Ministry of Transport
TE MANATŪ WAKA

DISCUSSION DOCUMENT

HAVE YOUR SAY ON OUR NEXT ROAD SAFETY STRATEGY

AUGUST 2009

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MINISTER'S FOREWORD

This discussion document and your response to it will form an important part of developing a safer road system for all New Zealanders. The feedback received from road users will be used to develop *Safer Journeys*, a road safety strategy for the next 10 years.

Road safety is a top transport priority for the government. The impact of a road crash goes beyond those directly involved, to their families, their colleagues, the health system and the wider community.

We have made some major gains in road safety – the road toll has more than halved since its peak in 1973, while at the same time kilometres travelled has more than doubled. But despite these gains, hundreds of New Zealanders are killed on our roads every year. In addition, nearly 2,900 people are seriously injured. We also know that each year approximately 13,000 New Zealanders suffer minor injuries as a result of road crashes. These statistics show we have more work to do.

The annual social cost of road trauma is estimated to be $3.8 billion. *Safer Journeys* is a key part of our effort to significantly improve road safety.

Safer Journeys will set a vision for improving New Zealand's road safety and will move beyond just blaming drivers to set in place a system-wide approach to improving safety. We want safer roads, safer vehicles and safer speeds for all New Zealanders, as well as safer road use.

All New Zealanders have a responsibility for road safety and this discussion document reflects this. It draws on the areas that research has identified as major threats on our roads and suggests actions to combat them.

While, in total, more than 60 initiatives are outlined in this discussion document, it is not my intention as Minister of Transport to introduce anything like that number. The purpose of this document is to gather together all the possible interventions and have a public discussion about which are most important to adopt.

This is your roading system and I want to hear your ideas about how we can make it safer. Together, we must strike a balance that meets the expectations of road users who have widely differing views about how many road rules there should be and what constitutes a road safety initiative. We must also consider the resources available and the kinds of interventions that can make a real difference to the road toll.

I urge you to take this opportunity to share your views on how we can improve road safety in New Zealand.

Hon Steven Joyce
Minister of Transport

The government intends to release the new road safety strategy, *Safer Journeys*, in December 2009.

To help make decisions on *Safer Journeys* we want to hear what you think of the ideas in this discussion document.

Each section of this document asks a set of questions. Your responses to these questions are important and will help the government determine the best way to improve road safety. General comments are also welcome.

In developing this discussion document we have included the required regulatory impact statement elements for this stage of policy development.

You can make a submission by using the online submission form at **www.saferjourneys.govt.nz.** You can also email your submission to **saferjourneys@transport.govt.nz**

Alternatively, you can send your submission to:

Safer Journeys
Ministry of Transport
PO Box 3175
WELLINGTON 6140

The deadline for submissions is Friday 2 October 2009.

CONFIDENTIALITY

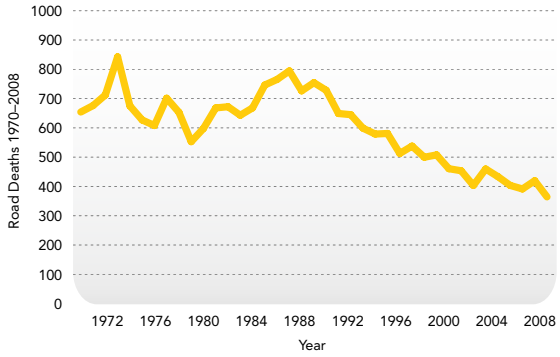
Please note that submissions provided on the discussion document will be subject to the provisions of the Official Information Act 1982. This Act requires information to be made available on request unless there is good reason to withhold the information.

If you do not wish any material provided in your submission to be released, please specify the material that you wish to be withheld and the grounds (as set out in the Act) for withholding. The decision on whether to release the material under the terms of the Act rests with the Ministry of Transport. Any decision regarding withholding information is subject to appeal to the Ombudsman.

Over the past 35 years, New Zealand's road toll has dropped significantly. In 1973, 843 people died on New Zealand's roads. By 2002, this number had more than halved to 405 deaths. This halving in road deaths has occurred even though the number of vehicle kilometres travelled has more than doubled (see Figure 1).

Since 2002 progress has slowed with annual road deaths fluctuating between a high of 461 and a low of 366. In the 12 months to mid-July 2009 there have been 392 road deaths.

Figure 1: Number of road deaths 1970-2008



Similarly, since the 1970s the number of road injuries has reduced by over a quarter, declining from 20,791 in 1970 to 15,108 in 2008.

Are we on course to achieve the 2010 road safety targets?

The current *Road Safety to 2010* strategy has targets to reduce road deaths to no more than 300 and serious injuries to no more than 2,200 by 2010. Figures 2 and 3 compare our actual performance over the period 2001–2008 against a target line which shows where we need to be to achieve the 2010 targets.

Figure 2: Rolling 12-month road toll compared to 2010 target line

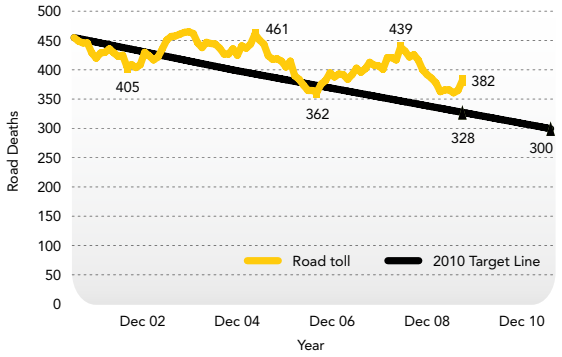
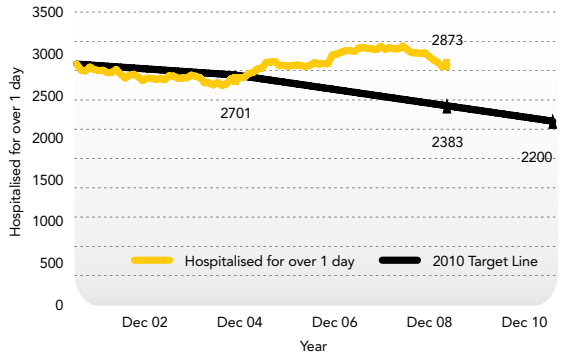


Figure 3: Number of serious injuries compared to 2010 target line



These graphs show we are well behind the 2010 targets. In particular, the number of serious injuries (as measured by the number of hospitalisations of more than one day) has increased from 2,701 in 2004 to 2,873 in 2008. This is a six percent increase.

If we were meeting the 2010 targets, then around 200 fewer New Zealanders would have lost their lives and 1,500 fewer people would have been seriously injured over the last eight years.

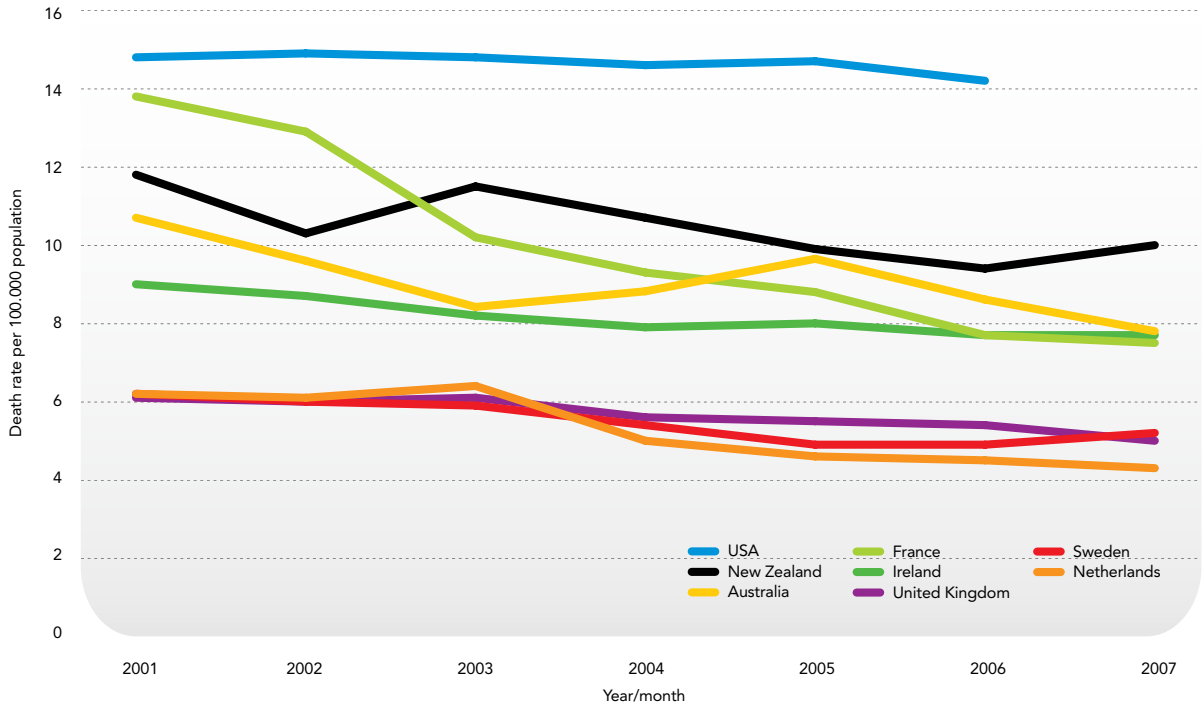
How do we compare internationally?

Compared to other OECD countries, New Zealanders have a relatively high rate of road fatalities per head of population (see Figure 4). Based on 2007 results, we have a road fatality rate of 10 deaths per 100,000 population. This compares with 7.7 deaths per 100,000 population for Australia. Our fatality rate is double that of the Netherlands, Sweden and the United Kingdom.

New Zealand is a highly motorised country. Comparatively, more of our travel is by car than in many other countries.

Compared to the other highly motorised countries in Figure 4, our performance is the poorest. We have a road fatality rate of 10.1 deaths per billion vehicle kilometres. This compares with 8.8 deaths for the United States and 7.9 deaths per billion vehicle kilometres for Australia.

Figure 4: Road deaths per 100,000 population



1 The Netherlands has 7.7 deaths, United Kingdom 6.3, France 8.5. Results for Ireland were not available.

The strongest performer, Sweden, has 5.9 deaths per billion vehicle kilometres travelled[1].

What does the future hold?

There are several key challenges that could continue to affect the potential for road safety gains to be made to 2020 and beyond. These can be summarised briefly as:

Demographic

An aging population – the number of people aged 65 years and older is expected to increase by approximately 52 percent between 2008 and 2020. With an aging population we expect to see some increase in the number of deaths and serious injuries because older road users are more physically vulnerable to injury.

Population growth and increasing demand for transport – the total number of kilometres travelled by vehicles is predicted to increase by over 40 percent by 2040. These changes will place more stress on the transport system, particularly in Auckland where most of the population increase is expected.

Changes in ethnic make-up of the population – population projections show that by 2020 New Zealand will have an increasing proportion of Maori, Pacific and Asian people. This suggests we may need to tailor the road safety effort more to meet the needs of New Zealand's different communities.

Economic

A rapidly growing amount of freight – freight is predicted to double by 2040 and most of it is likely to continue to be transported by road. This means that increasing freight productivity will be important to reduce the impact of more trucks on the road. Crashes involving trucks are usually more serious than those involving lighter vehicles because of their greater size and weight.

Growing international demand for oil – it is predicted that demand for liquid fuels will grow by 32 percent by 2030[2]. If this is reflected in rising fuel prices then the way people choose to travel may also change.

Impacts of the current global economic recession – this could have several impacts. It could mean there is less movement of people and freight, which would reduce exposure to risk on the roads. On the other hand, it could mean there may be less public money available for road safety, and people may defer vehicle maintenance or hang on to their older (and generally less safe) cars for longer.

Technological

New technology – this could affect the way we deliver road safety messages. For example, we could make greater use of the internet and mobile phones to deliver road safety messages to the widest possible audience. New technology could also provide options for enhancing the safety of vehicles.

New illegal drugs that affect safe road use – it is impossible to predict what new challenges may arise for road safety in the future as new drugs emerge. The ability to test for these drugs and enforce against their use will be an area for ongoing research and policy development.

Motorcycles

Increase in motorcycling – the recent increase in motorcycle and moped registrations is predicted to continue for the foreseeable future. This is a problem because we are also seeing a rapid increase in motorcycle injuries.

WHAT CAN WE EXPECT IF WE CONTINUE AS WE ARE?

Progress in reducing road trauma has stalled in recent years, and this shows that we need a new approach to road safety. If we continue with our current approach, and rely on our existing set of road safety initiatives, it is estimated[3] that in 2020 around 400 people will lose their lives and more than 3,000 people will be seriously injured.

This is about the same level of serious road trauma as now, which means our progress in reducing deaths and serious injuries will continue to stall. Essentially, the safety gains we are getting from our road safety efforts are being continuously offset by increases in road use that come with population and economic growth.

The challenge for the 2020 strategy is to provide a new approach to reducing road safety risks. This approach must support New Zealand's economic goals while delivering a substantial and sustained reduction in deaths and injuries.

2 International Energy Outlook 2009

3 These predictions incorporate expected growth in traffic (Vehicle Kilometres Travelled–VKT) as the primary variable. There are many other potential variables that could affect this estimate but these have not been included due to the high degree of uncertainty surrounding their possible impacts.

The vision proposed for the new road safety strategy is:

VISION

A safe road system that is increasingly free of road deaths and serious injuries

This vision acknowledges that while we could never prevent all road crashes from happening, we could prevent many. Ultimately we could significantly reduce the likelihood of crashes resulting in death and serious injury.

This vision also focuses on reducing the number of serious injuries. Too many New Zealanders die in road crashes each year, but roughly six to seven times as many people are seriously injured. These injuries greatly reduce the quality of peoples' lives and the contribution they make to their communities and to the economy.

WHY DO WE NEED A VISION FOR ROAD SAFETY?

New Zealand does not currently have a vision for road safety. Instead, policy direction is provided through the *Road Safety to 2010* strategy's targets of reducing road trauma to no more than 300 deaths and 4,500 hospitalisations by 2010. Having no vision is a weakness because:

- by themselves, targets can create a perception that the government is comfortable with a certain level of serious road trauma
- there is no clear statement of what New Zealand is ultimately aiming to achieve.

This does not mean that targets are not important. It simply recognises that visions and targets play different roles. A vision would state New Zealand's aspiration or long-term goal for road safety. A set of targets would outline how much progress we aim to achieve towards realising the vision over, say, a ten year period.

We know from the world's best road safety performers that having a bold vision is a key part of improving road safety. For example, Sweden and the Netherlands have made significant gains in road safety since focusing their efforts around a bold vision.

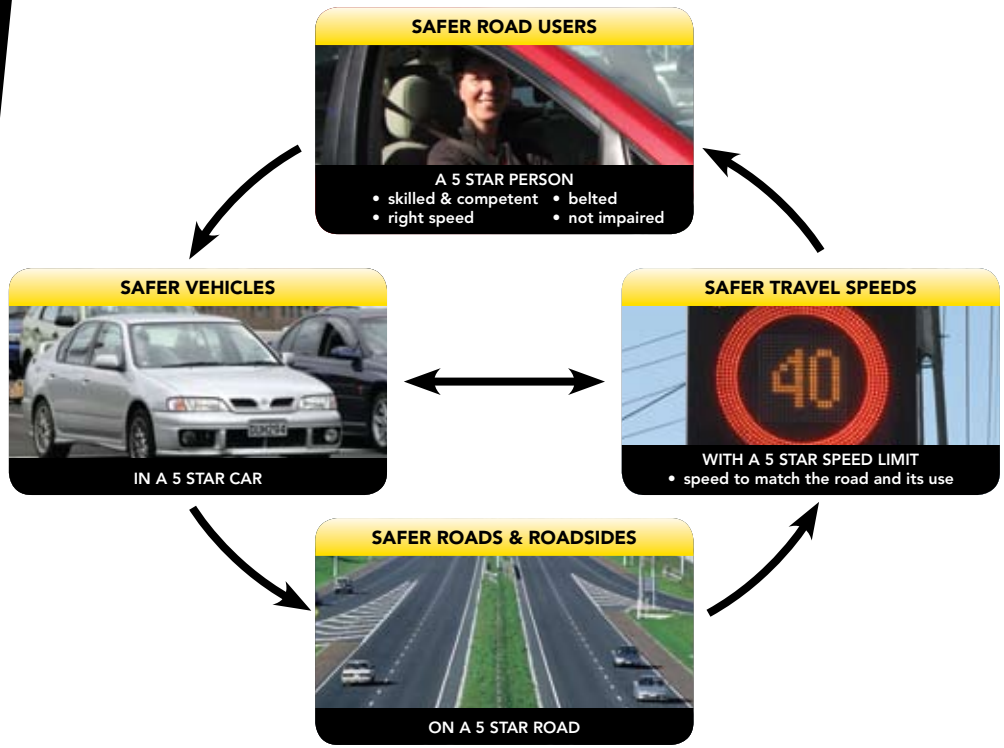
To do its job well a vision needs to:

- be inspirational and challenging, yet still credible
- resonate with all New Zealanders
- be clearly stated and easily understood.

To advance the vision over the period 2010–2020 we propose that New Zealand use a system-wide approach to road safety. With this approach we would be challenged to move beyond our tendency to see 'fixing the driver or user' as the solution. Instead, we would focus on improving all the parts of the road system that impact on safety (ie the road, the vehicle, the travel speed and the road user).

This approach acknowledges that serious road trauma rarely has a single cause. Crashes tend to occur when a range of factors come together at one point in time.

A SAFE SYSTEM APPROACH



The aim of a safe system is to reduce the likelihood of various crash factors coming together to cause a crash.

As can be seen from the safe system diagram, with a safe system we would be moving towards having five-star road users, in five-star vehicles, travelling on five-star roads at five-star speeds. This will take some time to achieve, but by continually making gains in these four areas we will see sustained improvements in road safety.

