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LIFE'S  
JOURNEYS  
FOR OVER  
110 YEARS.

New Zealand  
Automobile  
Association



# Making rural roads safer

How safety improvements make a difference



# Making rural roads safer – your support matters!

People frequently argue over whether we should be improving our drivers or improving our roads. In fact we need to do both, and more.

To make a really big difference to road safety we need safer road users, safer roads and roadsides, safer vehicles and safer speeds. Making improvements in each of these areas has its own challenges.

The change where perhaps it's easiest to monitor benefits is when roads and roadsides are improved. There are many examples where after improvements, while people might still crash, the severity of injuries and the number of deaths drops dramatically.

The AA has long advocated for more safety infrastructure like median barriers, rumble strips, wide centrelines, wide shoulders, and better designed intersections.

We're pleased the Government now wants these improvements to happen faster too. Local councils can get a bigger contribution from Government towards safety works and quicker approval of projects valued up to \$50 million. Consultation with the community hasn't changed though, so people can still have their say.

**Better community understanding of how changes to road infrastructure can improve safety leads to quicker acceptance and support.**

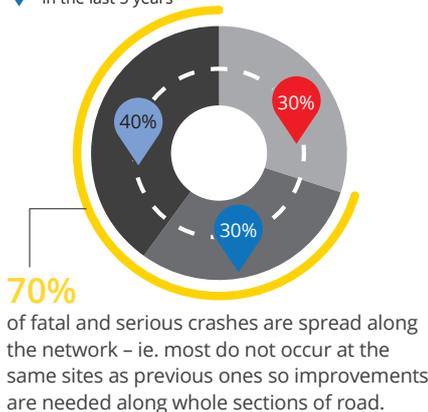
## Where can we make the biggest difference?

New Zealand has a lot of roads and most go through rural areas (77%).

Many rural roads\* are effectively paved paths with paint and unfortunately, because of their low safety standards and high travel speeds, they are where most road deaths occur (74%).

Crashes are generally widely dispersed – the problem isn't just on one corner or risky intersection

- 📍 Last crash here was 6 or more years ago
- 📍 Cluster site – multiple crashes happen here within 5 years
- 📍 Only one injury crash in the last 5 years



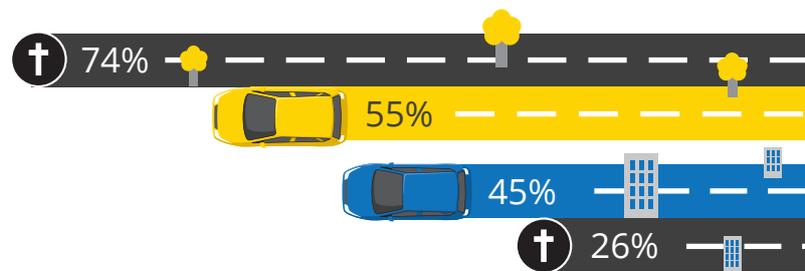
**We travel more on rural roads than on urban ones**

55% of travel is on rural roads



**New Zealand road deaths**

74% of deaths happen on rural roads\*



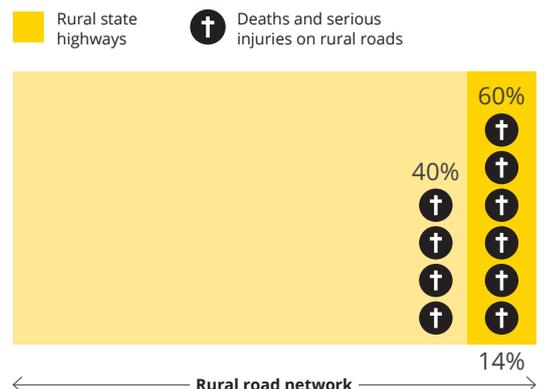
**A small number of rural roads are very heavily used**

70% of rural driving happens on just 10% of our rural roads.

**Most rural road casualties happen on rural state highways**

A disproportionately large number of deaths and serious injuries happen on our heavily used rural state highways.

While these rural state highways are actually only a *small proportion* of the whole network, they account for *over half* of all rural road deaths and serious injuries.



\*Rural roads are those outside urban areas with speed limits of 70km/h or more. They don't include motorways, but they do include many state highways.

## Why do more people crash on rural state highways?

Rural state highways are heavily used, but they don't have the same design standards as motorways. They also have high travel speeds of 70-100km/h, which is more likely to lead to deaths when crashes occur.

Authorities have found that once a rural road is used by 6,000 or more vehicles a day, the risk of a serious head-on crash becomes greater than the risk of a run-off-road crash.

