

Increasing the Speed Limit on Australian Highways, Freeways and Motorways.

Aim

This report aims to address the issue of increasing speed limits to 130 kilometers per hour on Australian highways, freeways and motorways; this increase is in the interest of driver safety. An increase in safety is expected to correlate with an increase in speed due to fatigue reduction, greater concentration on driving and supported by the improvements in driver aid technology and car safety technology.

Executive Summary

The following factors are pertinent to this submission and support an increase in speeds on Australian Highways, Freeways and Motorways.

1. There are multiple examples around the world of where the speed limit has been increased and the fatalities have **reduced**.
2. Australia is a large country with long distances that many motorist drive between destinations.
3. The long distances take considerable time and leads to fatigue and fatal crashes.
4. Many country roads have minimal traffic and it is sometimes hours between cars crossing any location. This can be very boring and leads to high levels of fatigue.
5. Permitting higher speeds on many roads will reduce the fatigue and the probability of crashes.
6. Australia has one of the lowest speed limits in the world.
 - a. Germany **unlimited** on Most of the Autobahn
 - b. Europe (most of) 130 kmh
 - c. US 70 mph to 75 mph (120 kmh)
 - d. The actual speed limits are listed in more detail in the paper
7. Large sections of Australian roads are open and straight and can safely accommodate higher speeds.
8. The safety of cars are now massively improved from 40-50 years ago when the current speed limits were set. This is applicable for both their primary and secondary safety.
 - a. Primary Safety
 - i. Braking improvements ABS, Disc brakes, Tyres
 - ii. ESP Collision avoidance
 - b. Secondary Safety
 - i. Air bags
 - ii. Seat belts
 - iii. Car crumple zones
 - c. Occupants can now survive 100 kmh collisions that was certain death years ago.
9. Other factors and the fatality percentages
 - a. Alcohol 24% and drugs ?

- b. Fatigue 20%
 - c. Pedestrians account for another significant percentage of 18%
 - d. Motor bike riders account for another 12%
 - e. Mobile phones
 - f. Other Distractions
 - g. The about total 74+% of fatalities.
10. Speed is attributed with just over a quarter of all fatalities. This usually includes speeds that are under the posted speed limit but in the consideration of the police has contributed to the fatality. It also includes the incidents where cars are being dangerously driven well above the speed limit. Ie 160+ kmh in restricted areas and this has no relationship with the types of speed increases that are proposed.

In summary the 130 kmh speed proposed would have a beneficial reduction on fatalities that will otherwise occur.

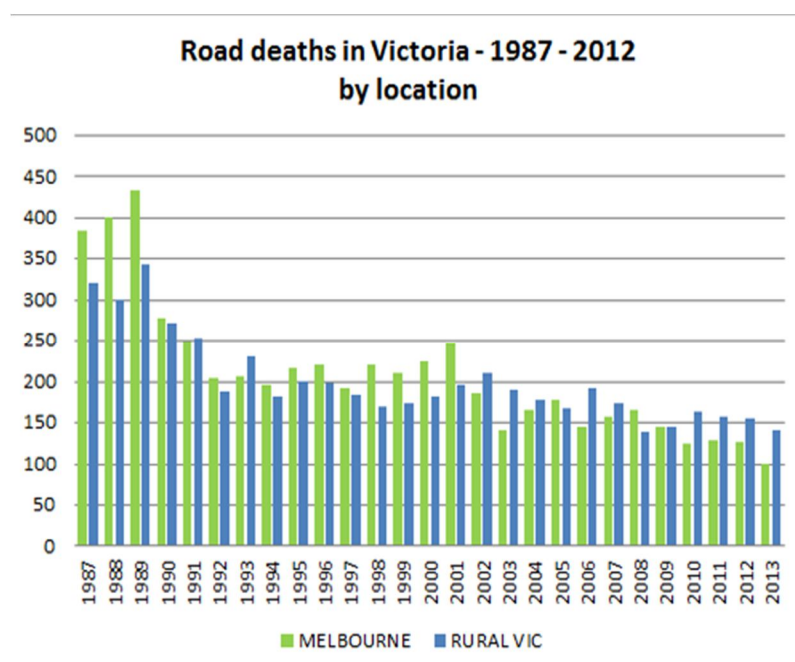
1) Fatigue Reduction

The Victorian Transport Accident Commission cites fatigue as a major cause of crashes annually resulting in around 50 deaths and 300 serious injuries. Roughly 20% of fatal road accidents in Victoria are attributed to fatigue, along with 30% of single vehicle crashes.

A study from the Adelaide Centre for Sleep Research found that a person who has been awake for more than 17 hours is twice as likely to have a crash as somebody who is not fatigued. This is the same probability as a person who has a blood alcohol concentration of 0.05 g/100 ml.

The same study showed that a person who had been awake 24 hours was equivalent to a person with a 0.1 g/100 ml blood alcohol concentration, with a crash risk of seven times higher than normal.

The TAC also cites that 55% of road fatalities occurred in rural Victoria, whilst only 25% of the population lives in rural Victoria. This is shown in the graph below:



While total deaths on Victorian roads have been steadily declining over the 27 years shown in the graph above, the disparity between rural and metropolitan fatalities still remains. As fatigue is much more likely to be an issue on long and monotonous country journeys of several hours this would suggest that fatigue is a major safety issue on Victorian and Australian roads.

Should you ever be clocked speeding by a speed camera in Victoria the TAC will remind you that in a journey of 10 kilometers a speed increase from 100 to 110 kilometers an hour will only save 30 seconds. While this is both correct and appropriate in a metropolitan environment where journeys are generally short and traffic is generally congested it is not so appropriate in the setting of a rural highway where the road is straight, visibility is good and traffic is light.

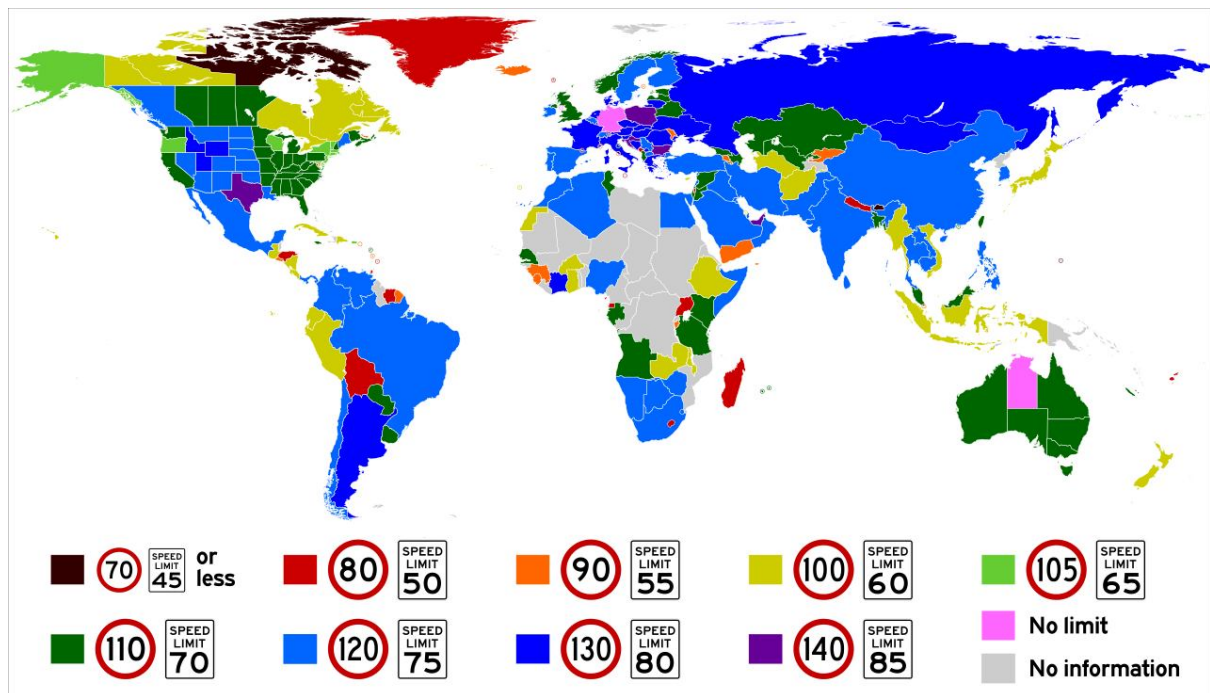
If we consider 3 popular Australian Interstate routes, Melbourne to Sydney, Sydney to Brisbane and Adelaide to Perth, taking 9 hours, 10 hours and 28 hours respectively according to google maps the saving in time will be considerably more significant.