This approach acknowledges that we all make mistakes. It does this by deliberately creating a system that will progressively reduce the chance of mistakes resulting in crashes. But when crashes do happen, the safe system will have measures in place that significantly reduce the chance of death and serious injury (through safer roads, speeds and vehicles).

Acknowledging human error does not mean that road users have no responsibility. A safe system relies on safe road use. This requires responsible users who comply with the road rules and are unimpaired by alcohol, drugs, fatigue or distraction. It also requires them to actively take steps to increase safety, such as driving to the conditions.

The safe system builds on, but goes beyond, the previous 2010 strategy's approach of the three Es: education, engineering and enforcement. It focuses on the outcomes we need to achieve (ie safer roads and roadsides, safer vehicles, safer speeds and safer road use). At the same time it is open to how we might achieve them. It can use a wider range of measures in addition to education, engineering and enforcement, such as the use of economic incentives (eg vehicle scrappage schemes) and safety-conscious land use and transport planning decisions.

The most significant message of a safe system is that everybody is responsible for improving road safety. It requires road users, road authorities, planners, policy makers, enforcers and vehicle manufacturers and importers to all work together.

WHAT SHOULD OUR PRIORITIES BE?

To move towards a safer system the new strategy needs to consider where the system needs improvements. Our research shows five major areas of concern and five areas where we could do much better. We also need to focus on three areas that are either current or emerging. These are the proposed priority areas:

These 13 priorities are discussed in the following sections. A number of possible initiatives are discussed in each section and all aim to make the system safer. In total, over 60 initiatives are suggested but not all of them would be implemented. This is partly due to resource constraints but, more importantly, to the fact that the initiatives will not all have the same level of effectiveness.

HIGH CONCERN

- Reducing alcohol/drug impaired driving
- Increasing the safety of young drivers
- Safer roads and roadsides
- Safer speeds
- Increasing the safety of motor-cycling

MEDIUM CONCERN

- Improving the safety of the light vehicle fleet
- Safer walking and cycling
- Improving the safety of heavy vehicles
- Reducing the impact of fatigue
- Addressing distraction

AREAS FOR CONTINUED FOCUS AND EMERGING ISSUES

- Increasing the level of restraint use
- Reducing the impact of high-risk drivers
- Increasing the safety of older New Zealanders

Some will achieve a greater reduction in road deaths and serious injuries than others. Many of the initiatives have not been fully developed so it is difficult to know their likely costs and benefits.

This is why we want to hear your ideas. We want to have a debate about which ones we should focus on.

The final strategy will set out the initiatives that will be advanced over the next decade. Each of these initiatives will then be included in one of the three three-year action plans that will be released over the term of the strategy. The action plans will also provide greater detail on how the strategy will be implemented and who is accountable for each initiative.

At the end of this document we ask you to submit your preferred package of initiatives. We also ask about the role of education and advertising (as education is a core activity that affects most priority areas).

WHY HAVE PRIORITIES OF DIFFERENT RANK?

All of the priority areas require attention over the period 2010–2020. However, high concern priorities represent areas:

- where we are likely to make the most improvement in road safety over the period 2010–2020
- that could make the largest contribution to reducing the costs imposed on the economy by road deaths and injuries (eg reducing the days of productivity lost to the workforce, or reducing health sector costs, including reducing ACC costs)
- where a significant change in policy direction, or effort, would be required over the period 2010-2020 if New Zealand is to achieve a significant and sustained reduction in road deaths and serious injuries.

HOW WILL WE ENSURE THAT ALL NEW ZEALANDERS BENEFIT?

Currently, New Zealand's road system delivers significantly better road safety outcomes for some population groups, regions and methods of transport than others. For example, Maori are almost twice as likely to die or be seriously injured in road crashes than other ethnic populations, with Maori children and young people being particularly affected.

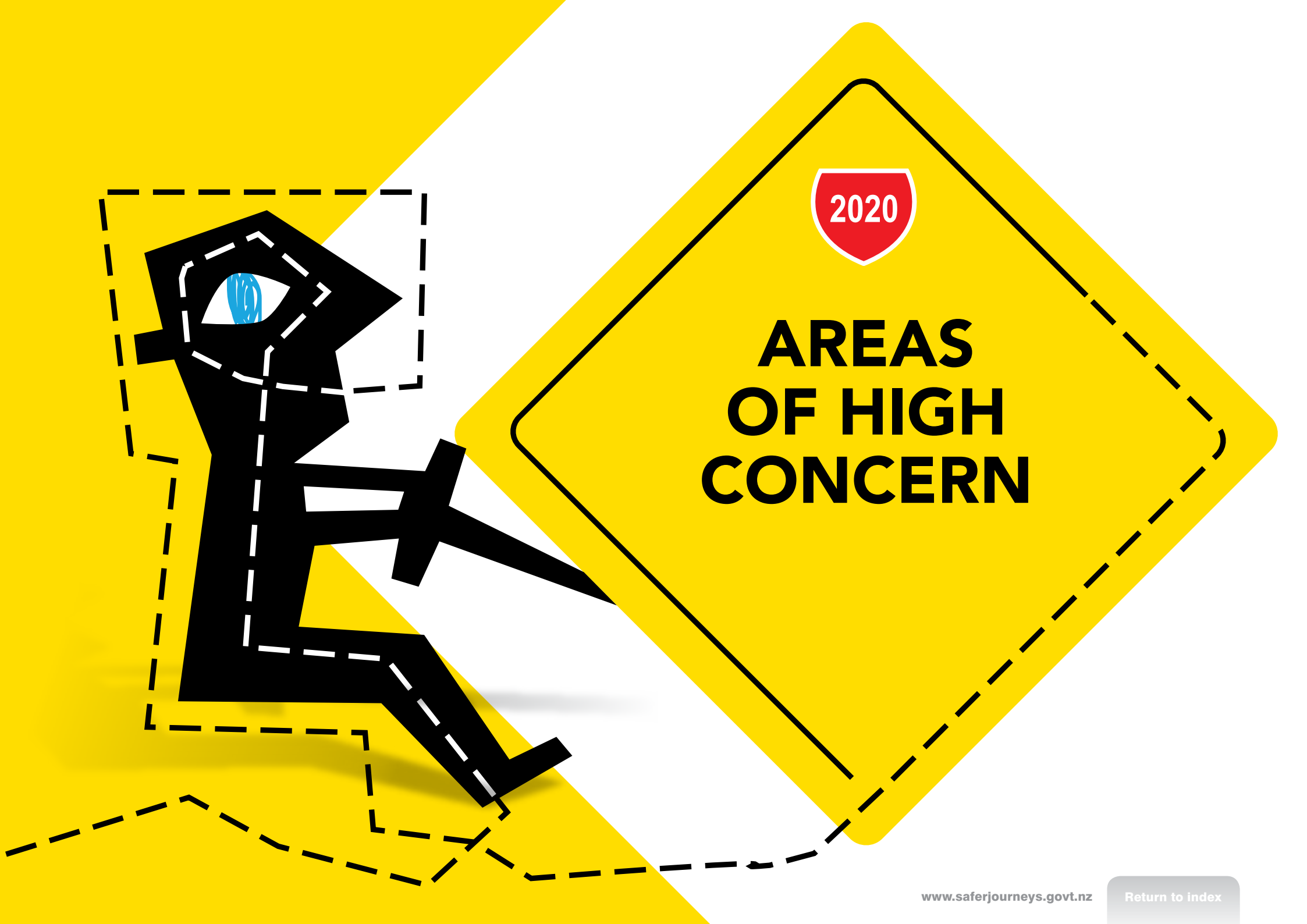
Similarly, the crash risk per vehicle kilometre travelled in Gisborne and Northland is around twice as high as in Auckland and Wellington, and nearly twice that of Nelson/Marlborough.

For *Safer Journeys* to be successful it must reduce road trauma across all population groups and regions. All of the initiatives suggested in this document are intended to improve the welfare and well-being of **all** New Zealanders.

To achieve this, we propose having specific priorities for groups such as young drivers, older New Zealanders, pedestrians, cyclists and motorcyclists. It is also intended that when the 2020 initiatives are implemented they be targeted, or tailored, to respond to the differing needs of New Zealand's communities.

DISCUSSION POINT

Do you think we have identified the right priority areas? If not, what would you change?

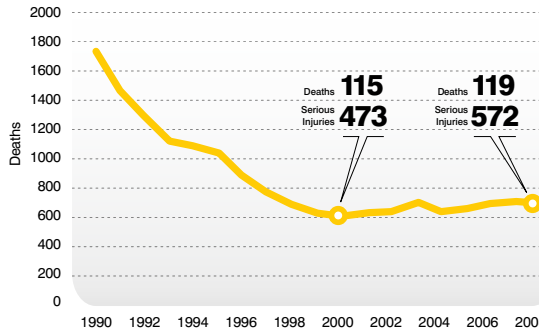

2020
AREAS
OF HIGH
CONCERN

WHAT IS THE PROBLEM?

- **Alcohol/drug impaired driving is one of the largest causes of serious road crashes.**
- **In 2008, alcohol and drugs contributed to 31 percent of fatal crashes and 21 percent of serious injury crashes. These crashes resulted in 119 deaths, 572 serious injuries, and 1,715 minor injuries.**
- **It is estimated that the social cost of crashes where alcohol/drugs were a factor was $833 million in 2008.**

Figure 5 shows that through the 1990s substantial progress was made in reducing the number of alcohol/drug related deaths and serious injuries. However, we have made no further progress since 2000.

Figure 5: Deaths and serious injuries in crashes with driver alcohol/drugs as a contributing factor



Does this trend suggest that more people are opting to drink and drive? The roadside alcohol survey[4] provides the best snap shot of New Zealanders' drink driving behaviour.

We know from this survey that over the period 1998–2004, strong gains were made in reducing the proportion of drink drivers across the population. However, some of these gains were lost over the following four years.

It is especially concerning that the survey shows a clear increase in drink driving among the 15-19 and 25-34 year old age groups. Figure 6 shows the progress made through the late 1990s and early 2000 in changing drink driving behaviour among 15-19 year olds has been reversed. A higher proportion of young people are now driving while over the legal limit.

Similarly, Figure 7 shows that the proportion of drink drivers aged 25-34 has approximately doubled between 2004 and 2008.

4 The survey collects data from all Police districts and the operations occur at randomly selected sites during the hours of 10pm and 2am.

Figure 6: Blood alcohol levels: Ages 15-19

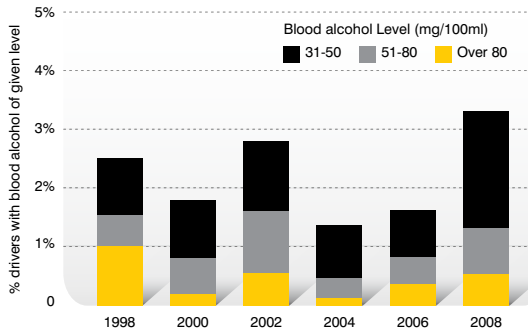
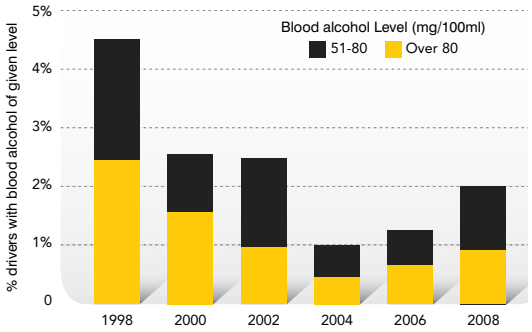


Figure 7: Blood alcohol levels: Ages 25-34



HOW CAN WE REDUCE DRINK DRIVING?

The suggested initiatives for reducing the impact of alcohol impaired driving are to:

- **reduce the legal adult blood alcohol concentration (BAC) limit to 50 mg per 100 ml (BAC 0.05)**
- **introduce infringement penalties for offences between BAC 0.05 and BAC 0.079 if the legal blood alcohol limit is lowered**
- **maintain the legal blood alcohol limit at 80 mg per 100 ml (BAC 0.08) and increase the severity of penalties (this is an alternative to lowering the BAC to 0.05)**
- **inform New Zealanders about the impact of alcohol on driving**
- **introduce a zero blood alcohol limit for certain drivers (drivers under 20 years, adults without a full licence, commercial drivers)**
- **address recidivism through a zero blood alcohol limit for recidivists and move towards mandatory alcohol interlocks**
- **promote the use of alcohol interlocks.**

The persistent number of deaths and serious injuries that are alcohol-related suggests New Zealand needs a more effective response to drink driving. If the trend for alcohol impaired driving continues over 2010–2020 it will reduce New Zealand's ability to improve road safety.

Drink driving is a wider public health and social problem – it is not just a transport problem. The decisions made on the Sale and Supply of Liquor and Liquor Enforcement Bill and on the review of the Sale of Liquor Act will have a significant influence on what we achieve in road safety.

In addition to those reforms, there are a range of transport initiatives that could be considered. All initiatives depend on maintaining the current high level of drink drive enforcement to continue to deter potential drink drivers.

The impact of drink driving on rural communities

The questions at the end of this section include one about whether targeted initiatives are needed for rural communities. These communities have a disproportionate number of alcohol related crashes and the crashes tend to be more severe, that is they result in a larger number of fatal and serious injuries. For instance, research shows that around five percent of all urban alcohol-related crashes result in a death, whereas 13 percent of all rural alcohol-related crashes result in a death[5]. Around 66 percent of all deaths resulting from alcohol-related crashes are sustained on rural roads[6].

Reduce the adult blood alcohol concentration limit to 0.05

When asked how many drinks a person should be allowed to have before driving, most New Zealanders[7] give an answer of around two standard drinks. This is equivalent to a BAC[8] of 0.05 or 50 mg of alcohol per 100 ml of blood. Based on Australian guidelines, for women of average height and weight a BAC of 0.05 equates to one standard drink per hour. For men it equates to two standard drinks in the first hour and one standard drink per hour thereafter.

Our current BAC of 0.08 allows people to become significantly impaired and still legally drive. It allows a man of average height and weight to consume six standard drinks within 90 minutes. For a woman[9] it allows four standard drinks to be consumed.

Internationally, the great majority of countries with legal blood alcohol limits set a limit of BAC 0.05 or

5 Cross, J; Jeffery, W and Blackburn, N. Road Policing Support, New Zealand Police. Rural drink drive enforcement in the Southern Police District. *New Zealand Transport Agency Research Report SAF 08/10.*

6 Ibid.

7 From New Zealand focus group research and a 2008 AA membership poll.

8 Blood alcohol concentration is the amount of alcohol present in a 100 millilitre (mL) volume of blood. For example 50 mg is 0.05 grams, 0.05 grams of alcohol in 100 mLs is written as 0.05%. In other words, 50 mg is equal to 0.05% which is equal to 50 mg/dL (decilitre; 100 mLs). This value can also be described as BAC 0.05.

9 Also of average height and weight – individuals process alcohol at different rates and these estimates are only guides.

lower. Britain, the United States and four of Canada's 13 provinces and territories are the only developed nations that do not. A limit of BAC 0.05 or lower is recommended by the World Health Organization as key to reducing alcohol-related deaths and injuries.

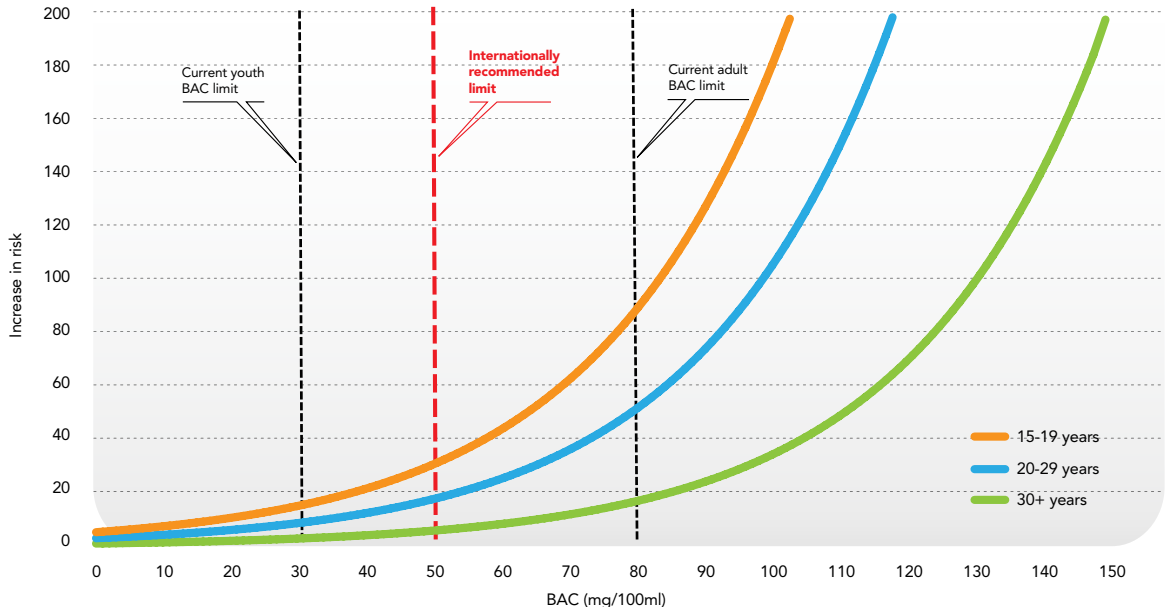
The current BAC of 0.08 for adult drivers was set in 1978. Since then New Zealand and international research has consistently demonstrated the benefits associated with BAC levels of 0.05, or lower, in saving lives and preventing serious injuries.

