



Safer Roads Save Lives

Star Ratings for Victoria's Country Highways





Why road safety is important

Many road crashes involve sudden loss, untold suffering and financial hardship, and they change the lives of people forever. Safe personal travel should be a key feature of modern society but unless road tragedy personally touches us or our loved ones, we sometimes don't reflect on how big a problem it is. Across Australia, 5 people die each day on the roads and 60 people are seriously injured. In Victoria alone, around 340 people are killed and 6100 seriously injured every year.

Media reporting of the road toll, graphic advertisements and messages we receive every day often don't prompt us to think past our own contribution to road safety as a driver. And this contribution is vital – but it doesn't end there.

Avoiding road trauma is a shared responsibility between road users, vehicle manufacturers and all levels of government.

We need safer drivers in safer vehicles on safer roads

Traditionally, road safety policy has concentrated on “fixing the driver”. Undoubtedly effective, TAC campaigns to target unwise or illegal behaviour must continue. Those drivers who behave with criminal disregard for the safety of others should expect tough policing and tough penalties.

But most crashes occur when ordinary people make everyday human mistakes. It has been estimated that around 1 in 500 driving decisions can be wrong, involving a mistake, an error of judgement, a missed signal or the like. Sober, drug-free, responsible drivers obeying the speed limit and wearing seatbelts frequently die on our roads. Safe roads minimise the chances of these crashes happening, and if they do occur, they minimise the severity of the crash.

Protecting against human error, and recognising that mistakes are an intrinsic part of human behaviour, is understood in rail transport, aviation, and workplace safety. As Australians we take pride in our safety record in the air. Every possible precaution is taken to avoid crashes and ensure passenger safety. And if a crash occurs on our rail system, we take immediate action to reduce the likelihood of further incidents.

The challenge is to move our thinking from ways to simply limit the number of deaths on our roads, to how to create a genuinely safe road system, in which improving the safety of drivers, vehicles and roads is of mutual importance. A road system where we have 5-star drivers, in 5-star cars on 5-star roads should involve no deaths.

Roads are more important than you think

Most people attribute the causes of road crashes almost exclusively to the way people drive. In surveys conducted by RACV and the Australian Automobile Association (AAA), a telling finding was that nearly 100 per cent of respondents spontaneously mentioned one or other aspect of driver behaviour as one of the three biggest causes of road crashes.

Motorists can, without hesitation, list the main “bad” driving behaviours such as speeding, drink driving and fatigue

Accordingly, the most popular strategies for reducing road crash deaths and injuries involve more driver education and training, and cracking down on aggressive and speeding drivers.

Through the Australasian New Car Assessment Program (ANCAP), motorists are becoming increasingly well informed about the safety of new cars, and can readily talk about those design features that improve safety - like ABS brakes, stability control, airbags, seatbelts and crumple zones.

But by comparison with driver behaviour and safer vehicles, motorists' understanding of what makes a safe road is barely developed.

In fact, safer roads have the potential to save as many lives as safer vehicles and improved driver behaviour combined! Australia has a National Road Safety Strategy – it's a blueprint for saving lives and reducing injuries. The strategy has been agreed to by the Commonwealth and all State and Territory Governments, including Victoria. The strategy shows that if we improve the safety of roads, improve driver behaviour, improve the safety of vehicles and adopt smarter safety technology we will save as many as 700 lives every year, most of these through modern, safe roads.

Improving the safety of roads is the single most significant achievable factor in reducing road trauma.
National Road Safety Strategy (NRSS)

Here's how the NRSS says we could save 700 lives every year





AusRAP, the Australian Road Assessment Program

The difficulty is that most “safety” features of roads hide in plain sight. Because we are so familiar with what a road looks like, we don’t stop to consider how complex it really is. This has been compounded by the difficulty road experts have had in talking about road design in a way we can all understand.

But this is about to change. Roads are more important in road safety than most people think and we now have a way of explaining why.

AusRAP Star Ratings form a simple language to discuss how to make roads safer and enable us to identify unsafe roads before a crash occurs.

We don’t need to wait for someone to die before something is done to make a road safe

The development of AusRAP Star Ratings by RACV and AAA is a world leading approach. In countries such as Sweden, Germany, Austria, Britain, Iceland, Netherlands, Spain and Switzerland, the concept of Star Ratings (through a similar program called EuroRAP) is actually driving the development of innovative engineering for safer roads.

AusRAP Star Ratings involve an inspection of design elements such as lane and shoulder width and the presence of safety barriers, which are known to have an impact on the likelihood of a crash and its severity. Specially equipped vehicles record digital images of a road using an array of cameras which log safety features when traveling along the road at almost highway speeds.