Route	Distance	Time at 100 kmh	Time at 130 kmh	Time Saved
Melb to Syd	878 km	8.78 hours	6.75 hours	2.02 hours
Syd to Bris	921 km	9.21 hours	7.08	2.125 hours
Adel to Perth	2693 km	26.93 hours	20.7 hours	6.21 hours

As can be seen from the above table travelling at a speed of 100 kmh is already faster than the cited time on google maps but increasing the highway speed to 130 kmh can shave hours off the travel time. With the potential to have many more people completing their journey inside of the 17 hour window of fatigue. In fact when speed is increased from 100 kmh to 130 kmh for every 100 kilometers of travel nearly 14 minutes are saved. Thus after only 433 kilometers a whole hour less is spent on the road.

2) Road Speeds throughout the World

Below is the speed limits in place throughout the world.



It shows how low we are compared to the rest of the world.

Germany

With the exception of the motorways and autobahns the German speed limits are the same as Australia's, with default speeds of 50 kmh in built up areas and 100 kmh outside of built up areas unless otherwise indicated. German speed limit enforcement is also the same as Australia's with driving 3 kmh over the specified limit being an offence. However the base speed limit on the motorways is 130 kmh with many sections being completely unrestricted. On unrestricted section of road it is forbidden to travel at a speed that causes the vehicle's stopping distance to exceed the driver's line of sight. Thus it is important to drive in accordance with the road conditions not the arbitrarily defined limit. The autobahns also differ from Australian roads in that a minimum speed of 110 kmh is placed upon the outside lane to improve traffic flow and safety by removing slow drivers from the fast lane, something that would greatly benefit Australian roads. In the year of 2013 the Autobahns accounted for 13% of Germany's road deaths whilst carrying 31% of its traffic. The details are summarized in the following table.

Road Class	Injury Crashes	Fatalities	Injury Rate*	Fatality Rate*	Fatalities per 1000 Injury Crashes
Autobahn	18,452	428	0.082	1.9	23.2
Urban	199,650	977	0.958	4.7	4.9
Rural	73,003	1,934	0.249	6.6	26.5
Total	291,105	3,399	0.401	4.6	11.6

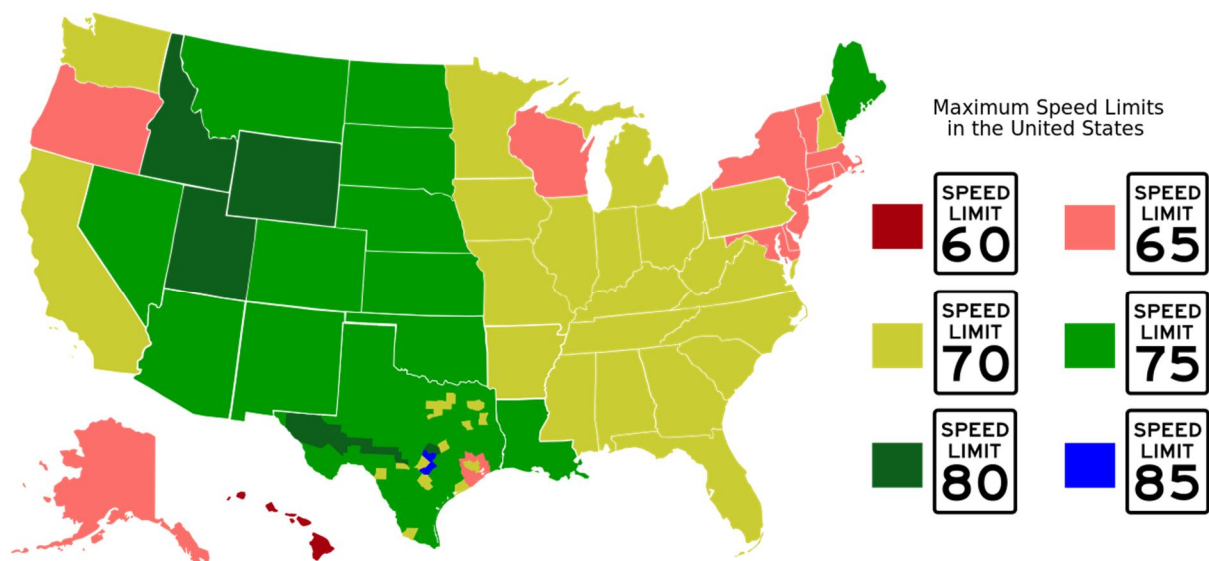
* per 1,000,000,000 travel-kilometres

As can be seen the most fatalities occurred on the rural back roads, which have speed limits ranging from 70 kmh to 100 kmh, much like in Australia. In fact the Autobahns have the lowest amount of injury crashes across the country and the fatality rate per 1000 injury crash on rural roads is higher. Two reasons for the lower injury risk on the autobahns are the good road quality and the good driver etiquette. All autobahns are divided roads with barriers on both sides with multiple lanes of traffic and a smooth surface. This is much like the Hume highway in eastern Australia where the speed limit is enforced at 110 kmh with average speed cameras.

Due to the high speed of travel good driver etiquette is very important; undertaking is banned except in heavy traffic as is driving slowly in the outside lane. Tailgating is punishable with a fine of €375 (\$547 AUD) and a three month license suspension. Drivers are required to maintain a distance equal to half of their speed. For example when travelling at 100 kmh a distance of 50 meters is required. Stopping without valid reason is an offence and carries fines, suspension and in some cases up to a five year prison sentence. A vehicles tires must be rated for the speed at which it is travelling, exceeding this speed is an offense and invalidates the vehicles insurance. The statistics above show that if appropriate safety measures are taken it is quite safe to travel in speeds in excess of 130 kmh.

Apart from the difference in speed limit, another factor to consider when comparing fatalities between the German Autobahns and the German country roads is guard rails. All of the German Autobahns are lined with protective guard rails which serve to prevent cars from leaving the road where they risk hitting trees, bridges, etc and instead keep them on the road where they can decelerate at a much lower rate vastly reducing force on the occupants. It is worth noting that due to tailgating being taken seriously by both the German highway patrol and the German motorist even if a car does wreck on the road itself the chances of other vehicles colliding with the wreck at speed are very low. In contrast the average country road does not have guard rails and is not divided. Leaving an out of control car free to wander into oncoming traffic or off the road entirely into a tree or building. High speed is much more appropriate on a divided multi-lane highway with appropriate guard rails.

United States of America



As can be seen from the above image speed limits in excess of 70 miles per hour (112 kmh) are very common, occurring in 38 states. Speeds of 80 mph (129 kmh) occur in four states with one highway in Texas having a speed limit of 85 mph (137 kmh). Many studies undertaken in the USA have found that having a higher, more reasonable speed limit improves compliance with the limit significantly which in turn reduces crashes.

Utah

The speed limit on some interstate highways in the state of Utah was raised from 75 mph to 80 mph in 2008 due to a multiyear study by the Utah Department of Transportation found that this would improve safety by improving compliance. The study found that with a speed limit of 80 mph there was a 20% reduction in people exceeding the speed limit along with a drop in speed related crashes of 11-20% depending on which area was studied. At no point where the speed limit was raised did the rate of crashes increase. Robert Hull, director of traffic and safety for the Utah Transportation Department, said "People are driving at the speed at which they feel comfortable, and they are doing it safely and prudently."

Idaho

In July 2014 the state of Idaho also raised the speed limit on certain highways to 80 mph due to the success in safety improvement that the State of Utah had experienced from 2008 onwards.

