehicles older than 13 years make up:

- **50% of the fleet**
- **BUT ... only travel 40% of the distance travelled by the whole fleet**
- **AND ... account for over 65% of the vehicles in which someone is killed or seriously injured**
But older cars are more likely to be owned by younger drivers.
There are two kinds of vehicle safety information ratings for consumers.

**ANCAP**
(Australasian New Car Assessment Program)
Ratings based on a range of crash tests to measure ability of a vehicle to avoid a crash and protect the occupants in a crash.

**UCSR**
(Used Car Safety Rating)
Ratings based on outcome of real world crashes across a range of crash types and occupant characteristics. Minimum of 300 crashes required to achieve published rating.
A key input to a vehicle's UCSR is the vehicle's crashworthiness (CWR)

The CWR is based on the outcome for people in over 8 million vehicle crashes. It measures how well the vehicle protects occupants in the event of a crash.

Depending on the CWR score determines which star rating band the vehicle fits into.

Using the CWR we can get a view of the safety profile of the NZ light vehicle fleet and the vehicles we import into it.

CWR of used vehicles imported into New Zealand in 2016

<table>
<thead>
<tr>
<th>CWR Rating</th>
<th>Number of Vehicles</th>
<th>Percent of 2016 imported vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Star</td>
<td>14184</td>
<td>10</td>
</tr>
<tr>
<td>2 Star</td>
<td>15914</td>
<td>11</td>
</tr>
<tr>
<td>3 Star</td>
<td>41903</td>
<td>28</td>
</tr>
<tr>
<td>4 Star</td>
<td>31761</td>
<td>21</td>
</tr>
<tr>
<td>5 Star</td>
<td>44308</td>
<td>30</td>
</tr>
</tbody>
</table>
Cars with a lower CWR are over represented in serious crashes
Newer cars are more likely to have a better CWR
CWR Star Rating of Fleet

2017 Light Passenger Fleet CWR Proportion by Star Rating

CWR Star Rating of Light Passenger Fleet by year

- 1 Star
- 2 Star
- 3 Star
- 4 Star
- 5 Star
Trucks are over-represented in serious crashes

- Deaths from crashes involving trucks have declined overall but have been increasing since 2013.
- Deaths from crashes with trucks make up around 20 percent of deaths, but only 6 percent of the total distance travelled.
- In contrast, deaths from crashes with buses are rare (average 6 per year since 2000).
- Nearly 90 percent of those killed in heavy vehicle crashes are not the occupants, but the other road users involved.
- This reflects the fact that, in a collision between a heavy vehicle and a light vehicle or vulnerable road user, there is a much higher probability of death or serious injury than in a collision involving only light vehicles.
Most Vehicles have current WOFs

This data reflects vehicles that are registered in the MVR but may or may not be currently on the road. It also does not show how far out of date the WOF is (if not current).

An analysis of showing the proportion of vehicles, with a WOF 1 day, 1 week, 1 month etc outstanding could be completed if required.

(Using random sample of 10,000 vehicles that require WOFs)
Most vehicles have a current WOF at the time of crash, this is stable over time.

Vehicles involved in fatal and serious injury crashes that have a current WOF at time of crash, 2013 - 2017

- No
- Yes
- Unknown

Vehicles involved in fatal and serious injury crashes that have a current WOF at time of crash

- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017

WOF rule change on frequency of inspections (Jan 2014)
Electronic Stability Control (ESC) and Airbags are now in almost all cars we import.

Vehicles new to the New Zealand fleet with side curtain airbags

Vehicles new to the New Zealand fleet with ESC

Percentage

0 10 20 30 40 50 60 70 80 90 100


Cars  Light commercials  All

Cars  Light commercials  All
Road transport emissions show a mixed picture

- Emissions of CO and NO from the New Zealand LDV fleet decreased significantly between 2003 and 2015.

- However, from 2010 to 2014 roadside NOx concentrations were relatively stable.