How Star Ratings are determined

Highly trained analysts undertake desktop inspections by taking a virtual drive-through of the road network using specially developed software to make accurate measurements of road elements such as lane widths, shoulder widths and distance between the road edge and fixed hazards, such as trees or poles.

A road's Star Rating is based on an inspection of road design elements which are known from extensive research to influence the *likelihood* of crashes occurring and the *severity* of those crashes that do occur. It is calculated by looking at the relative risk posed by shortcomings in these elements, based on 10 years of extensive research by ARRB Transport Research, a world leader in this science, and RACV's technical consultant for AusRAP.

As a simple example, the risk of being involved in a crash on a road with narrow lanes (less than 2.8 metres wide) is 50 per cent higher than on a road with wide lanes (around 3.6 metres wide). That is, other things being equal, a road with wide lanes is safer—and therefore may receive

a better rating—than a road with narrow lanes, mainly because narrow lanes leave little room for error. Various risks apply to other design elements as well (see page 7 for more examples). All of these are put together using mathematical formulas to form a Star Rating.

Between 1 and 5 stars are awarded to roads depending on the level of safety which is 'built-in' to the road.

The safest roads, (4 and 5 stars) are likely to be straight, have two lanes in each direction separated by a wide median, have good line-marking, wide lanes and sealed shoulders, safe roadsides and few, if any intersections with crossing traffic.

The least safe roads (1 and 2 stars) are likely to have two way traffic with only one lane in each direction, lots of curves and intersections, narrow lanes, gravel shoulders, poor line marking and unprotected hazards such as trees, poles and steep embankments close to the side of the road.

These ratings are shown as a colour-coded map, indicating how many stars a section of road has achieved. Where lanes of traffic are separated by a median or safety barrier (a divided road), Star Ratings are calculated separately for both directions of travel.

Star Ratings for Victoria's country highways are shown on page 8 and 9.

AusRAP spots the differences

Safety features of roads are not always obvious, but AusRAP analysis shows how dangerous roads can be made safer.

Higher risk



Undivided roads with only one lane in each direction make it riskier to overtake. Freeways with wide medians and safety barriers can handle much higher traffic volumes with virtually no chance of a head-on crash.

Lower risk



Roadside killers like trees, poles and steep embankments can turn what would be a minor crash into a severe one. If these hazards can't be removed, safety barriers can dramatically lower the risk.



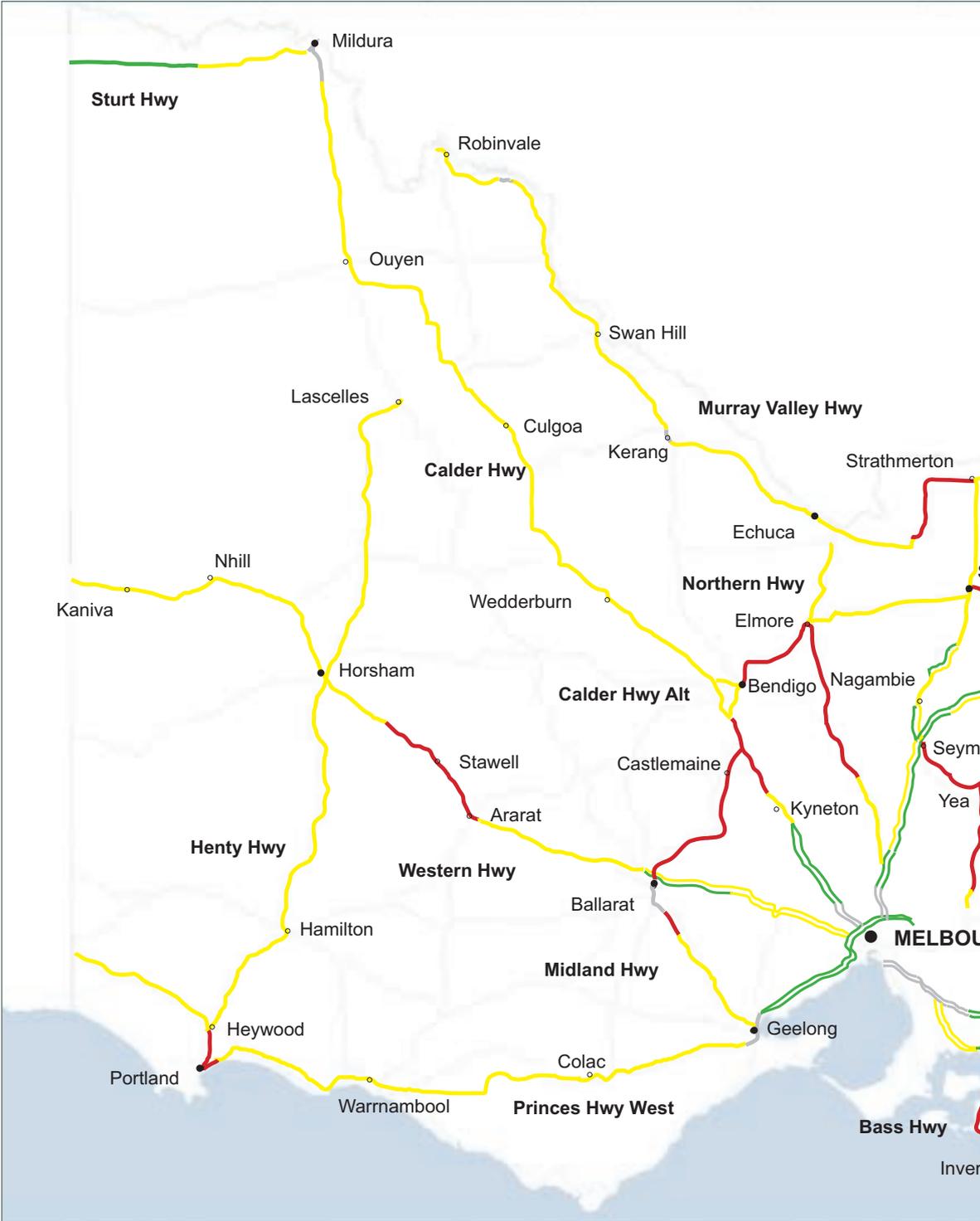
If a driver moves out of their lane, a sealed shoulder offers extra space to recover. Unforgiving of simple mistakes, unsealed or narrow shoulders can lead to loss of control, running off the road or head-on into traffic.