There is a well-established relationship between blood alcohol levels and crash risk (see Figure 8). As blood alcohol rises, so does the risk of driver involvement in a fatal crash. Compared to a sober driver, a driver aged over 30 with a BAC of 0.08 is 16.5 times more likely to have a fatal crash and 5.8 times more likely with a BAC of 0.05. Drivers aged between 20 and 29 years are 50.2 times more likely to have a fatal crash at BAC 0.08 compared to 17.5 times as likely at BAC 0.05.

Experience from other countries suggests that a BAC of 0.05 would help to reduce the level of alcohol-related road trauma. After dropping to BAC 0.05 from BAC 0.08:

- New South Wales achieved an 8 percent reduction in fatal crashes and a 7 percent reduction in serious injury crashes
- Queensland achieved an 18 percent reduction in fatal crashes and a 14 percent reduction in serious crashes
- Belgium achieved a 10 percent reduction in all alcohol-related fatalities
- France achieved a 30 percent reduction in alcohol-related fatal crashes.

Figure 8: Relative risk of fatal crash by blood alcohol level



International experience also suggests that a reduction in the BAC is likely to bring down average alcohol levels amongst all drivers, including those at the upper extremes (eg people driving at almost twice the legal limit).

Analysis suggests that we would see similar improvements here if we lowered the BAC to 0.05. It is estimated that between 15 and 33 lives could be saved and 320 to 686 injuries prevented every year. This corresponds to an estimated annual social cost saving of between $111 million and $238 million.

To make this initiative as effective as possible in preventing deaths and injuries we would need a public awareness campaign about the new BAC limit. This could involve a cost of up to $1 million for nationwide television advertising. We would also have to ensure the new limit is adequately enforced.

We also suggest having infringement penalties for drink drive offences between BAC 0.05 and 0.079 (see the next initiative). This would ensure that the new limit does not impose any additional workload on the courts.

Those who argue for keeping the BAC at 0.08 say that few drivers are killed with a BAC between 0.05 and 0.08. However, this position ignores the other road users that are killed by drunk drivers and reflects a misunderstanding of New Zealand's crash statistics.

The number of drivers killed whose alcohol level is recorded is only a part of the total number of drivers involved in serious and fatal crashes where alcohol is a contributing factor. Between 2003 and 2007, there were 7,808 drivers involved in crashes "where the presence of alcohol is suspected" and of this number only 4,213 drivers had a BAC level recorded.

Alcohol levels tend to be recorded when Police suspect drivers of driving above the legal limit. This means the statistics are biased towards young drivers (because of the lower youth blood alcohol limit of BAC 0.03) and adult drivers with high blood alcohol levels.

This argument and other concerns that have been raised by stakeholders are discussed further in Appendix 1.

Introduce infringement penalties for offences between 0.05 and 0.079

If the adult BAC was lowered to 0.05 we could have infringement penalties for offences between BAC 0.05 and 0.079[10] and continue with court-imposed penalties for offences above BAC 0.08. The penalties could be in the form of fines, demerit points and/or short-term licence suspension (up to 24 hours).

Infringement penalties would help to deter drink driving by instantly reinforcing the message that drink driving poses a significant safety risk. It would do this without the cost and delay of court-imposed sanctions. This approach is successfully used in many jurisdictions in Europe, Australia and Canada and is likely to be successful here.

Maintain the BAC at 0.08 and increase the severity of penalties

As an alternative to reducing the adult BAC, penalties could be strengthened. This could be done by increasing the maximum level of fines, increasing minimum disqualification periods and lengthening the time for which prior convictions are counted in sentencing.

This initiative would be dependent on maintaining the current high level of drink drive enforcement. This would be necessary to maintain the public's perception of the likelihood of being caught drink driving. Without this perception increased penalties may not deter people from drink driving.

There is a risk that this initiative may not be as effective as lowering the legal BACs. New Zealand's penalties have been strengthened twice since 1999 and it is not clear if this has resulted in increased compliance.

10 Where the person has not caused death or injury to another person.

Inform New Zealanders about the impact of alcohol on driving

New Zealanders tend to be uninformed about how increasing amounts of alcohol impact on a person's driving ability and how this varies with age. They also tend to be misinformed about the amount of alcohol that different BAC levels relate to. By giving people this information it would allow them to decide, irrespective of the legal BAC limit, the level of risk they are prepared to take and the level of risk they are prepared to impose on others.

If this initiative is supported, we would investigate the most cost-effective way of informing New Zealanders about the impact of alcohol on driving.

Have a zero BAC for certain drivers

We could consider lowering the BAC to zero for the following drivers:

- *Youth (under 20 years) regardless of licence status* – Figure 8 shows the crash risk for young drivers rises significantly, even at very low BAC levels. Currently, New Zealand has a BAC limit of 30 mg per 100 ml (BAC 0.03) for drivers under 20 years of age. At BAC 0.03 the risk of a 15 to 19 year old driver being involved in a fatal crash increases by 15 times compared with a sober driver aged over 30.
- *Adults without a full licence* – adult learner drivers can legally drive up to a BAC of 0.08. Evidence shows that any amount over a zero BAC impacts negatively on driving skills. When this is linked with the inexperience of learner drivers the crash risk is increased.
- *Commercial drivers (ie heavy vehicle, taxi and bus drivers)* – commercial drivers have a very low rate of involvement in alcohol/drug related crashes. However, because of the risk posed to the safety of others there is considerably less tolerance for alcohol impairment among commercial drivers. Many of the better performing jurisdictions (eg Victoria, South Australia, New South Wales, Germany, Austria and Ireland) have a zero BAC limit for commercial drivers. Norway and Sweden have a BAC 0.02 limit for the whole adult driving population including commercial drivers.

To make a zero BAC limit as effective as possible in preventing deaths and injuries, it would need a public awareness campaign about the new limit and who it applies to. It would also have to be adequately enforced. We also suggest having infringement penalties for drink drive offences between zero and BAC 0.029 for youth, and BAC 0.05 and 0.079 for adult learners and commercial drivers (see earlier initiative). This would ensure that the new limit does not impose any additional workload on the courts.

Address repeat drink driving

Fines and licence disqualification work well in deterring most people from drink driving. However this is not true for all drivers. Currently, 23 percent of drink drivers are re-offenders. To increase the likelihood of changing offenders' drink drive behaviour we could:

- *have a zero BAC limit for recidivist drink drivers for a period of three years* – a zero BAC for recidivist offenders could work with other penalties and help create a culture of not drinking and driving.
- *move towards the compulsory use of alcohol interlocks* – an alcohol interlock is an electronic device installed in a vehicle that requires a driver to provide a low or alcohol-free breath sample before the vehicle will start. A number of jurisdictions in the United States, Canada, Australia and Europe have interlock programmes for drink drive offenders. The programmes have been effective in preventing drink driving, particularly when combined with education and/or addiction treatment. Analysis suggests that they are likely to be effective here. As alcohol interlock programmes operate on a user-pays basis they offer a cost-effective way of responding to drink drive offending.

Promote the use of alcohol interlocks (eg to commercial drivers, employers and parents of young drivers)

Although mainly used for offenders, alcohol interlocks could be promoted to commercial drivers, employers and parents of young drivers. This could have some modest impact on reducing the number of alcohol-related crashes.

DISCUSSION POINTS

Which of the suggested initiatives do you support and what is the most important one for you in reducing drink driving?

Do you support lowering the legal adult Blood Alcohol Content (BAC) limit from BAC 0.08 to BAC 0.05?

How could rural communities be better empowered to address drink driving?

Do you have other ideas for how we can reduce drink driving?

HOW CAN WE REDUCE DRUG IMPAIRED DRIVING?

The suggested initiative for reducing the impact of drug impaired driving is to:

- **introduce random roadside testing (as technology allows) and support this through research.**

In comparison to drink driving, less is known about the extent of drugged driving in New Zealand and the impact it has on road safety. However, evidence suggests that drugs may be a bigger factor in crashes than officially reported.

Preliminary results of a study of the blood of deceased drivers[11], show a number of trends that are of concern to road safety:

- 52 percent of drivers had used alcohol and/or drugs
- 31 percent of drivers had used cannabis with or without alcohol or other drugs
- 19 percent of drivers used alcohol and another drug(s)
- 14 percent had used drugs other than alcohol or cannabis, and the most commonly detected were methamphetamine, methadone and morphine.

We also know from the 2008 Illicit Drug Monitoring System report that 90 percent of frequent methamphetamine users, 62 percent of frequent ecstasy users and 90 percent of frequent injecting drug users, have driven under the influence of a drug other than alcohol in the past six months. High proportions of frequent drug users report speeding, losing concentration, driving through a red light, and nearly hitting something while driving under the influence of a drug.

The report also shows that frequent drug users believe Police are less likely to detect them being under the influence of a drug than if they had been drinking.

Introduce random roadside testing for illegal drugs

Legislation introducing a roadside drug impairment test has been passed and will be implemented this year. This will go some way to address drug impaired driving. We could build on and complement this by moving towards random roadside testing for illegal drugs as technology allows. This would be similar to the current random testing for alcohol. Illegal drugs include cannabis, methamphetamine, MDMA (ecstasy), heroin, cocaine (and 'crack'), LSD, GHB, amphetamines and prescription drugs that are abused.

Random roadside testing would deter more people from drug impaired driving than an impairment test alone. This is because the likelihood of being caught drug driving is greater.

With random testing a Police officer can require a driver to undergo a test whether or not there is reason to suspect impairment.

Testing devices for illegal drugs are still in development even though they have been implemented in some jurisdictions. Such testing would probably use saliva tests to detect drivers under the influence of certain illegal drugs (eg ecstasy, cannabis and methamphetamine).

In support of this initiative, research would be carried out to establish the prevalence of drugged driving across the general driving population, as well as for drivers involved in crashes. This would help us make informed decisions about which drugs pose a significant crash risk in New Zealand. We would then know which type of drug testing we should focus on.

DISCUSSION POINTS

Do you think we should introduce random roadside drug testing for the presence of illegal drugs as technology allows?

Do you have other ideas for how we can reduce drug impaired driving?

11 This study by the Institute of Environmental Science and Research Limited has been conducted over 2004–2009 and is using blood samples taken from all coronial cases. It will be limited to 1,000 samples. The interim report which is quoted here has a sample size of 826.

WHAT IS THE PROBLEM?

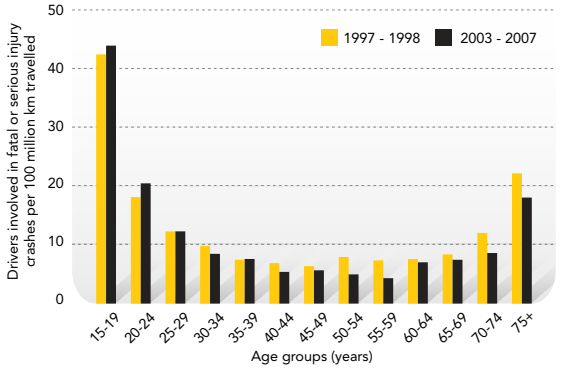
- **Young New Zealanders aged 15–24 years are 14.5 percent of New Zealand's population and 16 percent of all licensed drivers. Yet in 2008 they were involved in around 37 percent of all fatal crashes and 37 percent of all serious injury crashes.**
- **Crashes where young drivers were deemed at fault resulted in 122 deaths and 800 serious injuries in 2008. The social cost of these crashes was approximately $1.1 billion.**
- **For each young at-fault driver killed, 1.3 other road users also die. The comparable figure for alcohol/drug impaired drivers is 0.9 other road users.**
- **Our 15–17 year olds have the highest road death rate in the OECD and our 18–20 year olds have the fourth highest[13].**

Most people killed by young drivers are their own passengers, who are their peers. This is a key reason why road crashes are the single greatest killer of 15–24 year olds, and the leading cause of their permanent injury. It also largely explains why our young people have a road fatality rate of 21 per 100,000 population – double New Zealand's overall rate.

Another reason young drivers require a priority focus is the lack of progress made in this area. During 2000–2008 the number of people killed or seriously injured in crashes where a young driver was at fault increased by about 17 percent. This compares with a six percent increase for all road users over the same time period.

Figure 9 shows that young drivers appear to be less safe now than they were a decade ago. This is not the case for the rest of the population.

Figure 9



The key reasons why young drivers have lower levels of road safety are:

- *Age* - the crash risk is higher for those aged under 18[14] and tends to decrease as age increases. The greatest risk period for young drivers is in the first six months of driving solo (ie the first six months of gaining a restricted licence).
- *Risk taking/maturity* - young drivers underestimate risk, tend to drive in higher-risk situations (eg at night and with peer passengers) and incorrectly perceive hazards. In part this reflects the fact that the parts of the brain that assess risk and control emotions and impulses are still developing into a person's twenties. Gender also plays a role in that young males are significantly over-represented in crash statistics.
- *Driving inexperience* - driving experience reduces crash risk over time. However, the combination of driving inexperience and immaturity makes the crash risk higher for young novice drivers than for older novice drivers.
- *Alcohol/drugs* - 15–24 year olds are more likely to be affected by alcohol/drugs.

13 On a per 100,000 population basis. The United States is not included in this comparison as the data was not available.

14 OECD (2006) *Young Drivers: The Road to Safety p. 127*

- *Speed* - young drivers are more than two and a half times more likely to have speed as a contributing factor in a fatal crash than drivers over the age of 25.
- *Distractions* - younger drivers have the highest frequency of distraction-related fatal and serious crashes.

Our young people have lower levels of safety compared with their peers in other developed countries. This is probably due to a number of factors, particularly New Zealand having one of the lowest solo driving ages in the OECD. We also do not take the same comprehensive approach to road safety education that many other jurisdictions do for children or young people. The best performing road safety countries closely link their education activities to their stronger driver licence standards.

HOW CAN WE IMPROVE THE SAFETY OF YOUNG DRIVERS?

The suggested initiatives for increasing the safety of young drivers are to:

- **raise the driving age to 16 or 17 and extend the learner licence period to 12 months**
- **strengthen the restricted licence test to encourage 120 hours of driving practice**
- **raise awareness of young driver crash risk**
- **increase the benefits of professional driver training**
- **increase the benefit of school road safety education**
- **impound vehicles of those who breach licence conditions**
- **introduce vehicle restrictions**
- **introduce compulsory third party insurance.**

To improve road safety for young people and to reduce the level of risk they pose to others we need to do some things differently. Below is a range of initiatives that could be considered for implementation over 2010–2020. These initiatives are youth-specific and would complement other initiatives suggested in this document that would also improve the safety of young drivers (especially in the areas of alcohol/drug impaired driving, speed, fatigue and distraction).

Raise the driving age to 16 or 17 and extend the length of the learner licence period to 12 months

This initiative will save lives and reduce injuries as it delays young and inexperienced drivers from solo driving until they are more capable. Research shows the younger a driver starts driving solo, particularly before the age of 18, the higher the crash risk[15], with 15 and 16 year olds most at risk. With a minimum driving age of 15 years (one of the lowest in the OECD) our licensing system allows young drivers to start driving solo at the period of greatest risk.

A Bill is currently before Parliament to raise the minimum driving age to 16 years and extend the length of the learner licence period from six to twelve months. We could consider whether the minimum driving age should be increased further to 17.

This would delay solo driving (ie the start of the restricted licence phase) until after the period of highest crash risk (15 to 16 or 17 years old). Combined with an increase in the driving age to 16, this proposal would mean a person cannot start driving solo until they are at least 17 years old.

Alternatively, we could move further in line with the best performing road safety countries and adopt a starting age of 17. This would mean a young person could not start driving solo until they are at least 18 years old.

Preliminary analysis indicates that there will be benefits in terms of lives saved and injuries prevented from the introduction of this proposal, and that the main cost is likely to be mobility losses. Restriction of mobility for young New Zealanders may be a concern for some people, particularly in rural areas. We could consider an exemption for rural youth to reduce this cost. This exemption could be available to rural youth who can demonstrate, by means of a practical test, that they have the skills and attitudes to drive safely and competently in a full range of driving situations and conditions. Further detailed analysis is required.

When considering whether we treat urban and rural youth differently, it is important to remember that rural communities have a disproportional number of crashes, which also tend to be more severe.

Strengthen the restricted licence test to encourage 120 hours of supervised driving practice

Supervised practice helps a young driver gain driving experience in a range of conditions (eg night time, rain) before getting a restricted licence and driving solo. It has an important role in helping to develop safe driving skills and responsible attitudes.

New Zealand's level of supervised practice for learner drivers is estimated at around 50 hours on average. Experience overseas suggests there could be up to a 40 percent reduction in crash risk for those young drivers who undertake 120 hours of supervised practice in all conditions before taking the restricted licence test. Such a reduction would translate to significant savings in young driver related deaths and injuries.

This initiative depends on the learner period being extended from six to twelve months (see previous initiative) as it takes a reasonable period of time to achieve 120 hours of quality supervised practice.

One way to encourage more supervised practice would be to strengthen the restricted licence test. If this test placed more emphasis on skills, such as hazard perception and risk management, it could encourage

15 OECD (2006). *Young Drivers: The Road to Safety, p.127.*

more supervised practice. A similar approach is used in Victoria, Australia.

We could also promote having a designated supervisor at the start of a young driver's learner licence phase. This person would ensure the learner driver completes 120 hours of supervised driving in a range of driving conditions before taking the restricted licence test.

We could also explore the potential for community based supervisors to give young people without readily available parents or guardians the chance to practice their driving.

The online *Practice* programme, which enhances the quality of driving practice, is already in place. It could be further supported with cost-effective options for young drivers without web access.

The benefits of up to a 40 percent reduction in crash risk for young drivers will need to be compared to the costs of completing 120 hours of supervised practice. Strengthening the restricted licence test will create an incentive for increased supervised practice.

Raise public awareness of young driver crash risk and the graduated driver licensing system (GDLS) restrictions

Surveys have shown that most people are unaware of the high crash risk young drivers face compared to other age groups. Parents and caregivers often fail to appreciate the risks and what they can do to reduce them. They often overestimate their teenagers' driving skills.