- NZTA’s passive NO2 monitoring network results show that annual average NO2 concentrations at a number of typical and key roadside sites have remained relatively constant over the last 10 years. *Note that NO2 is the toxic compound in NOx.*
Uptake of electric vehicles continues to increase

Electric vehicle (EV) registrations are increasing, and are dominated by used imports at present.

**EV fleet size**

- **Heavy EV**
- **Used light plug-in hybrid**
- **New light plug-in hybrid**
- **Used light pure electric**
- **New light pure electric**

**Monthly EV registrations**

- **Heavy EV**
- **New light**
- **Used light**

Data from Jan 2014 to Jan 2018.
4. Vehicles as a Workplace

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Most fatal crashes involve private passenger vehicles

Personal vehicles are defined as vehicles registered to an individual. Work vehicles are defined as those registered to a body corporate.

Assessing whether a vehicle is being used for work at the time of the crash is problematic. Some vehicles will be registered as work vehicles but will also be driven for personal trips. Some private vehicles will be used for work purposes.

(using matched MVR and CAS data 2012 – 2016)
High exposure goods vehicles are a small proportion of the fleet but travel further than others

There are approximately 45,000 active Transport Service Licence (TSL) holders in New Zealand. This includes:

- Passenger Service Licences (~19,000)
- Goods Service Licences (~24,500)
- Rental Service Licences (~1,000), and
- Vehicle Recovery Services Licences (~500)

**Number of service licences**
5. Infrastructure

Enabling New Zealanders to flourish
Infrastructure risk ratings

Our roads are rated based on their risk to Personal and Collective safety

**Personal risk** is a person’s chance of being killed or seriously injured on the road per 100 million kilometres travelled

**Collective risk** is the overall number of fatal and serious injury crashes per kilometre travelled

<table>
<thead>
<tr>
<th>RISK RATING</th>
<th>COLLECTIVE RISK Average annual fatal and serious injury crashes per km</th>
<th>PERSONAL RISK Average annual fatal and serious injury crashes per 100 million vehicle-km</th>
<th>COLOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>≤0.039</td>
<td>&lt;4</td>
<td></td>
</tr>
<tr>
<td>Low-medium</td>
<td>0.04-0.069</td>
<td>4-4.9</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>0.07-0.10</td>
<td>5-6.9</td>
<td></td>
</tr>
<tr>
<td>Medium-high</td>
<td>0.11-0.189</td>
<td>7-8.9</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>0.19+</td>
<td>9+</td>
<td></td>
</tr>
</tbody>
</table>

Around 1/3 of our roads have a Medium-high or High personal risk rating
What is the scale of the problem in NZ?

- Our road network is long and stringy, our population is relatively low and dispersed and our natural geography is challenging. This makes our road network more difficult to maintain and improve.
- There are 94,000 kms of roads on the network (11,000 kms of State Highways and 83,000 kms of local roads).
- Most open roads have a speed limit of 100km/h, and many offer little protection if road users make a mistake.
- We have assessed the entire network using a new method called Infrastructure Risk Rating (IRR). This assesses a road’s risk based on it current form (eg, its width, curvature, roadside hazards, safety infrastructure, etc).
- This assessment shows that 55% of the rural network and almost 47% of the urban network are rated a high or medium-high risk (table below).

<table>
<thead>
<tr>
<th>Land Use</th>
<th>High</th>
<th>Medium High</th>
<th>Medium</th>
<th>Low Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>32.9%</td>
<td>23.3%</td>
<td>37.1%</td>
<td>5.6%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Urban</td>
<td>1.1%</td>
<td>13.4%</td>
<td>40.8%</td>
<td>39.1%</td>
<td>5.6%</td>
</tr>
<tr>
<td>All</td>
<td>25.6%</td>
<td>21.0%</td>
<td>38.0%</td>
<td>13.3%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>
Road infrastructure has a clear link to safety outcomes

Actual Injury Crash Rates Associated with Each Star Rating Category
(Based on 100 m sections)