Montana

In December of 1995 the state of Montana removed the maximum speed limit during daylight hours instead Montana drivers were instructed to drive at a speed that was reasonable and prudent. This lasted until June of 1999 when a maximum limit of 75 mph was reintroduced. Whilst no maximum speed limit was enforced the state of Montana experienced an all-time low in fatal accident rates. In 1998 there were 27 fatalities on 4 lane divided highways and 74 fatalities on 2 lane highways. When the maximum speed limit was reintroduced in 1999 over the first 7 months there were 19 fatalities on 4 lane divided highways, for an annual average rate of 40.8 and on 2 lane highways there were 52 fatalities for an annual average rate of 93.6.

In the last full year of no speed limits, 1998, there were a total of 101 fatalities on Montana's highways. In the first five months of 1999 before the limit was reintroduced there were 31, the lowest rate ever. In the next seven months after the limit was reintroduced there were 71 fatalities.

The average monthly fatality rate in 1999 was 2.2 on four lane divided highways and 4.0 on two lane highways. After the speed limit was reintroduced the monthly average increased to 2.7 on four land divided highways and 7.4 on 2 lane highways. This would yield an annual fatality rate of 74.4 fatalities without a speed limit or 134.4 fatalities with a speed limit. An increase of over 80%. Researchers also found that during the period of no speed enforcement the rate of drivers wearing seatbelts increased dramatically also.

Texas

The maximum speed limit throughout much of Texas is 75 mph however some roads have limits of 80 mph and State Highway 130 has sections where the limit is 85 mph. there are over 11000

kilometers of Texas highway where the speed limit is 75 mph (120 kmh) and over 900 kilometers where the speed limit is 80 mph (129 kmh) almost all of this is on interstate 10 and interstate 20. In the three years prior to the introduction of the 80 mph speed limit on I-10 and I-20 there were 103 fatalities, an average of 34.33 a year. After the speed limit was increased to 80 mph there were 146 fatalities over the next six years, an average of 24.33 a year. An annual decrease of over 29% compared to a statewide decline in fatalities of 28%. This shows that the same factors that decreased fatalities at all speeds, such as airbags and seatbelts as well as driver aid technology like electronic stability control and even the economy are just as effective at 80 mph. The speed is still manageable and safe by today's standards.

Australian

Northern Territory

Up until 2007 the Northern Territory did not have a maximum speed limit with drivers only required to drive at a speed safe for the conditions. In 2007 the maximum of 130 kmh was introduced to major highways such as the Stuart Highway with limits of 110 kmh being applied on smaller rural roads. In 2014 the Stuart Highway limit was removed in an open ended trial of unrestricted speed. The Northern Territory Department of Transport records only 6 fatalities from 2004 to 2014 with 62 people badly injured. None of these deaths are directly attributed to speed however, with not wearing a seatbelt accounting for 63% and alcohol accounting for 31%. This data comes from times when there was no speed limits and when the limit was 130 kmh. Statewide the Northern Territory experienced its highest total road toll of 75 deaths on 2008 when speed limits were enforced. In the 30 years from 1981 to 2010 the Northern Territory had an average of 55 fatalities a year on the road. For most of this time there was no maximum speed limit.

There were more deaths in the 6 years following the decrease in the speed limit than there were in the 6 years prior with unrestricted speed limits.

Victoria

Fatalities					
2009	2010	2011	2012	2013	5 year average
290	288	287	282	243	278

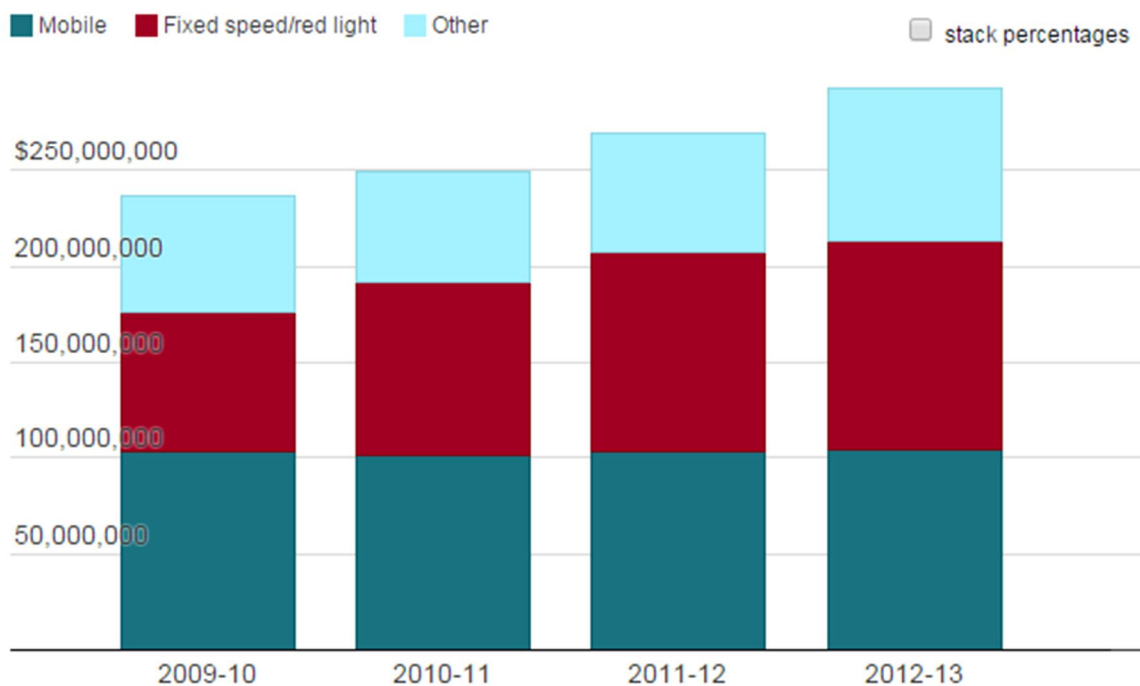
From the TAC website the chart above shows that the decline in road fatalities in Victoria has not changed much over the last six years. From 2008 to 2013 there was a 16% drop but then with 249 fatalities in 2014 (a 2.5% increase) It is clear that the current road safety strategies are not very effective. The current road safety stance of the TAC is that 'speed kills' and many speed cameras and highway officers are employed to monitor and regulate the speed of Victorian motorists.

Speed does not kill, it is collisions that cause death and injury and it would be much more appropriate to have people understand that taking risks and driving unsafely is the problem, not the actual speed, especially the 3 kmh over speed limit applied in Victoria. The principal factor that speed contributes to is the severity of the impact and the design of cars now permits much higher speeds without fatalities than have existed in the past.

Some data from the Herald Sun website on the speed cameras is below.

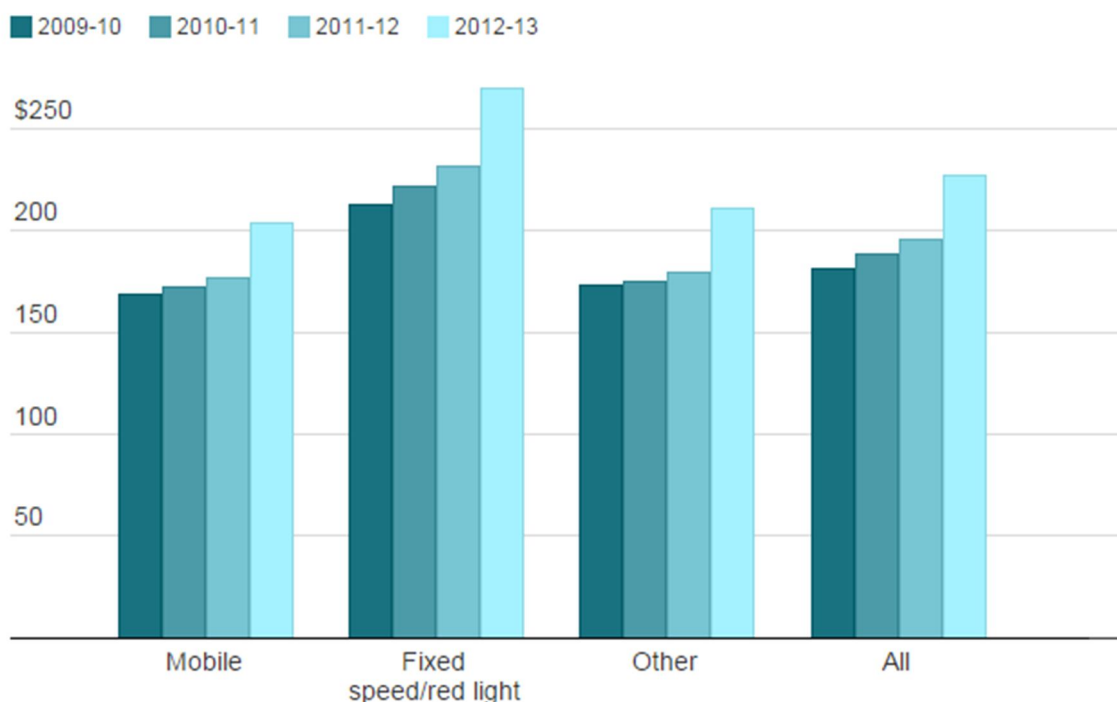
Speeding fines in Victoria by camera type

Other cameras include fixed cameras on CityLink, EastLink, the Hume Freeway, Geelong Road and the Western Ring Road.