We could address this through education. This could dispel the myth that a small group of young drivers (illegal street racers) are responsible for the majority of young driver crashes. It could also better explain why the graduated driver licensing system includes conditions (eg restrictions on night time driving and carrying peer passengers) and the benefits of complying with them.

This initiative is likely to be a cost-effective way of improving road safety for young drivers. There would be promotional costs that would need to be compared with the benefits of greater understanding of, and compliance with, the GDLS licence conditions. The promotional campaign could also complement and increase the effectiveness of other young driver initiatives (eg *Going Solo*, a resource for parents that explains how they can help reduce the risks facing their young drivers).

Increase the benefits of professional driver training

Currently, approved training courses (*Street Talk* and the *Defensive Driving Course*) are available to those who have held restricted licences for at least six months. The time spent on a restricted licence is reduced from twelve to six months if someone completes one of these training courses. Young driver training should be designed to develop key driving competencies (with a focus on higher order driving skills such as hazard identification and assessment) and attitudes. Although evidence around the effectiveness of professional driver training in reducing crash risk is mixed, it is a key component of many GDLSs throughout the world.

To increase the benefit of professional driver training to young drivers we could:

- improve the quality of approved training courses by requiring their content to be in line with latest best practice and have a greater practical component
- allow approved training courses to be taken in the learner licence period so that the development and testing of key competencies and attitudes could be done before the highest risk period, which is the first six months of solo driving
- remove the restricted licence time reduction for completion of an approved training course and replace it with an incentive to take up professional driver training. Evidence suggests that allowing a reduction in the restricted licence time period, in return for completion of approved driver training, can increase novice driver crash risk.

Removal of the time reduction would recognise that for young people there is greater benefit in undertaking some formal training AND remaining on the restricted licence for the full 18 month period. However, as the time reduction acts as an incentive for training, we would need to consider other incentives, some of which may have cost implications.

Increase the benefit of school road safety education

Ideally, all young New Zealanders would leave school having participated in comprehensive road safety education that teaches them to be safe pedestrians, cyclists and passengers, and eventually helps them to become fully competent and safe drivers. A number of overseas countries with good road safety records have comprehensive school road safety education programmes in place.

At present, the provision of road safety education in New Zealand schools is inconsistent because of resource constraints and the independent nature of schools. Many young people leave school with limited knowledge about road safety. This means there are opportunities for improving not only access to road safety education but also the sequence, quality, content and delivery.

These improvements are likely to lead to an increase in the safety of young drivers. The improvements depend on strong links between road safety education and the school curriculum. They also require close collaboration between schools, parents and road safety agencies (eg Police and community groups) involved in the delivery of road safety education.

To help strengthen links we could develop a specific road safety education programme for secondary schools targeting young drivers. It would complement professional driver training and could focus on issues that are critical to increasing the safety of young drivers, such as alcohol/drugs and driving, the consequences of speeding, handling peer pressure and driving while fatigued and distracted. This programme could initially be targeted at schools in high-risk locations. The results would then be monitored to determine if a wider rollout is justified.

Introduce vehicle impoundment for drivers in breach of their graduated driver licensing system licence conditions

The GDLS licence conditions are proven to reduce crash risk by protecting young drivers from driving in high-risk situations. However, research suggests that many young drivers do not comply with the conditions. Forty percent of young drivers surveyed[17] disagreed with the passenger restriction and 36 percent said they were likely to breach it. Forty-eight percent disagreed with the night time driving restriction and 25 percent said they were likely to breach it.

Research shows that most young drivers think vehicle impoundment is a very effective penalty for breaches of GDLS licence conditions. So to increase compliance Police could impound a young driver's vehicle for 28 days if they are caught breaching their GDLS licence conditions twice in a three-month period.

Police could notify vehicle owners when the first breach is issued to ensure they realise their vehicle could be impounded. In many cases the vehicle will not be owned by the young driver and the threat of vehicle seizure will encourage parents to be more aware of their teenagers' driving behaviour.

This proposal would impose some costs, such as the costs of storing vehicles, disposing of ones that are not collected, and IT system changes. These costs would need to be weighed up against the increased compliance with the GDLS licence conditions.

This initiative could also be viewed as being out of proportion with breaches of other road safety offences such as speeding. An alternative could be to increase demerit points.

Introduce vehicle restrictions

Access to high-powered or modified cars is a factor in a number of crashes involving young drivers.

Some Australian states have introduced vehicle power restrictions for young drivers as a condition of their learner or restricted licence. A power-to-weight ratio restriction was found to be unworkable in Victoria due to enforcement difficulties. However, New South Wales and Queensland ban the use of V8s, turbo and supercharged vehicles, modified vehicles and certain high performance six-cylinder vehicles. There are exemptions for those that need to drive a high-powered car for work.

This approach has proved simple to administer and enforce with fairly low implementation costs. However, it is unclear what the impact of these vehicle restrictions has been on the crash risk of young drivers.

If this initiative were to be developed further we would need to consider the implications for young drivers who drive high-powered or modified family vehicles. There is also the risk they may switch to driving a cheaper and older vehicle with less safety features.

Introduce compulsory third party insurance

Compulsory insurance has been suggested as a way to ensure that everyone who might cause damage to other people's property is capable of paying for that damage. It would also protect the at-fault driver from the long-term financial loss and hardship that may result if they are uninsured and required to pay for the costs of property damage themselves. Compulsory insurance is suggested as a mechanism to reduce the likelihood of young drivers driving 'high-risk' vehicles and, as a result, reduce their chances of involvement in a crash.

There are a range of avenues already available for recovering the costs of damages. These include the Disputes Tribunal, or through the insurance policy of the not-at-fault motorist. Many vehicle insurance policies, both third party and comprehensive, cover the costs of damage caused by the driver of an uninsured vehicle if that driver is identified and found to be at fault. This is often without the loss of a no-claims bonus or the payment of the excess.

Recent research indicates that the level of private motor vehicle insurance in New Zealand is comparable to the level of insurance in jurisdictions with compulsory vehicle insurance so the net benefits of such a scheme will need to be looked at closely. Further research is currently underway, and a report on findings is expected to be with the Minister of Transport in October 2009.

DISCUSSION POINTS

Which of the suggested initiatives do you support and what is the most important one for you in increasing the safety of young drivers?

Do you support raising the minimum driving age? If so, at what age should young people start learning to drive – 16 or 17?

Do you support extending the learner period by six months?

If the driving age were raised and the learner period extended, do you think there should be an exemption for rural youth who can demonstrate, by way of a practical test, that they have the skills and attitudes to drive safely and competently?

Do you support having compulsory third party insurance?

Should we introduce vehicle restrictions (eg power) for young drivers?

Do you have other ideas for how we can increase the safety of young drivers?

17 New Zealand Drivers Study: a follow-up study of newly licensed drivers. D.J Begg, J.D. Langley, R.L. Brookland, J. R. Broughton, S. Ameratunga, A.J. McDowell. Injury Prevention Research Unit, Dunedin School of Medicine, University of Otago (personal communication).

WHAT IS THE PROBLEM?

- **Road improvements contributed to an 11 percent drop in rural road deaths and a 15.8 percent drop in urban road deaths between 1997 and 2005, but we can do much more.**
- **Head-on crashes account for 23 percent of all fatal crashes. Yet over 90 percent of them could be avoided by installing a median barrier.**
- **Loss of control contributes to 40 percent of all fatal crashes. These crashes would be less severe if median barriers were present and roadside objects were protected or removed.**
- **21 percent of our fatal crashes occur at intersections (this figure includes some of the above types of crashes). These crashes can be prevented by using methods such as skid-resistant road surfaces and traffic calming.**

New Zealand's roads are not as safe as those in other countries. Our road network is long, much of it built when we had fewer vehicles travelling at lower speeds, our geography is challenging and our population base is small. This means it is difficult to spend the same amount per kilometre of road as the best performing countries.

Our network is also highly variable. For example, a straight two-lane divided road and a narrow, twisty, single-lane undivided road may both be called State highways. They may both have a 100 km/h speed limit, but one is much safer.

From 1999 – 2008, safety on State highways improved at a greater rate than on other roads. The present government has built on this with increased new investment in State highways over the next ten years. While much of this investment aims to improve capacity, safety features are an integral part of the improvements. In addition, there has been new investment specifically aimed at improving safety (eg the 2009 Budget funds an extra 750 km of rumble strips).

A key challenge over the next decade will be to find ways to cost-effectively improve our other roads that have high crash rates.

Many of our roads fall short of the safety standards we need. We also know that investment in roads and roadsides will greatly support the other priority areas. Road engineering improvements are not cheap and need to be maintained, but they are effective and last a long time. The issue is how much we can do given resources and competing priorities (Appendix 2 gives a breakdown of the cost per km of the different methods of treatments discussed in the initiatives below).

HOW DO WE KNOW WHERE TO TARGET INVESTMENT?

We currently target our road safety engineering investment based on:

- the frequency, type and location of crashes
- how heavily the road is used and the mix of users (including the footpath)
- the posted speed limits and the actual speeds drivers travel at
- the amount of existing safety engineering features and the level of crash reduction we might expect from a particular feature.

This broad approach helps to identify how we can prevent repeated crashes in the same place. However, we also need a system that anticipates and prevents crashes happening elsewhere under similar circumstances.

Better performing countries target their investment based on a road's level of use and mix of users. They set specific safety standards for each type of road. This helps drivers by making roads predictable, fit for purpose and forgiving of mistakes. Their speed limits also reflect this classification.

New Zealand does not yet have such a system but it could be a long-term goal. In the meantime, we can improve the way we target our investment.

HOW CAN WE MAKE OUR ROADS SAFER?

The suggested initiatives to achieve safer roads and roadsides are to:

- **implement targeted programmes to address run-off road, head-on and overtaking crashes on high-volume, high-risk rural roads**
- **support a targeted programme for high-risk urban intersections**
- **change the give way rules for turning traffic and pedestrians**
- **develop and support new approaches to safety on mixed-use arterial roads**
- **implement treatments to make high-risk roads more self-explaining**
- **carry out more crash reduction studies and make these more targeted.**

Implement targeted programmes for high-volume high-risk rural roads

High volume rural roads have known crash problems. We would focus on loss of control and head-on crashes as they are the most common crash types.

a) Reduce run off road crashes

Run-off road crashes are caused mainly by excessive speed, alcohol, failing to drive to the conditions, fatigue and distraction. Half of all rural crashes and 28 percent of urban crashes involve a roadside object, such as a power pole.

Engineering methods, such as road markings, can help reduce run-off road crashes by signalling to drivers the appropriate speed to travel. Other treatments include skid-resistant surfaces, widening or sealing the road shoulder, rumble strips and guard rails. If crashes do occur, their impact can be minimised by protecting or removing roadside objects.

b) Reduce head-on and overtaking crashes

Head-on crashes account for 23 percent of fatal crashes. Over 90 percent of these crashes could be prevented by installing a median barrier. If a crash does occur, the severity of injuries could be reduced by up to 50 percent. A road with 15,000 vehicles per day has roughly 5 head-on crashes per 10 km every five years. Some New Zealand roads carry 15,000-20,000 vehicles per day but do not have median barriers. Other countries require median barriers on all high speed routes that have over 10,000 -15,000 vehicles per day.

An alternative to median barriers is to install rumble strips, which could reduce head-on and loss-of-control crashes by about 30 percent.

Many head-on and loss of control crashes occur during overtaking and are often caused by impatience or poor judgement. Passing lanes provide motorists with more opportunities to overtake and could reduce the number of head-on crashes significantly. Median barriers at high-risk sites also remove the temptation from drivers to attempt risky passing manoeuvres.

If supported, this initiative will identify the most suitable combination of rumble strips, median barriers, passing lanes and other treatments for high-risk sites.

Initiatives to improve safety at urban intersections

a) Support a targeted programme of treatments at high-risk urban intersections

Currently 21 percent of fatal crashes occur at intersections. The majority of fatal intersection crashes occur in rural areas, but the majority of serious injury crashes are in urban areas.

Intersection crashes are often caused by poor judgement, but many are preventable with good intersection design, sound speed management and strong enforcement of road rules (eg red-light running).

Various engineering methods will be used to treat high risk intersections. These include more traffic control signals, roundabouts, advance stop boxes for cyclists, raised pedestrian crossings and speed control.

To support this initiative, we also propose two possible changes to the give way rules.

b) Change the give way rules for turning traffic

The first is to change the current give way rule to require traffic turning right to give way to traffic turning left into the same road.

The current give way rules[18] place complex demands on road users. Currently, a driver turning left has to:

- check if there are any right-turning vehicles to give way to
- check if there is any traffic coming from behind which will delay the right-turning vehicle
- check for cyclists alongside the vehicle and pedestrians crossing the road they are entering.

So the driver has to check in three different directions – opposite them, behind them, and on the road they are entering – all within seconds. It is even harder if there is no give way or stop sign on a terminating road.

This situation creates the following crash risks:

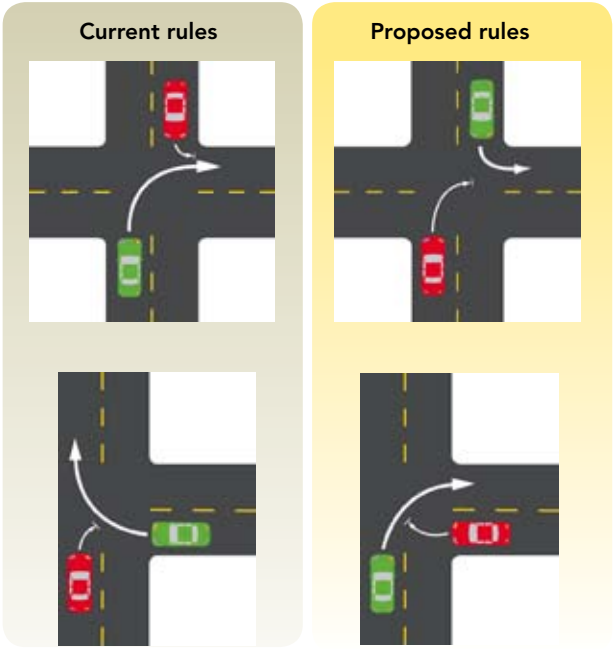
- between left-turning vehicles and pedestrians crossing the road that the vehicle is turning into, or cyclists on the inside, due to the driver of the vehicle watching for right turning traffic
- between right-turning vehicles and left-turning vehicles
- between right-turning vehicles and vehicles overtaking the left-turning vehicles.

Changing this give way rule would make intersection decisions much easier (including at T-junctions). It could reduce intersection crashes by at least 7 percent, which is a social cost saving of about $17 million annually.

The State of Victoria made this change in 1993. The resulting reduction in crashes exceeded expectations and contrary to some predictions there was no increase in crashes in the period immediately following the rule change.

This would be a major rule change so it would require a publicity campaign. This could cost up to $2 million and would include costs for education, publicity and reprinting publications. It would also cost up to $1 million to upgrade the road network, to re-phase some traffic signals and change road markings. Our initial analysis indicates that the benefits of this proposal substantially exceed the costs.

Proposed changes to the give way rules for turning traffic



c) Change the give way rules for pedestrians

The second proposed rule change is to require all turning vehicles at intersections with no traffic lights to give way to pedestrians crossing the road the vehicle is turning into. This change would be consistent with the current rules at signalised intersections.

The number of intersection crashes involving pedestrians has increased by 60 percent since 2000, and many of them were hit by a turning vehicle. In 2008, the social cost of crashes involving a pedestrian and a turning vehicle was about $33 million.

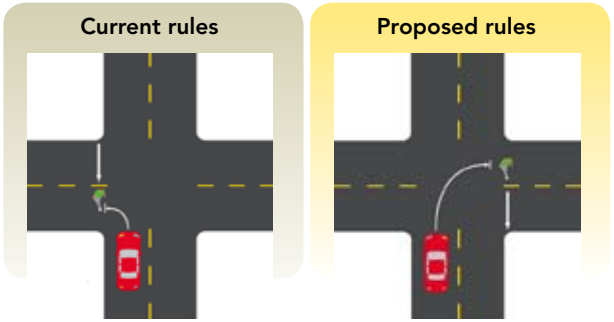
18 The current give way rules are; if turning, give way to all traffic not turning, and in all other situations, give way to traffic crossing or approaching from the right.

Changing this rule would also improve the safety of pedestrians crossing side roads as they are often not given adequate warning by approaching vehicles intending to turn.

This does not imply that left hand turning traffic will no longer be required to give way to pedestrians.

The costs associated with this proposal would be lower if it was done at the same time as the other proposed give way rule change.

Proposed rule change for turning vehicles to give way to pedestrians:



Develop and support new approaches to safety on urban mixed-use arterials

An arterial is a major urban road. Many urban arterials have high crash rates. They have high traffic volumes, cross many intersections and carry a variety of road users, including pedestrians trying to cross the busy road. Arterials can also pass through urban centres full of shops, and other commercial and community premises.

These factors pose a big challenge. Under a safe system approach, an arterial's main traffic function should be balanced with the way the adjacent land is used and its mix of users. The road's layout and speed limit should be designed accordingly. Many of our arterials lack these design features, although some local authorities (eg Auckland City Council) are beginning to address this.

Dominion Road, Auckland – one of New Zealand's busiest arterials

Overseas, there have been many innovative techniques used to deal with the range of problems at urban arterials. For example, in 2002, the UK government introduced a series of demonstration (or pilot) projects on urban arterials, investing one million pounds ($2.4m) in each project.

Common factors in these projects were the reallocation of road space to better reflect the mix of users (eg bus lanes, wider footpaths), improvements to the streetscape, parking management, more crossing points, intersection improvements and traffic calming. These were proven methods, but they were combined and integrated in new ways. These projects delivered, on average, a 46 percent reduction in casualties. They also helped to reduce congestion and increase the use of public transport, walking and cycling.