<table>
<thead>
<tr>
<th>Star Rating</th>
<th>Injury Crash Rate (crashes per 100 Million Vehicle Kilometres of Travel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>High</td>
</tr>
<tr>
<td>2*</td>
<td>Medium</td>
</tr>
<tr>
<td>3*</td>
<td>Low</td>
</tr>
<tr>
<td>4*</td>
<td>Very Low</td>
</tr>
<tr>
<td>5*</td>
<td>Lowest</td>
</tr>
</tbody>
</table>
Most DSI crashes occur on local roads

2017 DSI crashes by Road Type

- Unknown: 2.4%
- Minor Urban Road: 3.2%
- Major Urban Road: 6.6%
- Other Open Road: 24.9%
- Open Road State Highway: 23.2%
- Urban State Highway: 20.5%
- Motorway: 19.2%
Opus and Statistics Research Associates carried out some statistical modelling of DSI crashes on state highways.

Concerned with vehicle crashes in which at least one person has been killed or suffered serious or minor injuries.

Key findings were:

- Roughness is a factor for curves where traffic is going at close to full speed but there still is some curvature
- There is a suggestion that skid resistance is more important on curves than on straight roads.
DSI rates have increased on all road types since 2014
Customer ratings of the State Highway network

The most positive ratings are for providing appropriate signage on State Highways, for warning drivers of the need to reduce their speed for roadworks ahead and for general safety messages. By contrast, keeping road surfaces even and smooth consistently receives the lowest ratings.

REGIONAL DIFFERENCES:
- Once again those from Auckland (55%) are significantly more likely to rate State Highways positively compared to the total.
- By contrast, those from Northland (40%), Bay of Plenty West (25%) and Taranaki (29%) continue to rate State Highways more negatively.
What is the scale of the problem on New Zealand’s road network overall?

- 12% of the network accounts for 50% of the travel (VKT) and 52% of the DSIs.
- The State Highway network has a far higher rate of deaths per km of network and the crash problem is primarily rural mid-block.
- The local road network has the greater proportion of serious injuries and the crash problem is largely urban with greater proportions of intersection and vulnerable road users.

<table>
<thead>
<tr>
<th>Factor</th>
<th>State Highway</th>
<th>Local Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Network</td>
<td>12% (11800 km)</td>
<td>88% (84000km)</td>
</tr>
<tr>
<td>Travel (vkt)</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Deaths</td>
<td>52%</td>
<td>48%</td>
</tr>
<tr>
<td>Serious Injuries</td>
<td>36%</td>
<td>64%</td>
</tr>
<tr>
<td>Urban / Rural split (Deaths and Serious Injuries)</td>
<td>19% / 81%</td>
<td>65% / 35%</td>
</tr>
<tr>
<td>Intersections / Midblock (DSI)</td>
<td>22% / 78%</td>
<td>31% / 69%</td>
</tr>
<tr>
<td>Pedestrians &amp; Cyclists, &amp; Motorcyclists (DSI)</td>
<td>9% &amp; 19%</td>
<td>26% &amp; 22%</td>
</tr>
<tr>
<td>Rural Head On / Run off road / Other (DSI)</td>
<td>17% / 33% / 18%</td>
<td>4% / 20% / 5%</td>
</tr>
<tr>
<td>Urban / Rural Intersections (DSI)</td>
<td>9% / 13%</td>
<td>25% / 6%</td>
</tr>
</tbody>
</table>
What are the main risks on the network?

**Open roads**
- Impact speeds are higher so crashes more likely to be serious
- Many New Zealand roads and roadsides are unprotected so high risk of head-on or run-off road crashes, and also less reaction time and stopping distance at higher speeds
- Pedestrian and cyclist crashes more likely to be fatal
- Motorcyclist crashes are more likely to be fatal
- Many rural schools are located on open roads

**Urban roads**
- Intersection crashes
- High active mode activity, including children and elderly on roads with a 50km/h speed limit or higher.
- High interaction with land use (link and place), e.g. CBDs, residential streets, mixed-use arterials.
- High travel speeds do not align well in safe, equitable, liveable and accessible cities, where walking and cycling is safe and attractive.