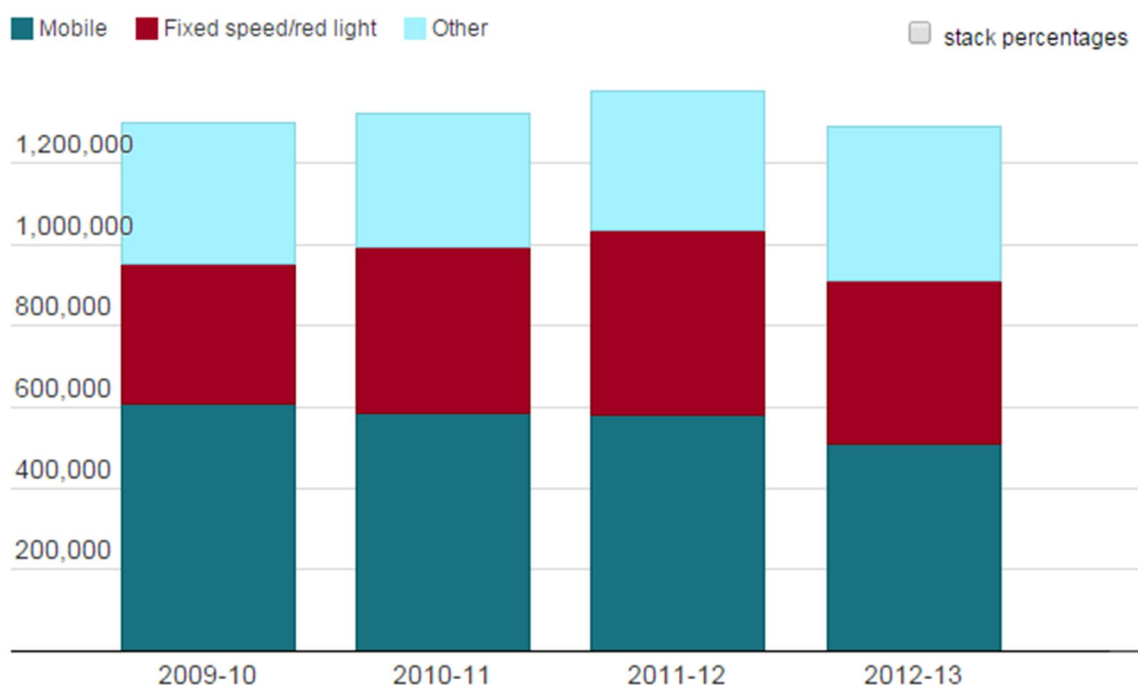
Average speeding fines

Other cameras include fixed cameras on CityLink, EastLink, the Hume Freeway, Geelong Road and the Western Ring Road.



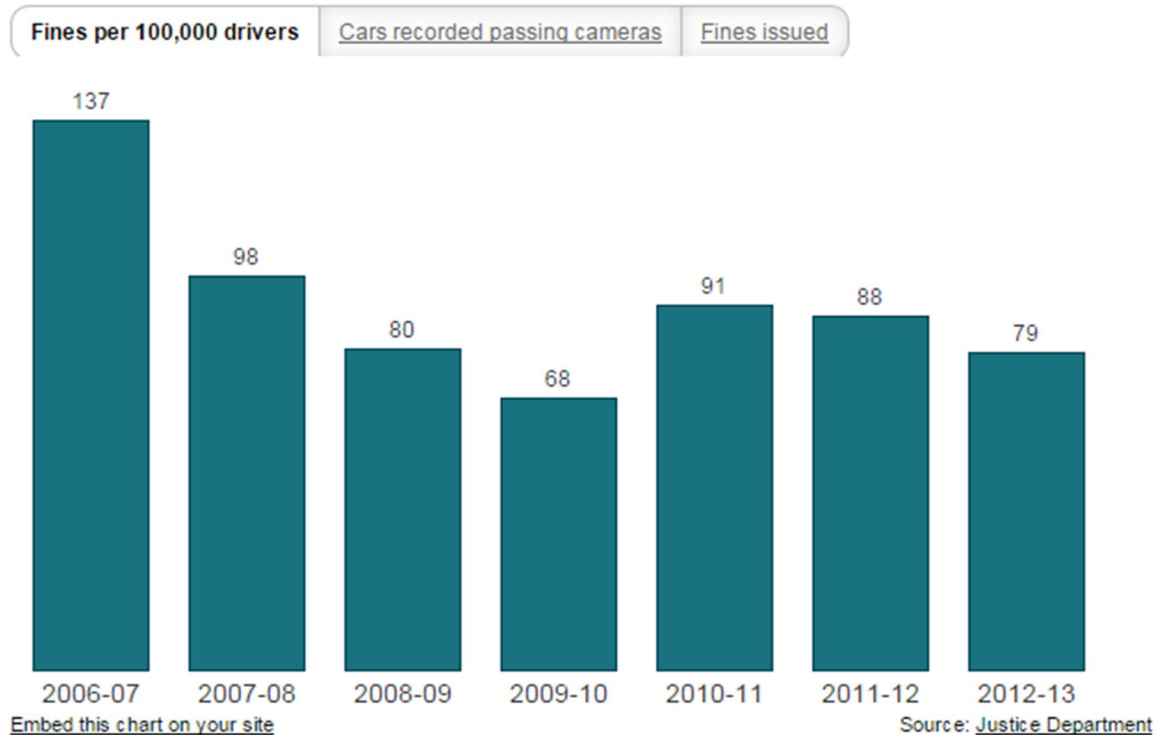
Number of speeding fines by camera type

Other cameras include fixed cameras on CityLink, EastLink, the Hume Freeway, Geelong Road and the Western Ring Road.



Compliance rates for fixed cameras

79 motorists for every 100,000 that passed fixed cameras were caught breaking road rules. Note: This data only includes fixed cameras that keep track of the number of vehicle volumes.



These graphs show that the amount of speeding fines has remained fairly consistent over the 5 year period the cost of each fine has increased resulting in an increased monetary value paid. From the Australian Bureau of Statistics we know that there were roughly 4.5 million registered vehicles in Victoria in the year of 2014. Considering this it is incredible to note that over 1.2 million speeding fines have been administered each year for the last five years. In total 5,299,316 speeding fines were administered by cameras alone from 2009-2013. That's enough for every registered vehicle in the state to receive a speeding ticket and for over 900,000 vehicles to receive two. This data does not include on the spot fines handed out by highway patrol.

However, despite this war on speed and the colossal amount of tickets administered average compliance has barely changed in this time period, nor have the fatalities. This tells us that speed limits are universally accepted as being too slow, the amount of tickets is a telling indication that everybody believes the limits should be raised, but more importantly it tells us that this approach is not working. Throughout Victoria it is widely known that distracted drivers die, distracted either by their phones, by other occupants of the vehicle, by fatigue or by constantly looking at the speedometer to make sure they aren't going that little bit too fast and peering into the bushes on the side of the road in case there's a camera hidden there.