If there is sufficient support for this initiative then a package of interventions will be put together to assist local authorities.

Implement treatments to make high risk roads more self-explaining

We could also improve safety through a programme of treatments aimed at making roads more self-explaining.

A road is considered to be self-explaining when people instinctively drive at speeds that are consistent with the design and function of the road. Each type of road has a recognisable and distinctive set of features, such as signage, lane width, road markings, hatchings, footpath width and speed limits. Drivers respond instinctively to these visual cues and, in theory, are less likely to crash.

This initiative will be linked to the other proposals targeting high volume rural roads, mixed-use arterials and intersections.

Carry out more targeted crash reduction studies

We could also better target our crash reduction studies. A crash reduction study estimates how many crashes would be avoided by a specific roading improvement. Our studies could be better targeted at particular black spots or black routes, to particular types of treatments (eg median barriers) or to a particular user group (eg motorcyclists).

DISCUSSION POINTS

- **Do you support the suggested initiatives to make our roads and roadsides safer?**
- **What is the most important initiative to you?**
- **Is there anything we have left out?**

WHAT IS THE PROBLEM?

- **In 2008, speed contributed to 34 percent of New Zealand's fatal crashes and 20 percent of serious injury crashes.**
- **In 2008, 127 people died, 560 were seriously injured and 2,049 received minor injuries in crashes where speed was a contributing factor. The social cost of these crashes was about $867 million.**

Speed affects the likelihood and impact of all crashes. Small reductions in impact speeds greatly increase your chances of surviving a crash, particularly if you are a pedestrian or cyclist (Figure 10). This is why speed management is a key element of road safety strategies worldwide.

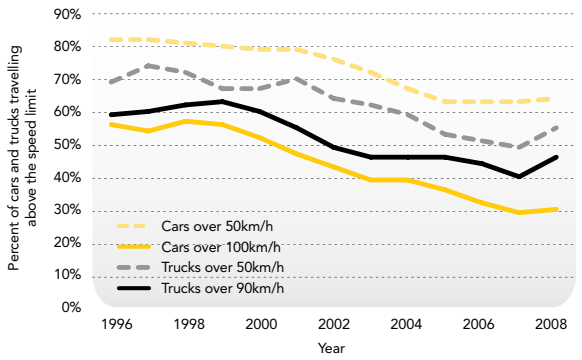
Figure 10: Chance of death at different impact speeds

	Probability of death		
Collision type	10%	30%	50%
Pedestrian struck by car	30km/h	40km/h	45km/h
Car driver in side impact collision with another car	50km/h	65km/h	75km/h
Car driver in frontal impact with another car	70km/h	95km/h	105km/h

Over the past decade there has been a drop in both mean speeds and the percentage of drivers exceeding the speed limit. This has resulted in fewer fatal and serious injury crashes.

However, these trends have recently begun to change (Figure 11). Most drivers, including those driving heavy vehicles, still routinely speed in urban areas. In addition, the crash statistics suggest that many people still drive too fast for the conditions (eg in wet weather).

Figure 11: Percent of cars and trucks travelling above the speed limit



WHAT COULD WE ACHIEVE?

Moderating both mean and excessive speeds could significantly reduce road deaths and serious injuries. Our modelling suggests that:

- reducing mean speeds on all rural and urban roads by 1 km/h would save 20 lives per year
- reducing open road mean speeds by 5 km/h would save 60 lives per year
- reducing urban mean speeds by 5 km/h would save 30 lives per year
- if all vehicles currently travelling above the speed limit were to travel at the limit, 60-70 lives would be saved per year
- if all drivers drove at speeds fit for the conditions then this would also save lives, although it is difficult to estimate how many.

If we did achieve these reductions there could be some impact on journey times, notably on the open road. In saying that, if there were fewer crashes then there would also be fewer delays (eg blocked lanes, diversions). A high level of safety on our key routes is crucial as they carry high volumes of people and freight and reliability of journey times is particularly important.

WHAT INFLUENCES A DRIVER'S SPEED?

Speed choices are influenced by the driver's attitudes, experience and the physical road environment.

Attitudes include the perceived chance of being caught by Police along with personal knowledge and beliefs about road safety and the risks of speeding.

Factors in the road environment include the posted speed limits, the way the road is engineered, the presence of other road users, and traffic conditions.

One of our key challenges is to deter dangerous road use. In some respects New Zealand has a 'culture of speed', where speeding is perceived by many to be socially acceptable, even though the risks are high. Many drivers overestimate their abilities and underestimate the risks – particularly to other road users.

Impatience is another major cause of speeding. Some drivers will take unnecessary risks for the sake of arriving at their destination just a few minutes earlier.

The 'thrill factor' also needs to be acknowledged. Some drivers enjoy travelling at high speed in risky situations. Excessive speeds are often adrenalin or testosterone-fuelled, particularly (though by no means exclusively) for young male drivers.

Attitude towards enforcement is another important factor. Speed enforcement can sometimes be perceived as unnecessary, inconsistently applied and more about 'revenue gathering' than safety.

The speed people are ticketed at can also influence the perceived risk. If a driver receives a ticket at 110 km/h but not at 105 km/h, then they are more likely to think that 105 km/h is still a safe speed.

But the speed problem is more than just drivers' attitudes. Ideally, the speed that is safe on a particular road under particular conditions should be clear to the driver, but this is often not the case. Our roads are not yet sufficiently engineered to encourage drivers to travel at speeds safe for the conditions.

In addition, the characteristics of many of our roads (rural and urban) are not well matched with the posted speed limits. If the posted speed limits do not make sense, a driver is more likely to speed. The initiatives in the roads and roadsides section of this document also support safer speeds.

On the positive side, more new vehicles are now equipped with safety features, which increase your chances of surviving a crash at speed. There are also new vehicle technologies that can automatically prevent the driver from speeding. These will become more significant over the next decade.

There is a downside to vehicle safety technologies. Modern cars create the illusion you are moving slower than you actually are. They are comfortable and have many safety features. These factors can lead to over confidence.

Overall, we can manage speed much more effectively by combining all the elements of the safe system – safer people, safer roads and safer vehicles.

Speed is a contentious issue and difficult to manage. But because speed remains such a major cause of road deaths and injuries the problem has to be tackled.

HOW CAN WE MAKE OUR SPEEDS SAFER?

The suggested initiatives for achieving safer speeds are to:

- **reinvigorate our education and advertising to improve understanding of the risks and consequences of speeding**
- **strengthen the effectiveness of enforcement by:**
  - **increasing the number of road safety cameras**
  - **changing the penalty system to deter speeding (higher demerit points and lower fines)**
- **create more speed zones (80 km/h, 90 km/h) on high risk rural roads**
- **review speed limits on mixed-use urban arterials**
- **increase the adoption of lower speed limits in urban areas**
- **investigate the requirements needed to support Intelligent Speed Assistance (ISA) vehicle systems.**

Many of the initiatives below will work well in conjunction with initiatives in other priority areas, for example developing new approaches to urban arterials (safer roads and roadsides), safe and fuel efficient driving programmes (improving the safety of heavy vehicles) and increasing awareness of pedestrian and cyclist safety (safer walking and cycling).

Reinvigorate our education and advertising efforts to improve understanding of the risks and consequences of speeding

Education and advertising on the risks of speeding and driving too fast for the conditions are typically conducted through media campaigns (eg television). Although these can be costly, they are important tools. However, we also know that our progress towards safer speeds has stalled. This suggests that we could improve the effectiveness of these campaigns.

Too many people do not fully appreciate the consequences of speeding and the importance of driving to the conditions. For example, not many drivers would know that by increasing their speed from 100 km/h to 120 km/h they double their risk of a fatal crash.

We could reinvigorate our education and advertising in these areas. We could also communicate the proven benefits of speed reductions more effectively, which will increase support from the community.

Improve the effectiveness of enforcement

If the probability of being caught speeding and being penalised is high, most people will comply with the speed limits. Enforcement works best when it is highly visible and where drivers can expect speed limits to be strongly enforced on an 'anytime, anywhere' basis. Effective enforcement is a key to deterring speeding. In 2007/08 the Police spent $60 million on speed-related enforcement.

The Police constantly refine their approach to speed enforcement. For example, in 2004 a zero tolerance approach was taken on the Bombay-Maramarua stretch of State Highway 2, which has New Zealand's highest crash rate. Fourteen months later, vehicle speeds dropped markedly and there was a visible drop in the crash rate.

It has also been cost-effective to target enforcement on urban arterials. The general deterrence effect is high as enforcement is visible to a lot of drivers. Recently the tolerance around schools during peak school travel periods was dropped to 5 km/h above the posted speed limit. The Police also apply a stricter tolerance to heavy vehicles.

These approaches all send strong messages that driving above the speed limit is dangerous and unacceptable, but we can do more. The following initiatives are designed to strengthen the effectiveness and consistency of our enforcement.

a) Improve detection coverage by increasing the number of road safety cameras

There are several proven methods that can be used to enforce speed limits. These include manual enforcement by Police officers and automated enforcement by road safety cameras (the term road safety camera, which is now commonly used overseas, refers to speed cameras and red light cameras). The international trend is towards more automated enforcement.

International evidence shows that additional cameras can reduce the number of road fatalities significantly and cost-effectively. They are expensive to install, but their effectiveness has been well demonstrated. For example, France and Britain have markedly increased their use of automated speed cameras and are now experiencing substantial reductions in casualties.

In the early 2000s France installed over 1500 fully-automated cameras in a bid to reduce speed related fatalities. Subsequently, the average speed on French roads decreased by 5 km/h between 2002 and 2005. Road deaths fell by over 30 percent, three-quarters of which was credited to the new low-tolerance speed camera system.

In Australia, Victoria has taken a similar approach, introducing more speed cameras. Speeds are enforced at the lowest possible tolerance their equipment allows, which is 3 km/h over the limit.

New Zealand has relatively few road safety cameras. We could increase the effectiveness of enforcement by employing more road safety cameras, and placing them where they will be most effective in changing behaviour and reducing crashes.

b) Change the penalty system to deter speeding (higher demerit points and lower fines)

Our current penalty system for speed enforcement is based more on fines than demerit points. This may explain why some people believe speed enforcement is about revenue gathering.

In addition, demerit points and fines are currently awarded when a Police officer issues a ticket, but camera-detected offences attract only a fine. This gives the public mixed messages.

We could address this by reducing fines and increasing demerit points for speeding and by applying the same penalty system for all detection methods.

The benefits of this change are that it would increase the effectiveness of speed management, make it more acceptable to the public, and be consistent with other countries. There would be some transitional costs associated with this proposal, which have not yet been quantified, although they are likely to be relatively minor.

Create more speed zones to help establish the criteria for what roads with different speed limits should look like (eg 80 km/h, 90 km/h)

Most of our rural roads were built before the concept of design speeds (where roads are designed to be safe at a particular speed to match the condition of the road) was introduced. Most are undivided and have a single lane in each direction. Many people drive on these roads at speeds that are unsafe for the conditions of the road. A

more suitable speed limit for these roads would be one that more closely matched their design rather than the general open road limit of 100 km/h.

Many of these roads cannot be cost-effectively engineered to suit the 100 km/h default limit. This is why we need to reduce operating speeds to match the standard of the existing network. Eventually we want to establish a classification system for our network where we can create safer default speed limits on the higher risk roads.

This initiative focuses on rural roads where speed-related crashes are a big problem and the 100 km/h limit is clearly unsafe. On these roads a number of speed zones would be created. The short-to-medium term focus will be on changing the speed limits to 80 km/h or 90 km/h, supported by engineering treatments and signage where possible.

Review speed limits on mixed-use urban arterials

In a safe system, speed limits should reflect the vulnerability of the human body to impact speeds. This is particularly important on mixed-use arterials which carry different modes of transport travelling at different speeds.

The speed limits on many of our arterials are not well matched with the function of the road, its mix of users, or the land uses through which the road passes. This partly explains why many of these roads have high crash rates.

This initiative would review speed limits on high risk mixed-use arterial roads. If we can moderate speeds on these roads, there is a greater chance that crashes can be avoided and if crashes do occur they will not be as serious. The benefits for pedestrians and cyclists will be particularly high.

In general, lowering the speed limit on many of these roads will not have a noticeable effect on traffic flows. These roads tend to be congested and the average speeds low. However, lowering the speed limit would reduce the proportion of drivers travelling at speeds that are risky.

This initiative would be integrated with the proposal to develop new engineering approaches to safety on mixed use arterial roads. If we are going to change speed limits then they must have supporting engineering features that help people understand and accept the change.

It will be important to work closely with local authorities on this initiative, as they are responsible for setting local speed limits.

Increase the adoption of lower speed limits in urban areas

It is increasingly recognised by road safety experts worldwide that a 50 km/h speed limit is generally too high for residential neighbourhoods and busy town and city centres where there are many pedestrians.

This reflects a better understanding of the impact that speed has on the human body. Small reductions in impact speed greatly improve chances of survival. A pedestrian hit at 50 km/h has roughly a 50/50 chance of survival. At 30 km/h the chances of survival are 90 percent. Children and the elderly are more vulnerable.

In addition to the safety benefits, lower speeds create a better ambience and encourage more activity around retail centres and local neighbourhoods, which is important for economic development and social interaction.

Many countries are dropping their urban speed limits and some impressive results have been reported. For example, the City of Hull in England introduced a 20 mph (32 km/h) speed limit on over a quarter of its urban roads, which contributed to a 90 percent reduction in fatal and serious injury crashes.

In New Zealand, 30 km/h or 40 km/h speed zones are being increasingly used by local authorities. These are mainly on central city streets and in residential neighbourhoods. It will be important to build on this momentum and to continue to improve the ways we target and treat these areas.

There would be costs associated with changing the speed limits on all three of the types of roads discussed in this section – rural roads, urban arterials and other urban roads. These costs would include modifications to the road layout, new signs and markings, consultation and providing information to the public.

Investigate the requirements to support the introduction of an Intelligent Speed Assistance (ISA) system in New Zealand

Intelligent Speed Assistance is a device in the vehicle that sends signals to the driver when they are speeding. ISA can take various forms, which can be:

- advisory – it tells the driver if they are speeding
- voluntary – the system is linked to the vehicle controls but the driver can choose when to have the system enabled
- mandatory – no override is possible (ie the system automatically makes sure the driver cannot speed).

ISA trials have been conducted overseas with promising results. We propose to investigate the requirements we would need to introduce it here.

DISCUSSION POINTS

Do you support the suggested initiatives to reduce speed-related crashes?

Which initiative is the most important to you?

What else could we do?

Do you support having higher demerit points and lower fines for speed-related offences?

WHAT IS THE PROBLEM?

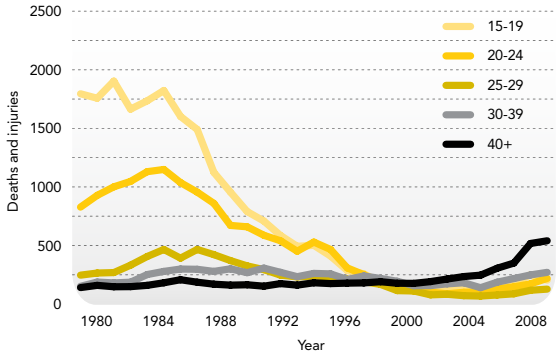
- **The risk of a motorcyclist being killed or seriously injured in a crash is about 18 times higher than for a car driver. This is largely because motorcycles have less stability, offer lower levels of occupant protection, and are less visible to other road users.**
- **In 2008, 50 motorcyclists were killed, 456 were seriously injured and a further 940 suffered minor injures. This equates to 14 percent of all road deaths and 18 percent of all serious injuries.**
- **The total social cost of crashes involving motorcyclists in 2008 was $586.62 million.**

Motorcyclist deaths and injuries dropped significantly during the 1990s. However, since 2000 there has been no further decrease. In fact, since 2005 deaths and injuries have risen across all age groups (see Figure 12). In 2008 there were 1,446 motorcycle casualties – more than double the total in 2000.

This increase in casualties coincides with a quadrupling in motorcycle registrations since 2000. The increase in motorcycling probably reflects higher fuel prices, congestion, environmental awareness and the rise in popularity of motorcycling among older age groups.

The last reason partly explains why motorcyclists aged 40 years and over have experienced the largest increase in deaths and injuries. This has also pushed up the average age of motorcycle casualties over the last 28 years from 22 in 1980 to 35 in 2008.

Figure 12: Motorcycle deaths and injuries by age group



With more motorcyclists on the road it is expected that motorcycle casualties will continue to rise unless we take steps to tackle the problem. If we do not we could expect to see over 650 fatalities for the 10 years to 2020, with about 20,000 injuries for the same period.

ACC estimate that its motorcycle injury claims costs could increase from $70 million (estimated for 2010), to about $114 million in 2020 if no new road safety measures are implemented.

HOW CAN WE IMPROVE THE SAFETY OF MOTORCYCLING?

The suggested initiatives for increasing the safety of motorcycling are to:

- **Improve rider training and licensing**
- **Introduce a specific programme of treatments for motorcycle black spots**
- **Require all new motorcycles to have anti-lock brake systems by 2015**
- **Promote high visibility and protective clothing**
- **Introduce an engine size levy (ie bikes over 600cc pay a higher ACC levy)**
- **License moped riders and require warrant of fitness tests for mopeds.**

Improve rider training and licensing

Riding a motorcycle requires a different set of skills and a higher level of vehicle control than driving a car. However, the Graduated Driver Licensing System (GDLS) makes little acknowledgement of this, nor does it encourage training to give motorcyclists the skills they need to ride safely.