It is the Government’s objective to improve urban safety both at the school gate and on the journey to school to encourage more walking and cycling.
Crash severity varies by speed, intersection type...

- **Cross-priority** – intersection where one vehicle has priority, the other is at a stop or give-way sign.
- **Cross signals** – intersection with traffic lights
- **T-priority** – T-intersection where one vehicle has priority, the other is at a stop or give-way sign.
- **T signals** – T-intersection with traffic lights
- **Roundabout**
Lighting and personal safety

Before and after studies show reductions in crashes of around 30% where lighting has been improved.

A comprehensive study in Auckland showed reductions in night-time crashes of:

- 33% overall
- 42% injury, and
- 67% serious and fatal.
6. User Behaviour

Enabling New Zealanders to flourish
Most crashes have multiple causes

Almost all DSI crashes involve user factors, however most crashes have multiple causes.

Attitudes to road safety issues are stable over time.

Not much chance of an accident if careful when...

- ...speeding
- ...driving after drinking

The risk of being caught is small

- ...if not wearing a safety belt
- ...if drink-driving
- ...if speeding
Passengers generally feel safe on public transport

How safe are you feeling?

Personal Safety on Public Transport... (2016)

A bus  A train  A taxi  Ride sharing

Very safe  Fairly safe  Fairly unsafe  Very unsafe  Dont'know
Motorists’ negative attitudes affect their behaviour toward cyclists

Overall, motorists perceive cycling as positive and beneficial.

However, some motorists display negative attitudes to cyclists that affect their behaviour toward them. Others are not confident driving around them. Motorists negative attitudes were largest for group road cyclists (42%) when compared to a single road cyclist and a single fast commuter.
Cycling crashes

- Approximately nine in every ten reported cyclist casualties occurred on urban roads (roads with a speed limit of 70km/h or less).
- Furthermore, over half of all cyclist casualties occur on major urban roads (typically busy arterials), rather than on the minor urban roads that usually provide access to adjacent properties.
- While most cyclist injuries occur on urban roads, just over 1 in 3 (35 percent) cyclist deaths occur on the open road, due to the higher impact speeds associated with crashes on these roads.
Pedestrian crashes

- More than nine in every 10 reported pedestrian casualties occurred on urban roads (those with a speed limit of 70km/h or less).
- Over half (52 percent) of all pedestrian casualties occurred on major urban roads (typically busy arterials).
- Forty-one percent happened on minor urban roads and 7 percent on roads with speed limits of over 70km/h.
- The majority (84 percent) of reported pedestrian casualties on urban roads occurred when the pedestrian involved was crossing the road.
- About two-thirds (64 percent) of these casualties occurred when the pedestrian was crossing the road in an uncontrolled area (for example, not at a pedestrian crossing or traffic lights).
Half of young drivers and parents/caregivers unaware of the greater risk young drivers face on the road.

When young drivers drive family cars they are more aware of the dangers, with only 36% unaware compared to 61% for those that own their own car.
Young men have higher numbers of DSI on the road.
..and Maori are over represented in traffic crashes

Casualties hospitalised for road crashes for more than one day (2013 to 2017, inclusive)

Ethnicity of New Zealanders at Census 2013

- European: 64%
- Maori: 1%
- Pacific: 7%
- Asian: 6%
- Other: 1%
- Unknown: 1%

- European: 63%
- Maori: 13%
- Pacific: 10%
- Asian: 5%
- Other: 2%
- Unknown: 5%
Fewer people who are stopped have been drinking but it differs by age.

Data from regular roadside alcohol measurement operation. Compulsory breath test operations are carried out at the same sites and times of night for each year’s operation. The operations are held 10pm to 2am on non-holiday weekends from February to May.
Communities at risk register

- Some areas are more at risk from Alcohol factors on the roads than others.