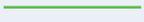
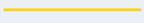
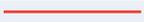
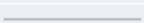


Roads with lots of intersections are less safe because of an increased risk of brutal crashes with side-road traffic. Low risk intersections have separate turning lanes and are clearly visible day and night. The best intersections have freeway style on and off ramps.

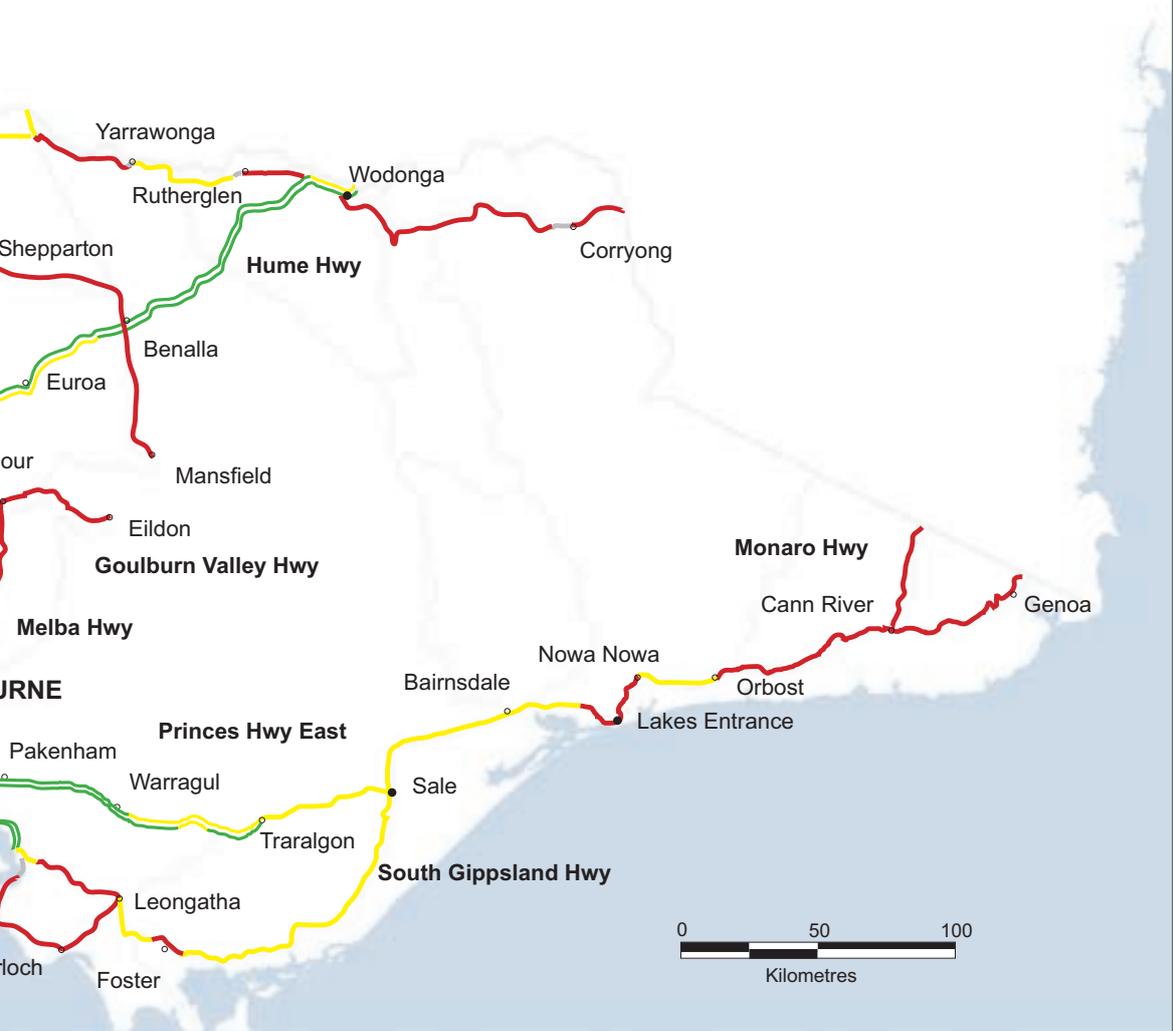


Star Ratings for Victoria's country highways



Star Rating		Percentage
	★★★★★ (safest)	0%
	★★★★	22%
	★★★	54%
	★★	24%
	★	0%
	not rated	(urban or below 90km/h)

Note: These Star Ratings are based on road data collected in 2004 and 2005



Roads can be safer

RACV acknowledges that significant investments have been made by State and Federal Governments to improve the safety of Victoria's country highways. Many Victorians are still alive today because roads which once would have rated two stars are now four. An increasing length of our busiest country highways has been upgraded from two lane roads, where nothing but a splash of paint separated head-on traffic, to freeway standard roads.

But there's still a lot of work to be done to extend these freeway sections, bring some of our older freeway sections up to modern safety standards and build better safety features into those two lane highways where a freeway-standard is not feasible. Many of Victoria's country highways are still not as safe as they could and should be.

Five stars is the ultimate ideal. Together with 5 star drivers and 5 star cars, 5 star freeways would mean virtually no deaths on Victoria's busiest country roads. To achieve this ideal, the road must have a higher degree of safety built in than we have ever done before. Current design standards are a tradeoff between the cost of the road and the crashes which are likely to happen. Lifting the bar for our highest standard national highways is not a technical challenge, just one of community and political desire to do so. We don't have any significant lengths of 5 star roads in Australia at the moment, but we can have. After all, it's not that long ago that the idea of a 5 star car was radical and they are now commonplace.