We could improve motorcyclist safety by ensuring that riders are better trained and tested for key skills as they learn and gain practical experience. The basic handling skills test, the restricted and full motorcycle licence practical tests could all be upgraded. Alternatively, we could introduce approved competency based training and assessments.

A number of smaller, but important changes could be made to the GDLS, such as shifting from the 250cc restriction to a power-to-weight ratio limit of 150 kilowatts per tonne for learner and restricted motorcycle licensed riders. This would ensure that novice motorcyclists do not ride bikes that are too powerful for them. We could also have a three year validity period for learner licences. This would encourage riders to progress though the GDLS and acquire safe riding skills.

This initiative would increase training and testing costs and require some system changes. These costs need to be compared to the benefits of having more skilled and competent motorcyclists, which in turn will reduce the number of motorcycle crashes. These benefits would be particularly significant for those riders in their first years of riding.

Introduce a specific programme of treatments for motorcycle black spots

Some road features that are suitable for most vehicles can be particularly hazardous to motorcyclists (eg potholes, corrugations, rough surfaces, gravel on corners, crash barriers, limited visibility, and sharp curves). Potential motorcycle black spots could be targeted by having dedicated funding for specific treatments on popular motorcycle routes.

Improving black spots, rather than the whole network, would be a cost-effective way of lowering the estimated social costs of motorcycle road trauma. A similar scheme in Victoria, Australia, found a 38 percent reduction in motorcycle casualty crashes after sites were treated.

Require all new large motorcycles to have anti-lock brake systems (ABS) by 2015

European studies suggest that anti-lock brake systems could reduce fatal and serious injuries to motorcycle drivers by 8 to 10 percent. Some larger, newer, motorcycles have ABS as a standard feature but for others it is an optional extra. We could require all new motorcycles of 600cc and greater (due to their increased level of risk) to be fitted with ABS brakes by 2015.

Mandating ABS would add about $1,300 to the average market price of a motorcycle. Despite this increase, studies from the European Union show that the benefits of fitting motorcycles with ABS outweigh the costs.

Promote high visibility and protective clothing

This is likely to be a cost-effective measure to reduce the severity and incidence of motorcycle crashes. Compared to a car, motorcycles offer lower levels of occupant protection and are less visible to other road users. Although protective clothing is unlikely to prevent life-threatening injuries, it can significantly reduce the impact of minor and medium crashes on the rider. High visibility clothing could reduce the number of crashes caused by a driver's failure to see a motorcyclist.

Surveys have shown a proportion of riders are unaware of the benefits of high visibility and protective clothing. To encourage uptake, motorcycle retailers and testing officers could be encouraged to inform people about their benefits. A star rating system for the performance of protective clothing could also be introduced to ensure buyers are aware of the effectiveness of different items.

Introduce a differential levy system based on engine size

Crashes involving large bikes (600 cc or bigger) tend to be more serious than those involving smaller bikes. This partly reflects the fact that larger motorcycles are generally used for travelling longer distances and at higher speeds. ACC's most expensive claims come from crashes involving large bikes.

It is clear from injury and fatality information that travelling on a motorcycle with a large engine capacity presents a higher risk than travel on small engine capacity motorcycles or mopeds. ACC has developed a mechanism for calculating its levy rates for motorcycles based on the risk associated with different engine capacities.

License mopeds riders and require warrant of fitness (WoF) tests

Mopeds are becoming more popular, particularly in urban areas. The number of injury crashes involving mopeds increased from 77 in 1999 to 295 in 2008. Currently, holders of a car licence may ride a moped or scooter of 50 cc without any specific testing. However, the skills required to ride a moped are substantially different from those needed to drive a car.

To address this we could require all new moped riders to pass a basic handling skills test and a moped specific theory test. We could also consider requiring a periodic warrant of fitness test for mopeds to ensure these machines remain safe to use on the road. Further analysis of the costs and benefits of this suggestion is required.

DISCUSSION POINTS

Which of the suggested initiatives do you support and what is the most important one for you in increasing the safety of motorcyclists?

Do you have other ideas for how we can increase the safety of motorcyclists?


2020
AREAS
OF MEDIUM
CONCERN

WHAT IS THE PROBLEM?

- **Since 2000, the safety of our light vehicle fleet has improved by four percent each year as safer vehicles have replaced less safe ones.**
- **However, the average age of our light vehicles is 12 years, which means the road safety gains are much less than other countries are obtaining.**
- **Vehicle improvements reduced rural road fatalities by about 15.7 percent and urban fatalities by about 20 percent between 1997 and 2005.**

There have been major advances in vehicle safety technologies over the past decade. Features such as air bags, electronic stability control and anti-lock brakes are becoming more common and standard in new vehicles.

Vehicle safety technologies help improve road safety in three main ways:

- Preventing crashes (eg through electronic stability control)
- Protecting drivers and passengers if there is a crash (eg airbags)
- Protecting other road users (eg less rigid vehicle front structure).

Given their benefits, it is crucial that vehicles with the latest safety features enter the New Zealand fleet as soon as possible. There are three key challenges we need to face over the next decade to capture the advances in vehicle safety technologies:

- *How can we ensure that a large proportion of vehicles entering the fleet have the highest possible safety ratings?* Over 50 percent of the vehicles entering the Australian fleet have at least a four star safety rating for occupant protection. The equivalent figure for new vehicles entering New Zealand is only about 15-20 percent.
- *What can we do to speed up the turnover of the vehicle fleet to newer safer vehicles?* Older vehicles generally have fewer safety features and the occupants are more vulnerable if there is a crash. There is a risk the economic downturn will mean that new cars become less affordable.
- *How can we ensure that the safety features on our vehicles are well maintained and operate as well as they are intended to?* Vehicles need to be well maintained to ensure their safety features continue to operate properly. In 2006 vehicle defects were a contributing factor in 6 percent of fatal crashes and 3 percent of injury crashes. Economic conditions may mean people will defer vehicle repairs and maintenance.

HOW CAN WE IMPROVE THE SAFETY OF OUR LIGHT VEHICLES?

The suggested initiatives for improving the safety of light vehicles are to:

- **Mandate electronic stability control (ESC) on all vehicles entering the fleet**
- **Promote the rapid uptake of advanced vehicle safety systems**
- **Reduce the average age of the light vehicle fleet**
- **Revise warrant of fitness (WoF) standards to ensure that advanced vehicle safety systems are properly maintained and working effectively.**

Mandate Electronic Stability Control (ESC) on all vehicles entering the fleet

Many studies indicate that ESC could reduce loss of control crashes by 20 to 30 percent. For certain types of vehicle, such as SUVs, the figure is more like a 60 percent reduction.

ESC is now included as standard equipment in 70 to 80 percent of new cars[19] coming into New Zealand, although the rate of increase has slowed recently. When used imports are taken into account it is estimated around 40 percent of the cars that entered our fleet last year had this safety feature. Europe, Canada, Australia and the USA are all moving to mandate ESC in their vehicle fleets by 2011– 2012. Analysis undertaken in Canada, Victoria and the USA illustrates the benefits from mandating this technology significantly outweigh the costs.

ESC currently adds about $500 to the cost of a new car although it is expected to become a standard feature in most vehicle models over time with the cost built into the purchase price.

Promotional activities will increase the uptake of ESC over the next decade, but it could happen faster if we support it with regulation. Many of the countries we import our vehicles from are already mandating ESC. We could select a cut-off year after which it would be compulsory for all new and used light vehicles entering the country to have ESC fitted as standard. This could be around 2011–2015, which is the period other countries are considering.

Promote advanced vehicle safety systems

Overseas experience shows that consumer awareness programmes balanced with regulation are the best ways to increase the uptake of safer vehicles.

For instance, using this approach Sweden achieved a 90 percent uptake of ESC in all new cars. Australia is following suit.

We could increase consumer awareness about the benefits of buying a vehicle with the latest safety features. This in turn would encourage importers to bring in more of them. The recent campaign promoting ESC is a good example of this cost-effective strategy that has been very successful in influencing vehicle manufacturers in Europe to make safer cars.

There are three ways we could help consumers to choose safer vehicles:

- The government could provide consumers with safety information. The Right Car website already has information on many newer makes and models, but we could extend it to rate older vehicles too.
- Motor vehicle dealers could give buyers safety information at point of sale (this could be optional or mandatory). This gives consumers peace of mind that the safety features they want are in fact on the vehicle.
- Develop incentives such as working with the insurance industry to lower insurance premiums for safer vehicles.

Reduce the average age of the light vehicle fleet

Our vehicle fleet is older than that of many other countries. We would like to change this so that more vehicles have the latest safety features. We can influence the age of the fleet in a number of ways: by promoting advanced vehicle safety systems, preventing older vehicles from entering the fleet, and encouraging the disposal of older vehicles.

About 70 percent of our new vehicles are purchased for company fleets (eg hire cars). We will encourage fleet buyers to purchase vehicles with the latest safety features. The government will lead by example in its own fleet purchases.

The 2007 Vehicle Exhaust Emissions Rule will help (especially on used imports) by restricting older vehicles that do not meet specified emissions standards from entering the fleet. However, the effect of the rule will lessen over time, so new initiatives may be needed to ensure that the age of vehicles entering the fleet does not start to increase.

As well as promoting safer vehicles we can also provide incentives, or go a step further and restrict the entry of older vehicles. For example we could only allow cars eight years old or less to be imported.

This would reduce the number of older vehicles coming into the country, but affordability issues would need to be considered. People could hold on to their existing vehicles for longer if new ones are considered too expensive which would in turn impact on vehicle importers.

19 Light commercial vans and utes are excluded in this analysis.

We could also provide incentives to speed up the exit of older vehicles from the fleet. One way to do this would be to reward owners for scrapping older vehicles. Vehicle owners could be offered an incentive to move from less safe older vehicles to newer, safer ones. This would have an immediate safety benefit, although further analysis to quantify the level of benefits in relation to the costs is required.

Revise WoF standards to ensure that advanced vehicle safety systems continue to function for at least the design life of the vehicle

Advanced vehicle safety features (eg air bags) must continue to function properly for the life of the vehicle to get the greatest safety benefit.

The current WoF inspection is to ensure that a vehicle's structure is sound and its parts working properly. However, it does not check advanced safety systems, such as airbags and electronic stability control, to ensure they are working as they were designed to do. We could strengthen the WoF inspection to cover these features. There could also be some adjustment to the time period between WoF inspections, which could perhaps be relaxed for new vehicles. Further analysis of the potential costs and benefits of this proposal will need to be undertaken.

DISCUSSION POINTS

Do you support the proposed initiatives to help make our vehicle fleet safer?

What initiative is most important to you?

What else could we do?

Do you agree that we should make electronic stability control mandatory for cars entering the fleet by a particular date?

WHAT IS THE PROBLEM?

PEDESTRIANS

- **In each year over the period 2003-2007, an average of 671 pedestrians were hospitalised and 43 were killed.**
- **About 400 pedestrians are admitted to hospital each year due to trips and falls. They tend to be elderly and are more likely to be injured if they fall. Poorly maintained footpaths are a particular hazard for the elderly.**
- **The number of pedestrians killed per year and the rate per 100,000 people are both falling.**
- **The number of pedestrian injuries has not changed in the last 15 years, despite the decline in walking by children who are most at risk.**

CYCLISTS

- **In each year over the period 2003-2007, an average of 280 cyclists were hospitalised and 10 were killed from crashes involving a vehicle.**
- **Cyclists were not at fault in over 70 percent of all cyclist-vehicle crashes in which they were injured or killed.**
- **An additional 1900 cyclists were hospitalised in 2007 for crashes that did not involve a vehicle. Most of these crashes were on public roads.**
- **The number of cyclists killed or injured has been trending upwards.**

Pedestrians currently account for 10 percent of all road deaths and cyclists two percent. However, in urban areas, pedestrians and cyclists account for 30 percent of all road deaths. The majority of crashes involving a cyclist or pedestrian and a motor vehicle occur on urban roads, particularly busy urban arterials where vehicle speeds tend to be higher.

Pedestrians and cyclists are sometimes called 'vulnerable road users', mainly because they come off worse in a crash with a vehicle. This implies these active modes of transport are inherently dangerous, but they can be safer if we address the needs of pedestrians and cyclists.

The evidence shows that the most obvious way to improve safety for pedestrians and cyclists, especially in urban areas, is to moderate vehicle speeds. The faster a driver is going the harder it is for them to avoid hitting someone in their path. The speed at which a cyclist or pedestrian is hit determines how seriously they will be injured.

A cyclist/pedestrian hit at 30 km/h has a 90 percent chance of survival, but if they are hit by a vehicle at 60 km/h the survival chances are only 15 percent.

There is a proven safety in numbers effect for cyclists and, to a lesser extent, pedestrians. The more people there are cycling or walking, the safer each person is, as drivers become more accustomed to seeing them. This is a mutually reinforcing cycle. We must also improve safety perceptions of walking and cycling as perceived risk may turn people away.

The current trends highlight the significant potential to improve safety for pedestrians and cyclists, but it is going to require more effort.

The initiatives in the speed and roads/roadsides sections are the most important for pedestrians and cyclists. They are supported by the following proposals.

HOW CAN WE IMPROVE THE SAFETY OF CYCLISTS AND PEDESTRIANS?

The suggested initiatives for safer walking and cycling are to:

- **Improve techniques to integrate safety into land use planning**
- **Strengthen requirements in driver licence test so drivers are more aware of pedestrians' and cyclists' safety needs**
- **Have stronger promotion of road user education, including targeted messages and more national promotion, such as 'share the road'**
- **Increase cyclist skills training in schools**
- **Increase coverage of temporary lower speed limits around schools.**

Improve techniques to integrate safety into land use planning

It is important to improve access and safety for the one-third of New Zealanders who do not drive. It is often difficult for people in residential areas to safely walk or cycle to services, such as shops, schools and public transport. This is usually caused by poor access, such as a lack of safe crossing points across a busy road.

There are two main ways we can address this problem. Firstly, we could strengthen codes of practice and standards for new subdivisions. This would help ensure that road safety is fully considered at the planning stage.

Secondly, we can improve safety in existing communities. One method we already use is neighbourhood accessibility plans (NAPs). This method evolved from the 'safer routes to schools' programme.

NAPs are community initiatives that identify and resolve local road safety issues. The roads, pavements, intersections, signs and facilities are improved where possible so that they are safe for local people, particularly children and the elderly. These are often supported by education and enforcement campaigns.

If parents perceive it is safer, they are more likely to allow their children to use other modes of transport rather than driving them to school. This would help to reduce congestion and improve public health.

There have been many successful NAP projects that have delivered substantial safety benefits. For example, a NAP in Nelson CBD led to a significant reduction in pedestrian and cyclist crashes and a drop in crime in the first two years of the programme. The benefits exceeded the costs by over 4 to 1.

We want to ensure that methods such as NAPs are as cost-effective as possible and it is relatively straightforward for communities to apply for assistance. We will look to strengthen and build on these existing methods.

The main causes of local road safety problems may lie outside the immediate local area. For example, the road network may encourage commuter traffic to take short-cuts through neighbourhoods. It will be important that local initiatives, such as NAPS, are integrated into district plans and regional road safety plans.

Strengthen requirements in the driver licence test so drivers are more aware of pedestrians' and cyclists' safety needs

Many drivers are unaware of the rules around pedestrians and cyclists, such as allowing cyclists sufficient room when passing.

We could provide more information for novice drivers then test if they are aware of their responsibilities toward other road users. A novice driver would have to demonstrate knowledge and awareness of road rules regarding pedestrians and cyclists. This would encourage more specific driver training on how to safely share the road with pedestrians and cyclists. This would be a relatively low cost change to implement.

Stronger promotion of road user education on pedestrians and cyclists, including targeted messages and more national promotion

To support the initiative above we could also raise awareness of the need for all road users to share the road safely. There are national Share the Road guidelines available from the New Zealand Transport Agency, but promotion is left to local or regional authorities and very few run campaigns.

We could encourage more considerate and safe behaviour from all road users. For drivers the key messages are to take extra care around pedestrians and cyclists. This includes giving them sufficient space on the road and not parking in dangerous places.

For pedestrians and cyclists the key messages are to comply with the road rules (eg stopping at red lights and crossing on the 'green man') and to take safety precautions (eg being visible at night). As well as improving safety this would go some way to gaining more respect from drivers. Such a national campaign would have costs associated with advertising and publicity.

Greater promotion of cyclist skills training in schools

We could increase the provision of cycle skills training in schools. Cyclist training has been successful overseas, mainly because it helps children to become proficient and safe on a bicycle at an early age.

When combined with measures like low speed zones and safer routes to school, this helps parents to feel confident about their children cycling to school.

Christchurch has had a successful and cost-effective programme (Cycle Safe) for several years. This has equipped children with safe cycling skills and also contributed to an increase in cycling. Children who have gone through the programme are also less likely to have a crash. The benefits of this programme outweigh the costs by almost eight to one. The Police also conduct some cyclist skills training nationwide, but their resources are limited.

Support the roll-out of strongly enforced variable speed limits around schools and address the issue of rural school bus safety

This initiative will significantly improve safety around schools if backed with strong enforcement. Variable speed signs help to educate road users to consider the needs of school children. A variable speed limit of 40 km/h is introduced before and after school, and at other busy times. Police apply a lower tolerance level.

This initiative will be closely linked to existing locally driven programmes such as school travel plans and neighbourhood accessibility plans. It will also build on the existing resources on school bus safety produced by the New Zealand Transport Agency.

There is also an issue surrounding rural school safety, particularly when children are getting on and off school buses. Vehicles are required to reduce speed to 20 km/h while a school bus has stopped, but we know many drivers do not obey this rule. A second problem is the speed at which drivers pass rural schools. Speed enforcement is also more difficult than it is in urban areas.

We could investigate options for improving safety around rural schools and school buses.

DISCUSSION POINTS

Do you support the suggested initiatives to make walking and cycling safer?

Which one is most important to you?

What else could we do?