3) Safety of 130 kmh speed on Freeways

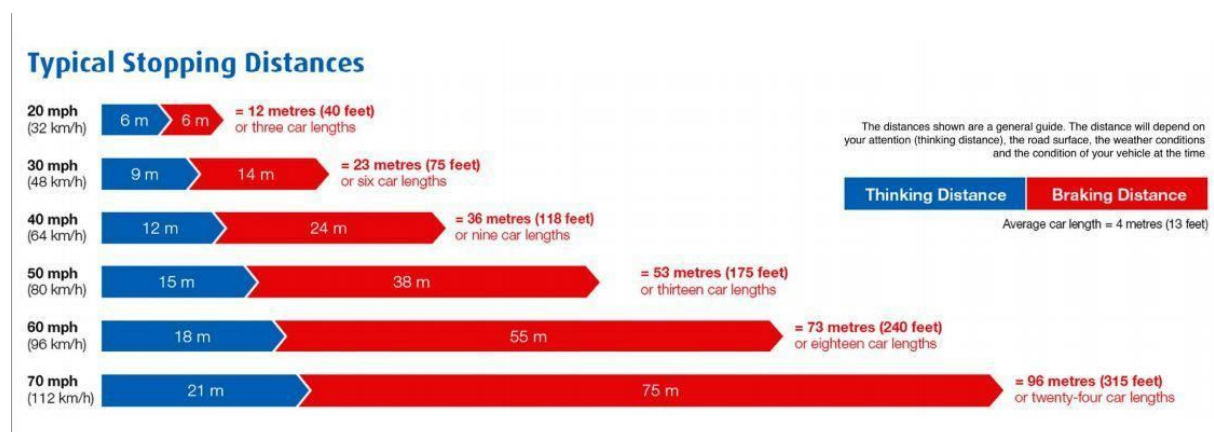
On a four lane divided highway such as the Hume Highway, a limit of 130 kmh is very safe.

If a slow driver is operating at 80 kmh they would in the left lane so that they do not obstruct traffic flow or induce collisions. When passed by another driver at 130 kmh the difference in speed will be 50 kmh. This is the same as driving at 50 kmh down a suburban street past a parked car except with more space as lanes are wider on the highway. As driving past a parked car at 50 kmh is considered quite safe there is no reason to suggest that this situation would be any different on the freeway.

Suburban streets allow cars to pass each other at opposing speeds of 60 to 70 kmh. This give a closing speed of 120+ kmh. On a divided freeway with guardrails between the lanes the maximum speed is only 50 kmh as stated above, MUCH safer.

4) Highway Code Stopping Distances

In Great Britain the speed limit on the motorways is 70 mph (112 kmh) because the British Highway Code mandates that the stopping distance from 70 mph is 315 ft (96 m) and that any stopping distance greater than 315 ft is excessive and dangerous thus vehicles must not exceed this speed limit.

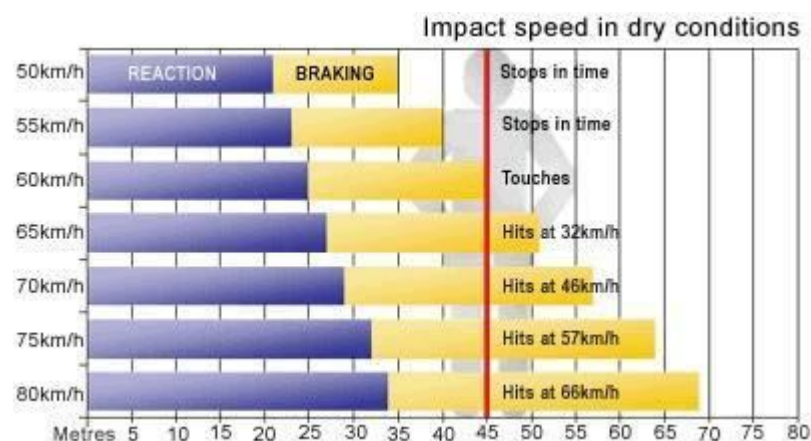


However these stopping distances were determined in 1960 with a Ford Anglia 105E. A car that in line with the technology of the day had drum brakes on all four wheels and no electronic aides such as antilock brakes or stability control. Thus these figures are no longer accurate due to the progression of technology. In 2012 Motor Magazine Australia recreated the test with an assortment of modern cars stopping from 100 kmh. The results are tabulated below.

MAKE/MODEL	DISTANCE (m)	SOURCE
Alfa MITO	37.61	Motor Magazine (Aust)
Alfa Giulietta QV	37.80	Motor Magazine (Aust)
Audi A5 Sportsback	37.62	Motor Magazine (Aust)
BMW 123D Hatch	37.95	Motor Magazine (Aust)
BMW 330D Coupe	36.63	Motor Magazine (Aust)
Chrysler 300C	38.72	Motor Magazine (Aust)
Holden VE Commodore SV6	39.86	Motor Magazine (Aust)
HSV GXP	37.76	Motor Magazine (Aust)
HSV GTS (WP tuned - 2011)	38.31	Motor Magazine (Aust)
Nissan GTR (R35 - 2011)	32.75	Motor Magazine (Aust)
Porsche 911 Turbo S (2011)	39.62	Motor Magazine (Aust)
Renault Megane RS250	36.34	Motor Magazine (Aust)
Renault RS Clio 200	36.43	Motor Magazine (Aust)
Subaru Impreza WRX	37.38	Motor Magazine (Aust)
Suzuki Alto	43.56	Motor Magazine (Aust)
W Golf GTD	37.58	Motor Magazine (Aust)
VW Golf R	39.57	Motor Magazine (Aust)
VW Golf GTI	39.36	Motor Magazine (Aust)
Volvo C30 TS	39.05	Motor Magazine (Aust)

As shown even the least impressive car, the Suzuki Alto, stopped in 43.56 m, 11.34 m short of the 55 m the Ford Anglia managed with some cars such as the Nissan GTR stopping in only 32.75 m, 22.25 m short of the Anglia.

This highlights the redundancy of the British Highway Code but when the similar graph provided by the Victorian TAC is examined the situation is not much better. The Victorian stopping distance approximately doubles the driver reaction time.