**Collective risk** measures the total number of DSI crashes in an area. **Personal risk** measures the number of DSI crashes in an area but also takes into account the traffic volumes.
Most people wear their seatbelts

95% of 5-9 year olds and 97% of 0-4 year olds were restrained in vehicles.
Seatbelts still save lives

Those who don’t wear their seatbelt are significantly over-represented in road deaths.

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent of car occupant fatalities not wearing their seatbelt</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>32%</td>
</tr>
<tr>
<td>2014</td>
<td>26%</td>
</tr>
<tr>
<td>2015</td>
<td>37%</td>
</tr>
<tr>
<td>2016</td>
<td>40%</td>
</tr>
<tr>
<td>2017</td>
<td>32%</td>
</tr>
</tbody>
</table>

Seating position of non-restrained fatalities

- 14% Front seat passenger
- 68.5% Driver
- 4.5% Rear left passenger
- 7.5% Rear right passenger
- 3.5% Rear unknown passenger
Distraction is an issue but hard to monitor

Deaths and serious injuries in crashes with driver attention diverted between 2008 and 2017

International research suggests that the contribution of diverted attention in crashes may be underrepresented in police-reported crash systems.
Overseas drivers are not the main issue

Overseas licence holders as a percentage of all drivers involved in crashes 2013-2017

<table>
<thead>
<tr>
<th>Top crash driver country of origin (2012-2016)</th>
<th>Percentage of all crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand</td>
<td>95.90</td>
</tr>
<tr>
<td>Australia</td>
<td>0.57</td>
</tr>
<tr>
<td>China</td>
<td>0.55</td>
</tr>
<tr>
<td>Germany</td>
<td>0.49</td>
</tr>
<tr>
<td>India</td>
<td>0.41</td>
</tr>
<tr>
<td>UK</td>
<td>0.38</td>
</tr>
<tr>
<td>USA</td>
<td>0.33</td>
</tr>
</tbody>
</table>
Older men are disproportionately represented in motorcycling statistics

Motorcyclist deaths and injuries by age group

- 2015-2017 4 in 5 motorcyclists injured were male (83%).
- 2015-2017 9 in 10 motorcyclists killed was male (91%).
Motorcyclists often have primary responsibility in serious and fatal crashes

The motorcyclist had the primary responsibility for 70% of fatal motorcycle crashes, and over 60% for serious crashes (as recorded by Police on crash reports).

Of motorcyclists involved in fatal crashes, 47% of cases involved either, speed, alcohol, or drugs or a combination of these factors.
The number of drivers not holding valid licences and involved in DSI crashes fluctuates.

Percentages of forbidden, disqualified, expired, never licensed or wrong class drivers involved in crashes leading to deaths and serious injuries has varied between 5% and 7%.
7. Speed

Enabling New Zealanders to flourish
Speed continues to be a key contributing factor to deaths and serious injury crashes in New Zealand.

- In 2016 it was a contributing factor in 79 fatal crashes, 406 serious injury crashes and 1,234 minor injury crashes. These crashes resulted in 93 deaths, 512 serious injuries and 1,759 minor injuries.

- The total social cost of crashes involving drivers travelling too fast for the conditions was about $879 million, which is approximately 22% of the social cost associated with all injury crashes.
Speed has a direct influence on the likelihood of a crash, and whether someone survives a crash. **In the event of a crash, regardless of its cause, the speed of impact is the most important determinant of the severity of injuries sustained** and the probability of death.

With higher driving speeds, the number of crashes and crash severity increase disproportionately. **A 1% increase in average speed results in approximately a 2% increase in injury crash frequency, a 3% increase in severe crash frequency, and a 4% increase in fatal crash frequency.** Reducing speed by a few km/h can greatly reduce the risks of and severity of crashes, particularly the likelihood of fatal crashes.