What is the problem?

- **Heavy vehicles represent approximately seven percent of the total distance travelled on New Zealand's roads.**
- **In 2008, crashes involving heavy vehicles accounted for 18 percent of the road toll and 19 percent of total injuries. This equates to 65 deaths, 258 serious injuries and 1,144 minor injuries.**
- **In 2008, the social cost of heavy vehicle deaths and injuries was $476 million.**
- **About 80 percent of people killed in heavy vehicle crashes are other road users.**

Heavy vehicles[20] are essential to our economy. Every year trucks carry approximately 70 percent of New Zealand's freight[21]. Buses provide a range of services from taking children to school and commuters to work, to carrying tourists around the country.

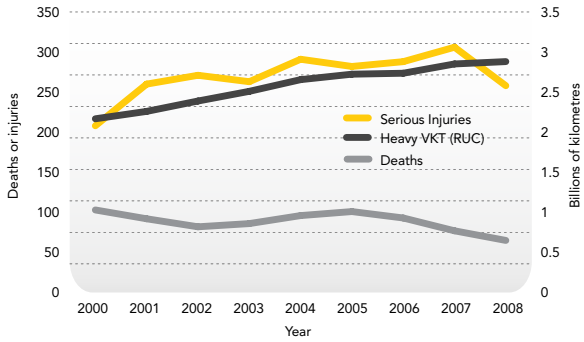
Heavy vehicles pose a particular challenge for road safety because the consequences of their crashes are more severe. Other road users generally come off second best in a crash with a heavy vehicle.

Since 2000, the distance travelled by heavy vehicles has increased but the number of deaths has dropped. However, serious injuries have increased (see Figure 13).

20 Heavy vehicles are those motor vehicles with a gross vehicle mass over 3.5 tonnes. This includes buses.

21 On a tonnage per kilometre basis. National Freight Demands Study, September 2008, Ministry of Transport, Wellington.

Figure 13: Heavy vehicles – deaths and serious injuries



New Zealand's heavy vehicle traffic is closely linked with economic growth. It tends to grow at a rate of approximately 1.5 times gross domestic product. Once the economy recovers from the recession, the distance travelled by heavy vehicle is expected to rise. An increase in heavy vehicles on our roads could mean an increase in serious crashes.

Heavy vehicle crashes also create significant delays on our roads. These delays create additional costs as the movement of people and freight is disrupted.

How can we improve the safety of heavy vehicles?

The suggested initiatives for improving the safety of heavy vehicles are to:

- **Publish operators' safety ratings**
- **Encourage the use of electronic stability control**
- **Assist companies to reduce work related road risk**
- **Adopt a 'safe and fuel efficient' driving programme**

The initiatives suggested in the safer roads and safer speeds sections would also help reduce the impact of heavy vehicle crashes. However, there are actions we can take to improve the safety of heavy vehicles themselves.

Publish operators' safety ratings

Some heavy vehicle operators have better safety records than others. The Operator Safety Rating System (OSRS) will give heavy vehicle operators safety ratings based on their safety performance. These ratings will be available to potential customers and others with an interest in the industry, such as finance and insurance firms.

In this way the ratings will benefit heavy vehicle operators with good safety records as customers are more likely to choose their services. Poorer performing operators will have to improve safety in order to attract customers.

The ratings will also allow Police to focus on the most risky operators.

The OSRS is estimated to reduce the social costs of at–fault heavy vehicle crashes by about six percent per year ($17 million) by 2021, so this indicates it is a very cost-effective initiative. We see implementation of the OSRS as the main initiative for improving heavy vehicle safety through to 2020.

Encourage the use of electronic stability control (ESC)

Vehicle instability is a serious risk for heavy vehicles. Drivers are often unaware of instability risks of their truck until it actually rolls. There are approximately 140 rollovers each year due to instability.

ESC acts on the braking, or power systems, of a vehicle to help the driver maintain control when it begins to skid or slide. ESC, as well as compliance with vehicle loading rules, improves stability.

We know ESC has prevented crashes, especially crashes where the driver has lost control. ESC could prevent truck rollovers by 20 percent if fitted to vehicles that are at high risk. This represents a significant saving that will need to be compared to the implementation costs.

In Europe, ESC will start to become compulsory on vehicles from 2012. This requirement will be phased in over a number of years, with priority given to vehicles where the potential benefit is greatest, such as heavy truck/trailer combinations and touring coaches.

We could take a similar approach. However, due to the low number of heavy vehicles with this safety feature compared to light vehicles we would need to allow time for vehicles with ESC to be imported before we consider mandating. Promotional activities have been shown to be a cost-effective way of increasing the uptake of ESC in cars and a similar programme could be introduced for heavy vehicles.

Assist companies to reduce road risk

Getting into a vehicle is the most dangerous thing most New Zealanders will ever do while at work. Road deaths are the largest category of workplace deaths and road injuries make up 13 percent of workplace injuries. For this reason, the Workplace Health and Safety Strategy for New Zealand to 2015 lists workplace vehicles as one of its eight national priorities.

A new way of addressing this risk is the Commercial Driver Programme. This aims to raise commercial driver and company awareness of significant road safety issues like fatigue and speeding. Companies are informed when one of their vehicles receives a ticket for a road safety offence. This supports efforts to minimise risk and make the workplace safer for their staff. Prior to this programme, companies were not always aware of their employees' infringements, and it has received positive feedback.

We could implement the Commercial Driver Programme nationally. This could reduce work related road deaths and injuries while improving productivity.

Adopt a 'Safe and Fuel Efficient Driving' programme

Improving fuel efficiency is closely linked with improving road safety. Driving with a fuel efficient style gives drivers more time to identify hazards and reduce speeds.

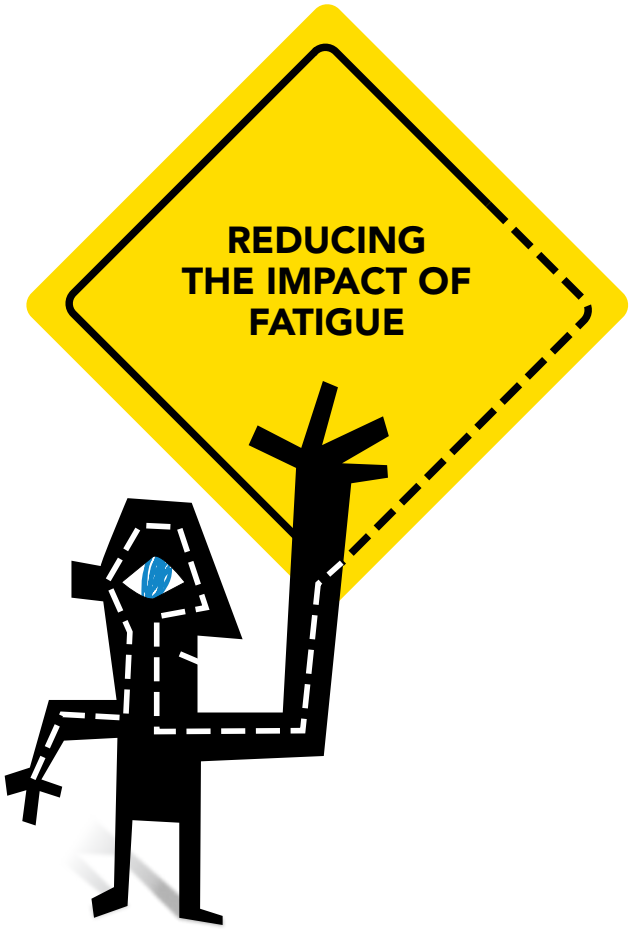
The Ministry of Transport is developing a Safe and Fuel Efficient Driving programme which will provide a standard for fuel efficient driver training for the heavy commercial vehicle sector. It will promote safer driving techniques and more efficient use of fuel through defensive driving and vehicle maintenance.

This programme was a key recommendation from research undertaken by the Ministry in 2008. This research found that fleets that are willing and able to make the effort, and receive information and training, can improve fuel efficiency by 10 percent. Add to this any reduction in the number of heavy vehicle related crashes and the programme represents a sizeable cost saving to heavy vehicle operators.

DISCUSSION POINTS

Which of the suggested initiatives do you support and what is the most important one for you in increasing the safety of heavy vehicles?

Do you have other ideas for how we can increase the safety of heavy vehicles?



WHAT IS THE PROBLEM?

- **Over the period 2004 – 2008 fatigue contributed to 7 percent of serious injury crashes and 12 percent of fatal crashes. In 2008 alone fatigue related crashes resulted in 190 serious injuries and 42 deaths.**
- **It is estimated that the total social cost of crashes involving fatigue in 2008 was $312.8 million.**
- **It is believed that fatigue causes far more road deaths and injuries than these statistics show.**

People driving while they are tired, drowsy or sleepy is referred to as driver fatigue. Fatigue can affect a driver's reaction time, their ability to concentrate and their understanding of the road and traffic around them. The three main causes of fatigue are:

- insufficient sleep
- driving during times when we usually sleep
- long periods of work or activity without a break.

Crashes resulting from driver fatigue are among the most severe on the road. This is because a fatigued driver is less able to brake or avoid the impending crash. Severity and risk is increased further when fatigue is combined with speed, alcohol and drugs.

Our official statistics are based on Police reported crash data. At a crash scene it is difficult to determine, without an admission from a driver, whether fatigue has been a factor. However, research suggests that fatigue could be a contributing factor in up to a quarter of fatal crashes, which is much higher than the official statistics show.

Until recently, efforts to reduce driver fatigue have focused on commercial drivers. This is because it is easier to influence fatigue in the workplace than in private vehicle use.

The challenge is to make sure we invest our limited road safety resources into initiatives that are likely to influence the driving decisions of all New Zealanders. Some of the initiatives in the safer roads and roadsides section could also help to prevent fatigue related crashes, and/or lessen their impact (eg rumble strips, median barriers and sealed road shoulders).

HOW CAN WE REDUCE THE IMPACT OF FATIGUE?

The suggested initiatives for reducing the impact of fatigue are to:

- **Increase the range of information**
- **Promote the use of roadside stopping places**
- **Make driving while fatigued an offence.**

Increase the range of information

Drivers have a responsibility to avoid fatigue, but without providing the knowledge to help them meet that responsibility, we are unlikely to see any reduction in fatigue-related crashes.

We know there is widespread understanding that fatigue is a road safety issue, but people often do not recognise the signs of fatigue and when to stop driving.

We could address this through information that covers:

- how to recognise the signs of fatigue and how to deal with it (eg power napping and shared driving)
- driver fatigue stops and journey planning tools like maps showing cafes and rest areas.

This information would be targeted to high risk groups such as commercial drivers, shift workers, young people, and people driving on holidays.

There are many ways this information could be made available to the public with different levels of cost. An online journey planning tool could be created within existing budgets. However, if nationwide advertising is used then this cost could be significant.

Promote the use of roadside stopping places

Having a power nap (a short nap of 20 minutes) can help prevent and/or minimise the impact of fatigue. Experience from other jurisdictions suggests that a lack of safe and accessible stopping places prevents people from pulling over for a rest.

A key initiative in Victoria's (Australia) road safety strategy is to improve and expand the number of roadside stopping places. This is an initiative we could also consider.

Although we have a network of rest areas, their location, attractiveness, safety and signage may prevent drivers from using them. Alongside promoting regular breaks from driving, we could look at whether we have enough suitable rest areas.

Consider introducing an offence for 'driving while fatigued'

Some overseas jurisdictions have an offence for driving while fatigued. For example, in New Jersey, USA, drivers can be prosecuted if they have been awake for more than 24 consecutive hours before a crash causing death. Convicted drivers face up to 10 years imprisonment and/or up to a $100,000 fine. In Finland, drivers who cause minor or non-injury crashes can also be prosecuted.

We could investigate making driving while fatigued an offence. This would be a long term initiative, and a number of steps would need to be taken in advance, such as giving the public more information. However, we would need to recognise that fatigue is part of everyday life.

Legislation would focus on the most extreme cases of fatigue, where drivers are driving in a way that is unacceptable and reliable evidence would be needed. The Police would need ways of identifying fatigue in drivers who are driving dangerously or have caused a crash.

There are several practical issues to be worked through before the likely effectiveness of this suggested initiative can be determined.

DISCUSSION POINTS

Which of the suggested initiatives do you support and what is the most important one for you in reducing the impact of fatigue?

Do you have other ideas for how we can reduce the impact of fatigue?

WHAT IS THE PROBLEM?

- **Over the period 2004 – 2008 distraction contributed to at least 10 percent of fatal crashes and 9 percent of serious injury crashes. In 2008, these crashes resulted in 243 serious injuries and 42 deaths.**
- **In 2008, it was estimated that the social cost of crashes involving distraction was $411.5 million.**
- **It is believed that distraction contributes to far more crashes than official statistics show.**

Driving safely requires a driver's full attention. A driver needs to maintain control of their vehicle and stay aware of the surroundings while looking out for and reacting to potential hazards. Distraction occurs when attention is diverted away from driving. Common distractions include passengers, cell phones and eating and drinking. Being upset or angry can also distract drivers.

Distraction is a serious road safety issue. It is often the initial event in a chain of events resulting in serious road trauma. Despite its seriousness we do not know the full extent of distraction's contribution to crashes. Crash statistics tend to under-report distraction. This is because drivers at a crash scene are often not willing to admit they were distracted and so it is difficult for a Police officer to identify whether distraction has contributed to a crash.

International research shows that distraction could be involved in around 20 percent of crashes.

Despite its seriousness, public understanding of distraction is low. Focus group research[22] shows that many drivers do not see distraction as a road safety issue. People tend to view distraction as a normal part of driving. This is despite people also describing 'near-misses' and other situations where their driving had been affected by distraction.

There is concern that the number of distraction crashes may increase over 2010–2020. This is because the number and type of technologies that can distract drivers is increasing rapidly (eg MP3 players, navigation systems and entertainment systems).

The challenge in dealing with distraction is to put in place initiatives that will be both effective and offer value for money. Distractions are part of everyday life. Unlike alcohol or drug impaired driving, it is not possible to simply require all drivers not to be distracted at all times while driving.

There has been public consultation on the option of banning hand-held cell phone use while driving. The government has announced it will ban hand-held cell phone use while driving from 1 November 2009.

The cell phone ban was considered because research shows that using a mobile phone while driving increases the risk of being involved in a crash by up to four times. As well, the number of reported crashes involving the use of cell phones has more than doubled over the last six years.

As well as this initiative, some of the safer roads and roadsides initiatives suggested in this document will help to avoid distraction related crashes and/or lessen their impact (eg median barriers, rumble strips and sealed road shoulders).

22 Commissioned by Land Transport New Zealand in 2004.

WHAT ELSE COULD WE DO TO REDUCE THE NUMBER OF CRASHES CAUSED BY DISTRACTION?

The suggested initiative for addressing distraction is to:

- **Raise public awareness and improve education**

Raise public awareness and improve education

Many people are unaware of the risk of distraction and the ways they could reduce this risk (eg turning off their cell phone, choosing music while stopped and adjusting controls prior to the journey). Giving people this information could help them avoid driver distraction.

This information could also be incorporated into road safety education, particularly the road safety education provided to young people. Identifying and managing distraction could then be included in driver testing.

Road safety agencies already work with employers to encourage the uptake of safer vehicles and driving practices. We could expand this by including a focus on distraction. As well as reducing distraction while driving for work, it could help to improve personal driving habits.

DISCUSSION POINTS

Do you support the suggested initiative to reduce the impact of distraction?

Do you have other ideas for how we can reduce the impact of distraction?


2020
AREAS FOR CONTINUED FOCUS AND EMERGING ISSUES

WHAT IS THE PROBLEM?

- Of all the safety features invented for vehicles, seatbelts have made one of the largest contributions to improving road safety.
- A United States study of the contribution of vehicle safety technology from 1960 to 2002 found that fatalities had been halved as a result of seat belts.
- New Zealand has made good progress in increasing restraint use, although there is still room for improvement. On average 95 percent of adults use front seatbelts and 87 percent use rear seatbelts. Ninety-one percent of children under the age of five now use restraints.

HOW CAN WE INCREASE OUR LEVEL OF RESTRAINT USE?

In this section the suggested initiatives for increasing restraint use are to:

- Bring our child restraint laws in line with international best practice
- Ensure correct use of child restraints
- Conduct a targeted programme in regions below the national average to improve rear seatbelt use
- Conduct a targeted programme to improve seatbelt wearing rates for commercial drivers.

Bring our child restraint laws in line with international best practice

Child restraints vary depending on a child's age and weight. Rear-facing seats are best for young infants, forward-facing restraints are best for younger children and booster seats used with seat-belts work best for older children.

New Zealand has fallen behind international best practice child restraint use by primary school-aged children. This partly explains why we have one of the highest child road fatality rates in the OECD.

Many child deaths and serious injuries could be prevented by bringing our laws in line with international best practice. This would mean requiring children to use appropriate child restraints until they are 148 cm in height or ten years of age.

Many countries, including member states of the European Commission, Canada and several states of the United States have strengthened restraint laws for children over the age of five, and other countries, including Australia, are planning to follow suit.

Overseas experience shows a requirement based on height is more effective than one based on age.

In New Zealand, our five to seven year olds are only required to use a child restraint if one is present in the vehicle. We have no requirements for children aged eight or older to use a booster seat.

Strengthening our child restraint requirements will bring an immediate safety benefit but it will also impose costs. The price of a new booster seat starts from $159. However, parents are likely to have a choice between buying new, second hand or renting. Further analysis will be required on the number of New Zealand children that would be affected by this proposal.

Ensure the correct use of child restraints

We also need to maintain a focus on the correct use of all child restraints. Child restraints are only fully effective when they are the right size for both the child and the vehicle, and the child is correctly positioned and strapped in.