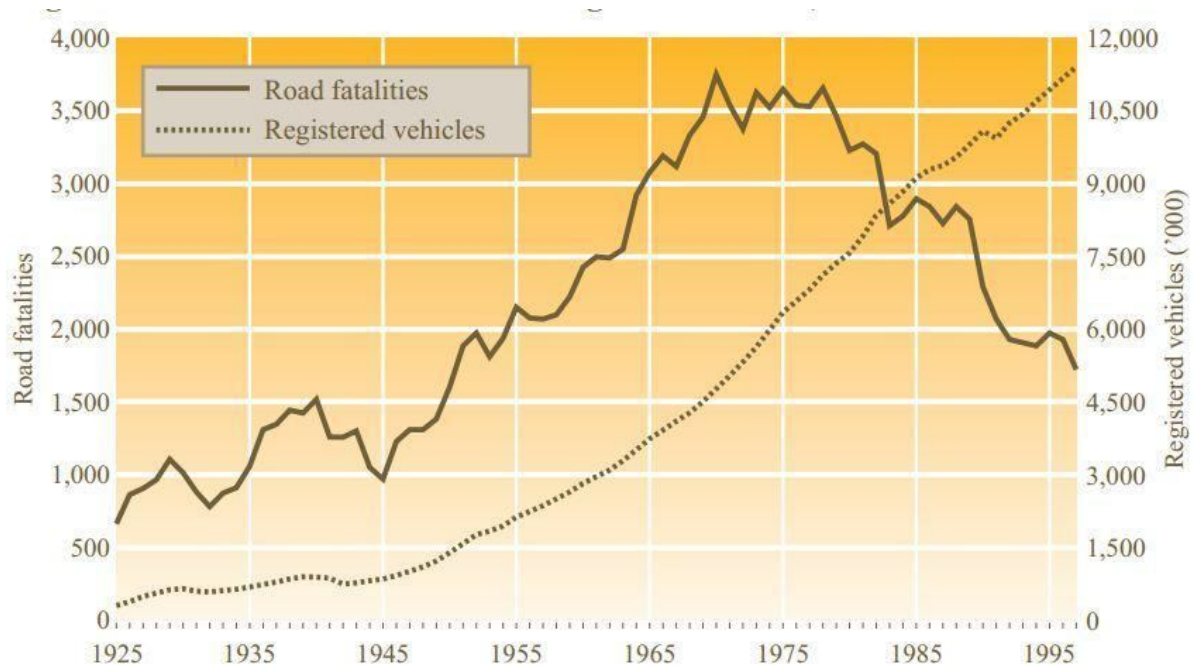


The braking distances shown in the table above are only a few meters better than the British Ford Anglia, implying a vehicle of similar vintage was used in the testing, possibly in 1974 when the Australian road network was metrified and the current speed limits were introduced. So this data is also not on par with modern technology. However the most disturbing aspect of the graph provided by the TAC graph is the red line indicating impact after only 45 meters. While this figure may be appropriate on a suburban street it is not appropriate for an open country highway where the line of sight often extends into the hundreds of meters or even over a kilometer. Thus if we take the average driver reaction time to be 1.5 seconds as the TAC has done and extrapolate the braking distances given by the TAC out to 130 kmh we get a reaction distance of roughly 54 m and a braking distance of roughly 55 m, giving a total stopping distance of roughly 109 m. While this distance is not short it can still be safe when the 3 second following distance rule is followed and when conditions and visibility are good. At 130 kmh a 3 second following distance equates to over 160 m and even if the 3 second following distance rule is not observed the stopping distance of the car in front must be considered also, which will still give the tailgating driver enough space to either come to a complete halt without hitting the car in front if the car in front does not brake to its full power or to at least perform an evasive manoeuvre onto the shoulder at a low speed to avoid a small fender bender.

However it is the opinion of many studies that increasing the speed limit to a level that more drivers feel comfortable with will reduce driver frustration and road rage, thus reducing the instance of tailgating. Another variable to be considered is the advent of safety features such as radar guided cruise control and emergency collision avoidance braking that are becoming much more prevalent and will remove the human reaction factor from the equation.

In the event of an animal such as a kangaroo coming onto the road in front of a car travelling at speed the following distance is no longer relevant but modern driver aides such as antilock brakes, electronic brake force distribution, modern suspension geometry such as double wishbone setups, more advanced tire technology and electronic stability control will enable the driver to decelerate and swerve around the hazard much more effectively than in 1974 when the speed limits were introduced.

5) Advances in Driver Aid Technology



This graph shows a history of road fatalities and car ownership Australia wide from 1925 to 1997. As can be seen the level of fatalities peaked around 1970 and has been steadily declining ever since while car ownership around the country has experienced exponential growth. It is easy to credit the reduced fatality with the introduction of the modern, metric speed limits in 1974 however prior to that date equivalent imperial speed limits were imposed.

However the significant factor is the progressive development of driver aid technology, both in the field of crash safety such as seatbelts and more recently, crash avoidance. Below is a table from Allianz showing a chronology of safety feature development along with when such features were fitted as standard to a common Australian car, the Holden Commodore.

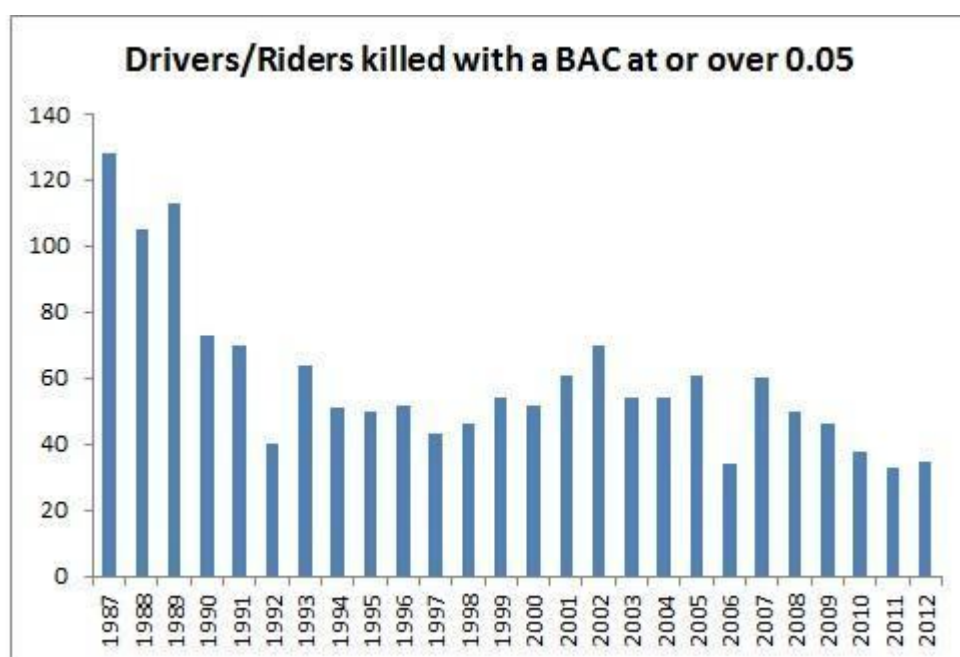
Year	Feature	Commodore Option	Commodore Standard
1921	Head Rests	Since inception	Since inception
1927	Laminated Windscreen	Since inception	Since inception
1948	Padded Dashboard	Since inception	Since inception
1959	3 point Seatbelt	Since inception	Since inception
1963	Inertia reel seatbelt	Since inception	Since inception
1970	Seatbelts compulsory	1970	1970
1971	Traction control	1997	
1978	Anti-lock Brakes	1992	2000
1981	Airbags	1993	2003
1993	ANCAP program	n.a.	1993
1995	Stability Control	2004	2006
1999	Euro ANCAP standards	N.A.	1999
2004	Blind spot warnings	2014	
2005	Pop-up bonnets		
2008	ESC added to ANCAP	n.a.	n.a.
2011	ESC compulsory	n.a.	n.a.

2011	Pedestrian detection		
2011	Adaptive cruise control		

Thus it can be deduced that the rapid reduction in road casualties is mainly due to the introduction of safety features such as seatbelts, airbags and antilock brakes that make it harder to have a crash and easy to survive it. The progress in crumple zone technology can also be attributed. According to ANCAP testing a 2001 Holden Commodore without airbags is still safer than a 1997 Holden Commodore with an airbag due to the superior chassis design. Driver airbags being a standard feature from 2003 onwards and 6 airbags being standard from 2006 onwards only improve crash survival rates. The Holden Commodore is a good benchmark car to use for this comparison as it is prevalent in Australian and it does not lead the curve in safety features, generally being towards the middle of the field, only achieving a 5 star safety rating in 2006. Thus it is fair to say that the majority of cars on Australian roads will be equivalent to or better than this level of safety.

6) Drink and Drug Driving

Another cause for the decline in fatalities, especially the significant drop around 1990 is the increased targeting of drunk driving, as this graph from the TAC shows deaths from drink driving did decrease significantly in Victoria around that time.



From the TAC website we know that 110 drivers who died on Victorian Roads in 1987 had a blood alcohol concentration over the legal limit of 0.05 g/100 ml. This was 38% of the total fatalities that year. Thanks to extensive breath testing over 70000 drunk drivers have been caught on Victorian roads since 1997 bringing the average alcohol related fatalities down to 40 a year between the years of 2008-2012 which is about 24% of the total fatalities, a significant improvement. The majority of drunk drivers killed in 2013 had a BAC of over triple the legal limit. Due to higher population density most alcohol related fatalities occur in the urban setting where the increase of speed on the highway will be irrelevant. As a person with a BAC of triple the legal limit is unlikely to heed the required speed limit or driving conditions wherever they may be driving it is unlikely that increasing the speed

on the highways will have any negative effect on alcohol related fatalities. Unfortunately the TAC does not have any statistics for us about drug related fatalities.