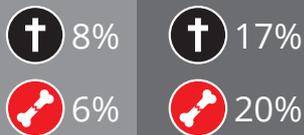


**What does a road with 6,000 vehicles a day feel like?**

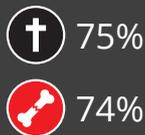
If you stood on the side of a road for 12 hours, having 6,000 vehicles using the road is like having two cars travelling in opposite directions passing each other once every 15 seconds.

If there were peak morning and afternoon travel times, it could be that cars are passing every 7 seconds, or more frequently, but less at other times.

Many rural state highways have a lot more than 6,000 vehicles a day using them. If you make a mistake and cross the centreline on these roads, the chances are higher that there will be another vehicle coming towards you.



Most are pedestrians (75%), then cyclists.



### Who is being hurt on rural roads?

Travelling by car is by far the most common way we use rural roads, and car drivers and their passengers consequently make up most of the deaths and serious injuries (people in larger vehicles are a very small proportion).

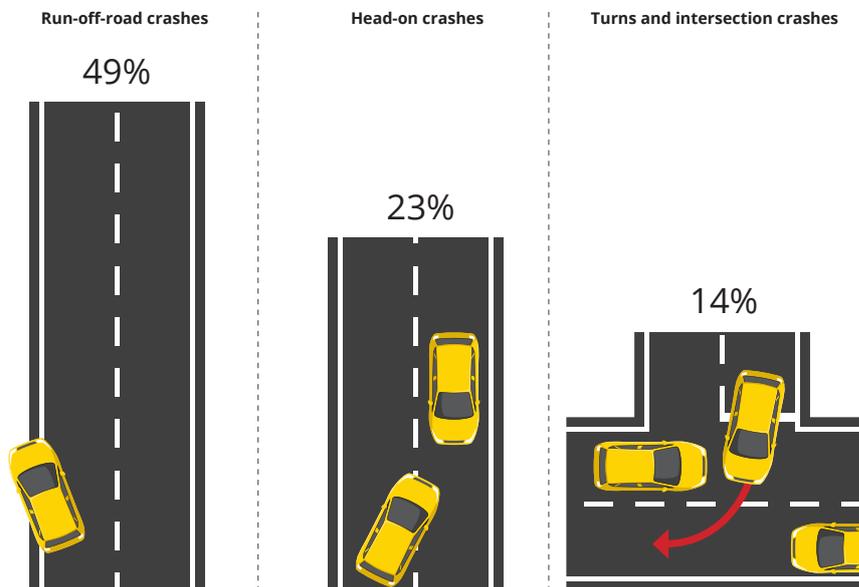
Generally, there are not a lot of motorcyclists, cyclists and pedestrians using rural roads, but because of their greater vulnerability they suffer worse injuries when there is a crash so still make up a significant number of deaths and serious injuries.



### Crash types that cause deaths and serious injuries on rural roads

When people are driving on rural roads, whether in a car or on a motorcycle, there are three types of crashes that cause the majority (86%) of deaths and serious injuries.

While overall, run-off-road crashes are most common, on busy state highways head-on crashes cause more deaths and serious injuries, which makes median barriers a very effective safety intervention on these busy roads. Where median barriers are unaffordable, reducing travel speeds also helps to give drivers more reaction time and reduce impact severity.



# Safety improvements work

A combination of these different road safety improvements can together contribute to fewer deaths and serious injuries.



### Median barriers

Median barriers have been found to prevent up to 92% of deaths and serious injuries.

Effect of installing a median barrier on SH1 north of Wellington (Centennial Highway)

Before: † 18 🚗 15 (1990 – 2004)    After: 🚗 2 (2005 – 2018)



### Roundabouts

Roundabouts dramatically slow speeds at intersections. If cars still collide it's usually less serious because of the impact angles and slower speeds. Roundabouts have been found to reduce deaths and serious injuries at rural intersections by up to 90%.



### Intersection speed zones

These areas have vehicle activated electronic speed signs that warn drivers to reduce speed when other vehicles are approaching the same intersection from another road. They have been found to reduce deaths and serious injuries by up to 79%.



### Wide centreline

Having a wide centreline allows room for driver error, but has also been found to slow traffic too because when lanes look narrower drivers take more care. Studies indicate that they can reduce deaths and serious injuries by up to 80%.



### Roadside barriers

These prevent vehicles from leaving the road, which can result in very serious injuries if drivers end up going into ditches, hitting poles or trees, or rolling on uneven ground. Roadside barriers have been found to reduce deaths and serious injuries by as much as 87%.