*Source: Nilsson (2004).*

*(Based on P. Wramborg, 2005)*
As speed increases, there is an increase risk of crash involvement, resulting from the following factors:

- Stopping distance – both the distance travelled during reaction time and the distance travelled after the brakes are applied.
- The probability of exceeding the critical speed on a curve.
- Less ability to spot and react to hazards in the driver’s peripheral vision.
- The chance of other road users misjudging how fast the speeding driver/rider is travelling.
- The probability of a rear end crash if the driver/rider has not accounted for the increased speed by increasing the following distance.
...and speed contributes to the severity of crashes

Percentage of Crashes with Deaths and Serious Injuries with respect to the Speed Limit (year 2008 through 2012)

Percentage of Crashes with Deaths and Serious Injuries with respect to the Speed Limit (year 2013 through 2017)
Over the past decade speed was a major contributing factor in DSI crashes...

Driving too Fast for the Conditions is defined as both driving at “excess speed” which refers to instances when vehicles travel in excess of the legally declared speed limit and “inappropriate speed” which refers to instances when vehicles travel at a speed which is unsuitable for the prevailing road and traffic conditions.
The International Transport Forum’s (ITF’s) 2018 report on speed and crash risks suggests that most unprotected road users survive if hit by a vehicle at up to only 30 km/h, a modern car can protect occupants up to 50 km/h in a side collision, and a safe car can protect occupants up to 70 km/h in a head-on collision.

The acceptance survey undertaken in this study indicated there is some support for reduced speed limits in some parts of urban areas, but less support for reducing rural speed limits.

The application of suburban 40km/h speed limits in Hamilton shows that the biggest reduction in operating speed is a result of engineering improvements. Speed limit signs and road markings on their own have a limited impact on the operating speeds.

The acceptance web survey shows that the majority of drivers agreed our roads would be safer if we all drove a little slower. There was also a high level of understanding that serious and fatal crashes are related to travel speeds.

The acceptance survey also shows that drivers would be more likely to slow down, if certain supplementary information explaining the reason for speed limit change was provided.
Speed limits do not match the risk and function of our roads

A significant number of speed limits in New Zealand do not reflect the safe travel speeds for our roads.

Waikato Region: Percentage of road at safe and appropriate travel speeds compared to current speed limits (based on NZ Transport Agency’s Speed Management Guide)

<table>
<thead>
<tr>
<th>Existing speed limit (km/hr)</th>
<th>Percentage of road with appropriate travel speed per speed bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>110</td>
</tr>
<tr>
<td>Rural 100</td>
<td>0</td>
</tr>
<tr>
<td>Rural 80</td>
<td></td>
</tr>
<tr>
<td>Urban 100</td>
<td></td>
</tr>
<tr>
<td>Urban 80</td>
<td></td>
</tr>
<tr>
<td>Urban 50</td>
<td></td>
</tr>
</tbody>
</table>

Speed could go up
Speed is appropriate
Speed is inappropriate
Other potential sources

- Understanding trends in roadside air quality: https://www.nzta.govt.nz/resources/research/reports/596
- Exposure to dust on unsealed roads: https://www.nzta.govt.nz/resources/research/reports/590
- Rail safety risks: https://www.nzta.govt.nz/resources/research/reports/632
- Safety of urban traffic signals: https://www.nzta.govt.nz/resources/research/reports/588
- Safety for rural road cyclists: https://www.nzta.govt.nz/resources/research/reports/589
- Safer speeds: https://www.nzta.govt.nz/resources/research/reports/563
- Mobile phone use survey: https://www.nzta.govt.nz/resources/research/reports/556
- Used car buyers ed brief: https://infohub.nzta.govt.nz/otcs/cs.dll/overview/6634873
- Commuter movements interactive map
- Student movements map
- ‘State Highway feedback’ map
- Safe Roads Alliance (in MapHub)
- Proactive treatment strategy (SafetyNET)
- Reactive treatment strategy (SafetyNET)
- Seatbelt wearing, cycle helmet compliance, child safety restraint use, speed – these now reside with MoT: http://www.transport.govt.nz/research/roadsafetysurveys/
- Safety and security data on MOT website: http://www.transport.govt.nz/ourwork/tmif/safetyandsecurity/