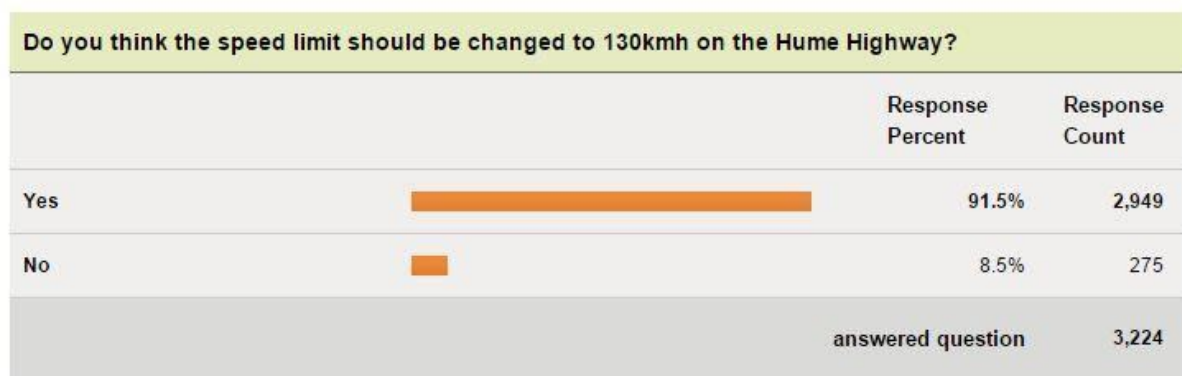
7) Public Opinion

There are a large percentage of people that would like to see higher speed limits. Even Members of Parliament are frequently in the news for exceeding the speed limit while driving. The massive revenues from speed cameras also confirms that the average driver can easily and inadvertently drive in excess of the posted speed.

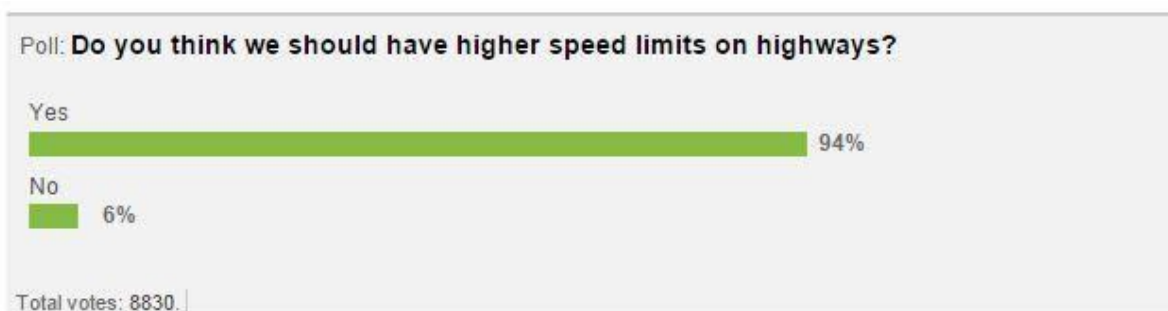
There are a few motorist that consider that the speed limits are too high and often they will drive in the 100 kmh right hand lane anywhere from 90 to 95 kmh. these people are obstructive and often cause dangerous situations from frustrated following motorist, and then their dangerous movements from the "fast Lane" to the exit they want to take when leaving the freeway.

Below are a few public response to the increase in speed limits.

From The Border Mail website:



From the Drive.com website:



On the 18th of September 2013 Channel 7 ran a poll in which over 400000 votes were cast in only 30 minutes with 60% of responders from Victoria and 57% from New South Wales and Queensland wanting the speed limit raised to 140 kmh. From the Three eastern states between 20-27% wanted the limit raised to 130 kmh compared to only 8-11% who wanted to leave the speed limit as it currently sits at 110 kmh.

The petition put forward by Wheels magazine in 2013 gained over 24000 in support. The consensus of the public is that on a good road with a well maintained, modern car 130 kmh is not a problem at all.

8) Driver Training

The issue of driver training should also be addressed In Australia. We do not have formal driving instruction requirements, though available there is no compulsion to consult a professional driving instructor when seeking to gain an Australian driving license. Most Australian learner drivers are taught to drive by their parents or other relatives. While this method may be suitable in most cases there is no guarantee that the relatives are well informed themselves on appropriate driving practices or that they have taught the learner driver about a full range of driving conditions. If a driving instructor is employed it is normally just for a few lessons to help the learner pass the test by learning a few tips and tricks to watch out for.

In Victoria the driving test itself is very simple, taking place mostly on suburban backstreets where stopping for stop signs and parallel parking are the main items tested. The test generally concludes with a drive of a few minutes along a main road with a speed limit of 70 or 80 kilometers per hour. At no point in the test or even necessarily at any point in the learner's experience will they receive any instruction or assessment on rural highway driving which is concerning considering that 55% of Victorian road casualties occur on rural highways. With a system like this it would not be uncommon the a newer driver's first experience on a rural highway could be when they are on their P plates with little to no idea how to conduct themselves. This is evident on Victorian roads as most drivers do not observe an appropriate following distance or conform to the keep left unless overtaking rule. If these two simple matters were addressed frustration and danger could be significantly reduced on the roads.

It is important to note that though advanced driver training courses such as those included as part of Victorian police training are available to the public they are not compulsory so most drivers forgo them. If advanced driver training courses were included as a compulsory component to the process of obtaining a driving license two important objectives could be met; increased driver awareness and safety on the roads and increased cash flow.

Driver Training Worldwide

Though driver training in Australia is not the worst in the world it is not as good as much of Europe, where the maximum speed limits are higher and the road toll is lower.

This graphic of world speed limits above shows that Australia is one of the slowest first world countries with the exception of the Stuart highway in the Northern Territory. However when compared with Germany, where large sections of highway have unrestricted speed the Australian road toll is worse. According The World Health Organization in 2012 Australia suffered 5.6 fatalities per 100000 inhabitants and 7.6 fatalities per 100000 motor vehicles. However in 2013 Germany only suffered fatality rates of 4.3 and 6.9 respectively. With the exception of the higher speed limits the quality of the roads and cars in Germany are equivalent to Australia, however the German driver education program is much more comprehensive than Australia's. To get a driving license in Victoria a person must first pass the learners test, a simple 32 question theory test with an average pass rate

of nearly 70%. Then they are free to drive on the road under the supervision of anyone with a full driving license, normally a parent or relative. Once the learner has completed 120 hours of supervised driving and turned 18 they are given a hazard perception test and a driving test. The driving test is mostly conducted in suburban backstreets at low speed where giving way and parallel parking are tested. Then a drive of a few minutes on a multilane road and the test is complete. Once the test is passed the candidate is free to drive unsupervised on the road. No formal instruction by a driving instructor or any advanced driver training is required. The learner is encouraged to experience driving in a wide range of conditions but this is not enforced.

In contrast the German system prohibits instruction by laypersons requiring a licensed driving instructor to be used. The instruction program begins with a minimum of 18 hours of theory classes to extensively cover all aspects of road use. After the theoretical component is complete the practical instruction begins, practical driving normally begins on a quiet or private road but eventually progresses to cover all manner of driving conditions. At least 225 minutes must be spent on country roads with at least 50 kilometers covered in a single session, at least 135 minutes must be spent on the motorway with each journey lasting at least 45 minutes and at least 90 minutes for night driving, half of which should be on country roads. These minimum requirements are significantly less than the Victorian system however the driving instructor is only permitted to allow the student onto the next step once they are sure the student has learnt all the knowledge and skills required. The next step involves advanced driving techniques and road ethics. Courtesy to other road users is given a high priority as correct behaviour significantly reduces crashes. As such the accident risk has steadily declined since the introduction of the system in 1986. The driving test has both a theoretical and practical component like the Victorian test; however the German driving test takes place largely on motorways and country roads. This method of learning to drive leaves new drivers much better equipped to travel safely at very high speed than the Australian method which does not equip people for highway driving at all. This must be amended regardless of speed limit changes as it is not safe to have bad drivers teaching their children the same bad habits on the roads. If a similar method is implemented in Australia the benefits will be to increase cash flow and to increase road safety dramatically. This will enable the speed limit to be raised safely so further improvements can be made to safety through fatigue reduction.

Conclusion

With modern cars and highways the fatalities would reduce if the speed limit is increased to 130 kmh.