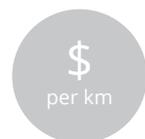
### Reducing travel speed

For every 10% reduction in travel speed, studies have found that deaths and serious injuries reduce by anything from 20% to 40%. Often more than just changing the speed limit sign is needed to get a significant drop in travel speed. Education, enforcement and engineering can all contribute.



### Rumble strips (audio tactile profile marking)

The sound of tyres running over these makes drivers check their lane position. They are relatively inexpensive to install and have been found to reduce deaths by up to 42%.



### Adequate skid resistance

Good skid resistance is important as well as drivers making sure their tyres are in good condition. Having adequate skid resistance on corners has been found to reduce deaths and serious injuries by up to 40%.



**Cost**

- \$ Less than \$50k
- \$\$ Up to \$500k
- \$\$\$ Over \$500k

**Key**

- † Deaths
- 🦴 Serious injuries



**Wide sealed shoulder**

Having a roadside shoulder allows room for driver error and space when vehicles need it. They have been found to reduce deaths and serious injuries by up to 40%.

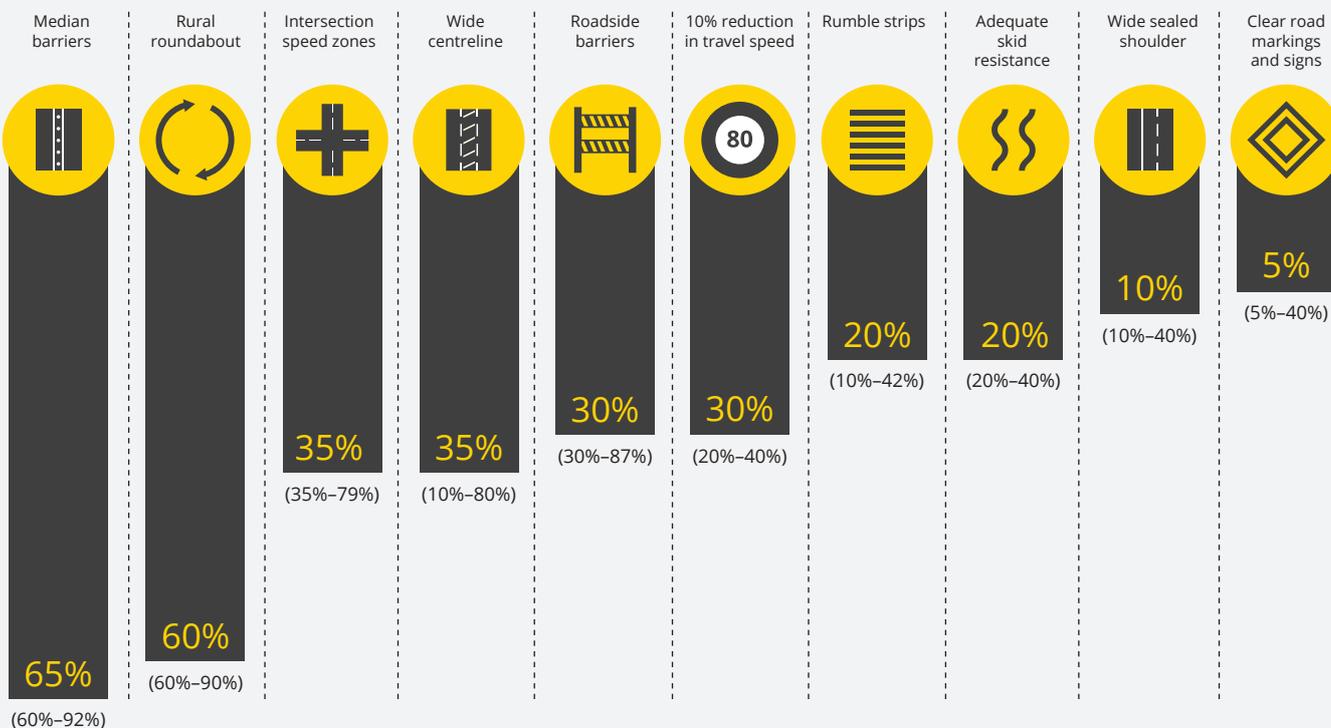


**Clear road markings and signs (delineation)**

Clearer delineation that guides and warns drivers is particularly important for night-time driving. It has been found to reduce deaths and serious injuries by up to 40%.



**Typical reduction in deaths and serious injuries after installation**



xx% These estimates have been calculated by the NZ Transport Agency based on analysis of multiple studies. Findings related to travel speed are from the International Transport Forum (Ref: p.7).