What RACV wants

RACV has called on the Federal and State Governments to continue to invest in completing high standard freeway links between Melbourne and the major regional centres of Colac (Princes Hwy West), Stawell (Western Hwy), Bendigo (Calder Hwy), Wodonga (Hume Fwy) and Sale (Princes Hwy East). Bypasses of Nagambie and Shepparton (Goulburn Valley Hwy) and overpasses or underpasses at all remaining intersections on the Hume Fwy and Calder Fwy are needed.

RACV believes that 3 stars are unacceptable on these important, heavily trafficked national highways and upgrades are urgently required to bring them up to 4 stars in the short term and 5 stars in the longer term.

Further, we believe that the safety of other 'A' and 'B' roads must be improved with sealed shoulders, regular overtaking opportunities, safer intersections and the best achievable level of roadside safety through removal or protection of hazards such as trees, poles and steep embankments.

The bottom line is that safe drivers in safe cars should not die as a consequence of unsafe roads.

Safer roads save lives



About AusRAP

The Australian Road Assessment Program (AusRAP) is part of an international movement to improve the safety of roads with similar programs in Europe (EuroRAP) and the United States (USRAP). AusRAP has been developed by RACV, the Australian Automobile Association and other State Motoring Clubs. ARRB Transport Research is AusRAP's technical consultant.

For more information about AusRAP Star Ratings and how they are calculated, refer to the companion report to this brochure, *Star Ratings: Australia's National Network of Roads*, published by the Australian Automobile Association, Canberra. A short documentary explaining AusRAP is also available on DVD (free of charge) or web download.

AusRAP's objectives are:

- to reduce deaths and injuries on Australia's roads by systematically assessing risk and identifying safety shortcomings that can be addressed with practical road-improvement measures; and
- to put assessment of risk at the heart of strategic decisions on road improvements, crash protection and standards of road management.

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