References:

<http://www.heraldsun.com.au/news/victoria/portland-learners-have-best-chance-of-passing-driving-test/story-fni0fit3-1227211705809>

<http://www.4bc.com.au/radio/130kmh-trip-flies-under-the-radar-20130917-2twci.html>

<https://www.change.org/p/raise-the-limit-and-lower-the-toll>

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#q=wheels+130kmh+melbourne+to+sydney

<http://www.bordermail.com.au/story/1804433/130kmh-hume-hwy-speed-limit-petition-is-misguided-poll/>

http://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa10001/

<http://www.abc.net.au/local/stories/2007/02/28/1859290.htm>

<http://www.usroads.com/journals/aruj/9709/ru970901.htm>

<http://www.allianz.com.au/car-insurance/news/importance-of-sleep-dangers-of-driver-fatigue>

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#q=driver%20fatigue%20statistics

<http://www.allianz.com.au/car-insurance/news/evolution-of-car-safety>

<http://www.edmunds.com/car-safety/what-crash-test-scores-mean.html>

http://www.murcotts.edu.au/files/white-papers/lts_driver_learning_not_driver_training_why_have_we_crashed_the_debate.pdf

<http://www.nrmasaferdriving.com.au/driver-training.htm>

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#q=does%20increased%20driver%20training%20lead%20to%20increased%20safety

http://en.wikipedia.org/wiki/Solomon_curve

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#q=solomon%20curve

<http://www.education.vic.gov.au/Documents/school/teachers/health/effectdriver.pdf>

<http://www.drivers.com/article/380/>

<http://www.drivers.com/topic/122/>

<http://www.topgear.com/uk/car-news/top-gear-learns-to-drive-learning-around-the-world-2013-09-27>

<http://www.curriculumsupport.education.nsw.gov.au/policies/road/driver/index.htm>

http://www.tac.vic.gov.au/_data/assets/pdf_file/0015/40560/TAC-Wipe-Off-5-Campaign.pdf

http://www.trafi.fi/filebank/a/1385544081/aacede60b181fe7444e0cd3d57ddfc51/13667-Trafi_Tieliikenteen_turvallisuuskatsaus_2013_eng.pdf

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#q=finland%20speed%20limit

<http://www.agradedrivingschool.com.au/news/difficult-driving-test-world/>

<http://www.news.com.au/national/almost-400000-votes-in-half-an-hour-majority-want-speed-limits-raised/story-fncynjr2-1226722392783>

<http://www.motoring.com.au/news/2014/are-australian-speed-limits-too-low-47429>

http://en.wikipedia.org/wiki/Speed_limits_in_Australia

<http://www.drive.com.au/motor-news/should-we-have-higher-speed-limits-20140807-100xfs.html#poll>

<http://www.german-way.com/travel-and-tourism/driving-in-europe/driving/>

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#q=higher%20speed%20limits%20are%20safer

<http://jalopnik.com/utah-raises-some-speed-limits-to-80-mph-because-its-sa-1343843178>

<http://jalopnik.com/this-is-the-best-takedown-of-the-speed-kills-myth-you-1302382244>

http://missoulain.com/news/local/utah-reports-fewer-crashes-better-compliance-with-mph-speed-limit/article_6dbcac62-987b-5efd-bd07-e9f184fef58.html

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#safe=active&q=utah+80mph+seed+limit+statistic

<http://idahoreporter.com/utahs-80-mph-speed-limit-has-actually-lowered-accident-rate/>

<http://www.latimes.com/nation/la-na-utah-speed-limit-20141213-story.html#page=1>

<http://www.ibiblio.org/rdu/sl-irrel.html>

<http://www.ibiblio.org/rdu/sl-irre0.html>

<http://www.ibiblio.org/rdu/sl-synth.html>

<http://www.ibiblio.org/rdu/sl-studs.html>

<http://www.ibiblio.org/rdu/65-lives.html>

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#q=are+higher+speed+limits+safer&safe=active&start=10

<http://www.theglobeandmail.com/globe-drive/adventure/red-line/is-it-time-to-increase-maximum-speed-limits/article18785514/>

<http://www.themorningsun.com/general-news/20141219/raising-speed-limit-could-make-roads-safer>

<http://www.ctvnews.ca/canada/raise-speed-limits-to-make-ontario-highways-safer-advocate-says-1.1833327>

<http://news.nationalpost.com/2014/07/03/b-c-speed-limit-bump-to-120-kmh-reflects-growing-consensus-that-faster-is-often-safer/>

http://en.wikipedia.org/wiki/List_of_countries_by_traffic-related_death_rate

<http://theconversation.com/goodbye-speed-limits-the-nts-risky-road-safety-strategy-19241>

<http://www.caradvice.com.au/303436/northern-territory-extends-open-speed-limit-trial/>

<http://www.ntnews.com.au/news/northern-territory/data-used-to-judge-open-speed-trial-success-not-recorded-by-police/story-fnk0b1zt-1227069452966>

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#q=texas+85mph+speed+limit+statistics&safe=active&start=10

<http://www.autoguide.com/auto-news/2013/02/nevada-might-be-next-with-85-mph-speed-limit.html>

<http://www.carinsurancecomparison.com/how-dangerous-is-the-new-texas-85-mph-highway/>

<http://www.cnn.com/id/49520151#>

<http://articles.latimes.com/2013/feb/26/nation/la-na-nn-nevada-perhaps-to-match-texas-eyes-85-mph-speed-limit-20130226>

<http://reportingtexas.com/hogs-are-avoiding-85-mph-highway-now-but-so-are-drivers/>

https://www.google.com.au/webhp?sourceid=chrome-instant&rlz=1C1FLDB_enAU522AU522&ion=1&espv=2&ie=UTF-8#q=poland%20140kmh%20speed%20limit%20statistics

<http://news.motorbiker.org/blogs.nsf/dx/poland-speed-limit-raised-to-140-kmh-but-150-possible.htm>

<https://www.tispol.org/news/articles/poland-releases-preliminary-road-safety-results-2013>

<https://www.tispol.org/lifesaver/european-road-safety-situation/road-deaths-2008-2014>

http://en.wikipedia.org/wiki/Speed_limits_in_Poland

http://en.wikipedia.org/wiki/Speed_limits_in_Germany

http://www.bast.de/EN/Publications/Media/Unfallkarten-national-englisch.pdf?__blob=publicationFile

<http://en.wikipedia.org/wiki/Autobahn>

http://www.baynews9.com/content/news/baynews9/news/article.html/content/news/articles/cfn/2013/11/22/politifact_texting_w.html

<http://www.monash.edu.au/miri/research/reports/muarc164.pdf>

http://ec.europa.eu/transport/road_safety/pdf/statistics/dacota/bfs2012-dacota-ntua-motorways.pdf

<http://www.tac.vic.gov.au/road-safety/statistics/summaries/fatigue-statistics>

<http://www.tac.vic.gov.au/road-safety/statistics/summaries/crash-location-data>

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/312249/the-highway-code-typical-stopping-distances.pdf

http://www.tac.vic.gov.au/_data/assets/pdf_file/0005/66407/History-of-Road-Fatalities-from-1925.pdf

<https://www.tac.vic.gov.au/road-safety/statistics/summaries/drink-driving-statistics>

<http://www.allianz.com.au/car-insurance/news/evolution-of-car-safety>

<http://www.tac.vic.gov.au/road-safety/statistics/summaries/drink-driving-statistics>

<http://www.drivers.com/article/380/>

<http://www.tac.vic.gov.au/road-safety/statistics/summaries/older-driver-statistics>

<http://www.news.com.au/national/almost-400000-votes-in-half-an-hour-majority-want-speed-limits-raised/story-fncynjr2-1226722392783>

http://en.wikipedia.org/wiki/Solomon_curve

<http://www.bordermail.com.au/story/1804433/130kmh-hume-hwy-speed-limit-petition-is-misguided-poll/>

<http://www.smh.com.au/data-point/blogs/the-crunch--data-point/speeding-fines-in-victoria--get-the-data-20130916-2tu41.html>

<http://www.tac.vic.gov.au/road-safety/statistics/road-toll-annual>

<http://www.abs.gov.au/ausstats/abs@.nsf/mf/9309.0>