(xx%–xx%) Indicates highest and lowest reduction findings from various research. Results depend on individual conditions at each site.

# This should be easy but ...

People living next to roads earmarked for safety improvements, and people travelling on the road frequently, can sometimes have different views on changes needed.

## Safety improvements require compromise

### People can come up with good reasons for not wanting changes.

Comments like these are all legitimate concerns, but sometimes we have to trade off conveniences we're used to with the ability of this infrastructure to prevent road deaths and serious injuries.

The NZ Transport Agency needs to take local views into account and adapt designs when they can. At the same time, locals need to understand that sometimes there will be restrictions on movement or access to achieve safety benefits.

What the AA wants to see are safety improvements that communities support.



### Common reasons for not wanting median barriers:

"They reduce road space and stop people from turning into driveways and side roads."



"They prevent people pulling over into a shoulder and vehicles behind passing."



"They cause a major inconvenience when large vehicles like tractors and house movers want to use the road."



### Common reasons for not wanting rumble strips:

"They're noisy if you live next to the road."



"They're dangerous for road cyclists."



## What the AA says

Safety improvements to our roads will involve cost and potential difficulty in construction, along with inconvenience for road users and nearby residents. But completed projects show that safety is always significantly improved overall, saving many lives now and into the future.



## Some common questions –

### **Why are we spending all this money when no-one has died here?**

Crashes generally happen randomly along our roads, often in places where no-one has ever crashed before, so safety infrastructure needs to be along as much of the network as possible.

### **Wouldn't it be better to spend this money on more driver training or road police?**

There are lots of ways to improve road safety and all are important, but safety infrastructure is one of the most effective and enduring ways. No matter how well you train a driver, they can still make a mistake or error of judgement and the safety infrastructure on the road, or lack of it, plays a large part in the severity of the crash. Meanwhile, police can't be everywhere all the time.

### **Once you put this infrastructure in it needs maintaining – has that been factored in?**

Authorities are aware that safety infrastructure often creates more maintenance and traffic delays due to repairs needed after crashes. But looking at the big picture, extra maintenance costs and inconveniences are offset by less cost associated with people injured and killed in preventable crashes.

### **Don't motorcyclists worry about getting tangled in or cut by wire rope barriers?**

Wire rope barriers are the safest type of barrier if a vehicle hits one because they flex, which helps to absorb the impact. They have been shown to cause no more injuries than other barriers for motorcyclists who hit them. In fact, injuries are more likely to be caused by the solid posts than the wire rope itself. Some modifications to wire rope barriers on roads heavily used by motorcyclists are being made, but ultimately as for all road users, it is safer to hit a barrier of any type than another vehicle head-on or for your vehicle to go off the road and hit an object.

### **Barriers down the middle of a road mean traffic can't turn so add a lot of time to people's journey. Is this factored in?**

Mitigations of inconveniences like increased journey time are included in designs where practical, but improving safety is the priority.

### **Barriers sometimes take road space that makes shoulders narrower so you can't pull over – how is this improving safety?**

Reducing the chances of vehicles colliding head-on or going off the road will save the most lives on our roads. If possible, passing and pull-over opportunities are designed into a road as part of safety works, but losing the ability to pull over along a section of road is a trade-off we must accept for reducing crashes.

### **Rumble strips create a lot of noise – do they make enough difference for the hassle they cause nearby residents?**

Rumble strips are surprisingly effective and cheap, with up to 42% fewer deaths happening on roads after they are installed. Locals are heavy users of roads near them so they benefit too, but authorities will agree on compromises if increased noise from traffic hitting the rumble strip is a problem for people living next to the road.

### **Why is my road only getting a speed reduction, or getting safety improvements but also a speed limit reduction?**

It is not affordable to install sufficient safety infrastructure everywhere and particularly not in a short timeframe. Sometimes safety infrastructure also doesn't make enough difference without also lowering speed limits on some high risk roads.

### **Won't reducing speed mean it takes longer to get somewhere?**

Yes, slower speeds will make journeys slightly longer, although the nature of the road, weather conditions, the number of intersections and amount of other traffic also have a significant impact. People often overestimate the impact of lowering the speed limit on actual travel time and underestimate the safety benefit it will achieve.

#### **Find out more:**

[www.nzta.govt.nz/resources/standard-safety-intervention-toolkit](http://www.nzta.govt.nz/resources/standard-safety-intervention-toolkit)  
[www.kiwirap.org.nz](http://www.kiwirap.org.nz)  
[www.itf-oecd.org/speed-crash-risk](http://www.itf-oecd.org/speed-crash-risk)



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