Surveys show that 91 percent of pre school children were using restraints, but we do not know how many were using them correctly. Checks carried out in 2005 found that up to 65 percent of families surveyed were not using child restraints correctly. Another in Wellington in 2009 found that 45 percent were not used correctly.

There are a number of initiatives aimed at increasing the correct use of child restraints (eg through Plunket and Safe2Go[23]) that need to continue, but there is still room for improvement.

Conduct a targeted programme to improve rear seatbelt use in regions below the national average

Improvements could be made by targeting regions where rates are below average. The national average wearing rate for rear seatbelts is 87 percent, but in Northland and Southland it is 71 percent, and in the Bay of Plenty it is 76 percent. We could support local initiatives in these areas.

Conduct a targeted programme to improve wearing rates for commercial drivers

We could continue to focus on commercial drivers such as heavy vehicle, taxi and delivery drivers. We could encourage employers to require their drivers to wear seatbelts as part of their company's safety policy.

Recent surveys reveal that only 80 percent of commercial drivers use seatbelts where these are fitted. Fifteen truck drivers are killed on average each year due to not wearing seatbelts. Through this low cost targeted initiative we could aim to improve the wearing rate so it at least equals that for light vehicle drivers (currently 95 percent). We could also consider strengthening the penalties for not wearing a seatbelt.

DISCUSSION POINTS

Do you support aligning our requirements for child restraints with international best practice? This would mean that children over five years of age could use adult seat belts only when they reach 148cm in height. Before that they would have to use an appropriate child restraint. This includes the use of booster seats.

How could we improve seatbelt wearing rates among commercial drivers?

23 See www.safe2go.co.nz

WHAT IS THE PROBLEM?

- High risk drivers are disqualified drivers, unlicensed drivers and drivers involved in illegal street racing (ie boy racers). It is not possible to know exactly how many high risk drivers there are. We do know that around 67,000 drivers are disqualified each year.
- Although probably low in number, high risk drivers are over-represented in crash statistics and their crashes tend to be more serious than those involving other drivers. They are also more likely to be at fault.
- Over the period 2004 – 2008 high risk drivers were deemed to be at fault in 9 percent of serious injury crashes and 13 percent of fatal crashes. For 2008 such crashes resulted in 880 minor injuries, 244 serious injuries, and 41 fatalities.
- The total social cost of crashes where high risk drivers were at fault was $340 million for 2008.

HOW CAN WE REDUCE THE IMPACT OF HIGH RISK DRIVERS?

The suggestions for reducing the impact of high risk drivers are:

- The initiatives discussed in the sections on alcohol/drug impaired driving, increasing the safety of young drivers and safer speeds
- Enactment of the illegal street racing legislation.

Initiatives proposed for reducing alcohol/drug impaired driving, speeding, and increasing the safety of young drivers will also help reduce the impact of high risk drivers.

Enactment of the proposed illegal street racing legislation will give Police, the courts and local authorities greater powers and sends a strong message to illegal street racers that dangerous, disruptive and antisocial use of vehicles will not be tolerated.

Work will need to continue across government agencies, and at the community level, to change the driving behaviour of repeat traffic offenders.

This would include measuring the success of the proposed illegal street racing legislation. Results of this evaluation would be used to design ways of targeting other high risk drivers.

WHAT IS THE PROBLEM?

- **After young people, older New Zealanders have a higher level of road trauma than other age groups. Their road fatality rate is around 15 deaths per 100,000 population. This compares with the rate of 10 deaths per 100,000 for the entire population.**

Increasing road safety for older New Zealanders (ie people over the age of 75 years) is an emerging issue.

The road safety risk is **to** older New Zealanders rather than from them. Older New Zealanders have a lower risk of being in a crash than other road users, but a higher risk of being seriously injured. Compared to other drivers, older drivers tend to drive slower, less frequently and in less risky situations. Older people injure more easily, and this increases the road safety risk. They are also more vulnerable as pedestrians.

Around 24 people die in crashes each year[24] where an older driver was at fault. Seventeen of these fatalities were the at-fault driver and 5 were the drivers' passengers, most of whom were aged 75 years and over. The remaining two deaths were other road users. In contrast, for every at-fault young driver killed, 1.3 other road users also die.

There are three reasons why we should have a focus on older New Zealanders. The first is that 20 years ago older New Zealanders comprised about 5 percent of total fatalities and 2 percent of total injuries. These figures have since doubled.

The second reason is that given our aging population this trend is likely to continue. The number of New Zealanders aged 65 years and older is expected to increase by more than half in the next ten years. Based on this increase we estimate that by 2020 older road users could make up 14 percent of road deaths and 6 percent of road injuries by 2020.

The third reason is the amount of change needed to prepare for the increase in the older road user population. This means acting earlier rather than later to help older people drive as safely as possible for as long as possible. We can do this by:

- planning for the mobility needs of the elderly including supporting alternative transport options (eg public transport)
- promoting the uptake of safer vehicles
- improving our roads and roadsides.

Current initiatives, as well as those suggested in the safer roads, safer speeds and safer walking and cycling sections will all help improve road safety for older New Zealanders.

HOW CAN WE IMPROVE THE SAFETY OF OLDER ROAD USERS?

The suggested initiatives for increasing the safety of older New Zealanders are to:

- **Improve roads and roadsides to cater for older New Zealanders**
- **Encourage the use of safer vehicles**
- **Expand education to target older drivers**

24 This is based on crashes that occurred over the period 2004 to 2008.

Target road and roadside improvements to cater for older New Zealanders

We could focus roading improvements on areas of high risk for older drivers (eg simplifying intersections) and older pedestrians (eg providing safer road crossings).

Many of these roading improvements could be completed at a low to medium cost. These costs would be balanced by reductions in deaths and injuries and not just among older people. To provide the greatest benefit we could initially focus on sites where there have been a high proportion of crashes involving older road users.

Encourage the use of safer vehicles

The elderly injure more easily and more severely in crashes than younger age groups. By encouraging older New Zealanders to buy safer vehicles we could raise road safety for this group. We could do this through advertising campaigns targeted specifically to older drivers.

Expand road safety education for older New Zealanders

Increased road safety education for older New Zealanders could include refresher driver training, managing high risk situations (eg intersections) and safe mobility scooter use. We could consider targeting areas that have a relatively higher proportion of older New Zealanders.

DISCUSSION POINTS

Which of the suggested initiatives do you support and what is the most important one for you in improving road safety for older New Zealanders?

Do you have other ideas for how we can improve road safety for older New Zealanders?

Road safety education is a core part of the road safety strategies of the best performing nations such as Australia, the United Kingdom, the Netherlands and Sweden. Education equips road users with the knowledge and skill they need to reduce the risk to themselves and to others.

Road safety education works in three main ways:

- raising awareness and building knowledge (eg using school programmes, public events, information pamphlets, guidelines)
- improving practical skills of all road users – (eg walking school buses, cyclist skills training, novice driver training, refresher driving courses)
- positively influencing behaviour (eg fact sheets, mass media advertising campaigns).

Various education initiatives have been discussed throughout this document. Most aim to increase awareness and knowledge (eg raising public awareness of young driver crash risk); some cover road user skills (eg motorcyclist training); while others cover advertising (eg fatigue and speed).

Mass media advertising campaigns, such as television commercials, are of particular interest. They can reach a large number of people to build awareness and knowledge and to support other road safety initiatives. These campaigns are often the most talked about aspect of road safety education, particularly when the messages are hard-hitting.

Road safety education has clear benefits, but they can sometimes be difficult to quantify. There are two main reasons for this. Firstly, many aspects of road safety education try to influence long-term behaviour. For example road safety education in schools aims to equip children with the skills and attitudes they need to become safe and responsible road users over the course of their lives. But how can you quantify this benefit?

Secondly, road safety education is more effective in changing behaviour when it is part of an integrated package that includes other measures, such as enforcement, physical roading improvements and community initiatives. However, this also makes it hard to tell what benefits were due to education alone. Despite these difficulties analysis shows that our major education programmes are generally cost-effective.

Road safety education will continue to be an essential part of our road safety effort, but we are interested in your views on how effective our current approaches are.

DISCUSSION POINTS

Are we putting enough emphasis on road safety education?

What would you change?

In your opinion does our current road safety advertising work well?

What would you change?

How can we better link our education efforts with other road safety initiatives?

This discussion document has over 60 possible initiatives, and we could introduce a number of them over the next decade. However, as noted at the start of the document, we would not implement all, or even most, of them. Apart from resource constraints, the initiatives will vary in their effectiveness. Some will achieve a greater reduction in road deaths and serious injuries than others. We would like you consider which mix of initiatives you think will produce the best road safety gains over the next 10 years.

Some of the initiatives will require a long term focus and sustained action over the next 10 years (eg road engineering improvements), while some are more short term in focus (eg proposed rule changes).

Consider also that the safe system has many inter-dependent parts. The suggested initiatives are spread across the safe system's four key components: safer roads and roadsides, safer speeds, safer vehicles and safer road users.

An initiative on its own will generally be less effective than if it is combined with others and implemented as part of a package.

On the next few pages you'll find the full list of initiatives proposed in this document. Please visit **www.saferjourneys.govt.nz** to select a package of the **top 10 or 20 initiatives** that you think we should focus on in this road safety strategy. Please then rank them in order from 1 to 10 or 1 to 20, with 1 being your most preferred or top initiative. Alternatively, you can call us on 04 439 9000 to request a form.

You can also fill out the online submission form at **www.saferjourneys.govt.nz**

This is your chance to have your say and help create *Safer Journeys* to 2020.

SUMMARY OF PROPOSED INITIATIVES

Full list of suggested initiatives for *Safer Journeys*	Rank your top initiatives in order from 1 to 10 (or 20)
ALCOHOL	
Reduce the legal adult blood alcohol limit to 50 mg per 100 ml (BAC 0.05)	
If the legal blood alcohol limit is lowered, then introduce infringement penalties for offences between BAC 0.05 and BAC 0.079	
Maintain the legal blood alcohol limit at BAC at 0.08 and increase the severity of penalties (this is an alternative to lowering the BAC to 0.05)	
Introduce a zero BAC limit for certain drivers (drivers under 20 years, adults without a full licence, commercial drivers)	
Address recidivism through a zero BAC for repeat offenders and move towards mandatory alcohol interlocks for drink drive offenders	
DRUGS	
Introduce random roadside drug testing (as technology allows)	
YOUNG DRIVERS	
Raise the driving age to 16	
Raise the driving age to 17	
Extend the learner licence period to 12 months	
Strengthen the restricted licence test to encourage 120 hours of supervised driving practice	
Increase the benefit of approved professional driver training courses, (eg allow these to be taken in the learner licence phase and replace the time reduction for completion with another incentive)	
Impound vehicles of those who breach GDLS licence conditions	
Increase vehicle restrictions for young drivers (eg based on power, modified vehicles)	
Introduce compulsory third party insurance	
ROADS AND ROADSIDES	
Implement targeted programmes to address run off road, head-on and overtaking crashes on high volume high risk rural roads	
Support a targeted programme for high risk urban intersections	
Change the give way rules for turning traffic and pedestrians	
Develop and support new approaches to safety on mixed-use arterials	
Implement treatments to make high risks roads more self-explaining	
Carry out more crash reduction studies and make these more targeted	
SPEED	
Increase the number of road safety cameras	
Change penalty system to deter speeding (higher demerit points and lower fines)	
Create more speed zones (80 km/h, 90 km/h) on high risk rural roads	
Review speed limits on mixed-use urban arterials	
Increase the adoption of lower speed limits in urban areas	
Investigate the requirements needed to support Intelligent Speed Assistance (ISA)	
MOTORCYCLING	
Improve rider training and licensing regime for new motorcycle riders	
Introduce a specific programme of treatments for motorcycle black spots	
Require all new motorcycles to have anti-lock brake systems by 2015	
Introduce a differential ACC levy based on engine size (ie bikes over 600cc pay a higher ACC levy than smaller bikes)	
License moped riders and require warrant of fitness tests for mopeds	
LIGHT VEHICLES	
Mandate electronic stability control (ESC) on all vehicles entering the fleet	
Reduce the average age of the light vehicle fleet through the introduction of an import age ban and / or scrappage scheme	

Revise WOF standards to ensure that advanced vehicle safety systems are properly maintained and working effectively

WALKING AND CYCLING

Improve techniques to integrate safety into land use planning
Add specific walking and cycling questions into driver licence testing so drivers are more aware of pedestrians' and cyclists' safety needs
Increase cyclist skills training in schools
Support the roll-out of strongly enforced variable speed limits around schools and address the issue of rural school bus safety
Investigate options to improve safety around rural schools and school buses

HEAVY VEHICLES

Publish operators' safety ratings based on their safety performance
Assist companies to reduce work-related road risk by implementing the commercial driver programme nationally

FATIGUE

Promote the use of roadside stopping places and review their adequacy
Make driving while fatigued an offence

DISTRACTION (see below under raising awareness)

RESTRAINTS

Bring our child restraint laws in line with best practice (eg allow children over five years of age to use adult seat belts only when the child reaches 148cm in height. Before that require the use of an appropriate child restraint eg a booster seat)
Ensure correct use of child restraints (eg by supporting programmes such as Plunket)
Conduct a targeted programme to improve wearing rates for commercial drivers
Conduct a targeted programme to improve rear seatbelt use in regions below the national average

OLDER ROAD USERS

Focus road and roadside improvements on sites where there have been a high proportion of crashes involving older road users

RAISING AWARENESS AND ADVERTISING

Inform New Zealanders about the impact of alcohol on driving
Promote the use of alcohol interlocks, particularly to commercial drivers, employers and the parents of young drivers
Increase the benefit of school road safety education by developing a specific road safety education programme in secondary schools
Raise awareness of young driver crash risk and the need for the graduated driver licensing system
Reinvigorate our education and advertising to improve understanding of the risks and consequences of speeding
Promote high visibility and protective clothing for motorcyclists
Promote the rapid uptake of advanced vehicle safety systems by expanding consumer awareness programmes and developing incentives for safer vehicle purchase
Have stronger promotion of road user education, including targeted messages and more national promotion, such as 'share the road'
Encourage the uptake of electronic stability control in heavy vehicles through a promotion campaign targeting commercial fleet buyers
Encourage companies to adopt the 'safe and fuel efficient' driving programme
Increase the range of information on fatigue
Raise public awareness and improve education on the dangers of being distracted while driving
Encourage the use of safer vehicles by older drivers through a targeted campaign
Expand road safety education for older New Zealanders (eg greater availability of refresher driver training)

APPENDIX 1

LOWERING THE LEGAL BLOOD ALCOHOL CONCENTRATION (BAC) TO 0.05 – SOME CONCERNS OF STAKEHOLDERS

Lowering the BAC to 0.05 was considered during consultation on the *Road Safety to 2010* strategy and some concerns were raised. We know that many of these concerns remain and they are discussed below.

Most crashes are caused by drivers with a BAC over 0.08. A BAC 0.05 limit would unfairly target responsible low risk drivers

The New Zealand Automobile Association (AA) has stated that a decision to lower the BAC should be based on evidence that driving above this new limit is dangerous. The AA does not see a strong correlation between reduced limits and the road toll.

This opinion is based on the AA's interpretation of the 2007 data on drivers killed in crashes involving alcohol. In their view, this data shows that only six percent of drivers involved in fatal crashes where alcohol was a factor had a BAC below 0.08. Twenty-six percent of drivers had a BAC between 0.08 and 0.16, and 66 percent were over double the limit.

Unfortunately, the statistics the AA use are incomplete. The number of drivers who are killed and have their BAC recorded is only a portion of the total number of people involved in serious and fatal crashes where alcohol is a contributing factor. Between 2003 and 2007, 7,808 drivers were involved in crashes where the presence of alcohol was suspected and of this number just over half had a BAC level recorded. The rest did not.

BAC levels are only available where the attending Police officer suspected that alcohol was involved, and had tested for it or arranged for it to be tested. Under the current law this creates two biases. First, young drivers will appear to be over-represented because they have a lower legal limit (BAC 0.03). Second, the Police only test adults suspected of driving above the legal limit. In other words we do not have a complete picture of crashes involving adults who may have had a BAC between 0.05 and 0.08.

To know the BAC levels of all drivers involved in fatal and serious alcohol related crashes we would need to take a blood sample from every driver. This is not done in New Zealand. The most reliable statistics we have show that in 2008, alcohol/drugs contributed to 31 percent of fatal crashes and 21 percent of serious injury crashes. These crashes resulted in 119 deaths, 572 serious injuries and 1,715 minor injuries.

Overseas experience shows that a reduction in the BAC is likely to bring down mean alcohol levels among all drivers. This includes drivers at both the lower legal limits and the upper extremes (eg those driving at more than twice the legal limit). For example, after the limit was lowered to 0.05 in the Australian Capital Territories, there was a 41 percent reduction in those caught with more than BAC 0.15. There was also a 90 percent reduction in the incidence of driving with an alcohol level between BAC 0.05 and BAC 0.09

People do not fully understand how much alcohol can be consumed to reach a BAC of 0.05 or 0.08 and this could undermine support for lowering the legal BAC

There is some confusion about the amount of alcohol that different BAC levels relate to. Anecdotal evidence suggests New Zealanders assume that a BAC of 0.08 equates to a lower level of alcohol than it actually does. This misunderstanding could undermine public support for lowering the legal BAC.

This risk could be reduced by raising public awareness about the impact of alcohol on driving ability and the amount of alcohol required to reach different BAC levels.

Despite this misunderstanding there is still public support for a lower BAC limit. A Ministry of Transport public attitude survey conducted in 2008 found that 52 percent of respondents favoured a lower legal blood alcohol limit for driving. This is the highest support recorded since the question was first asked in 1994. Of the 52 percent supporting a lower limit, 41 percent thought the limit should be lowered to BAC 0.05 and 11 percent wanted it lowered to zero.

A 0.05 BAC limit could cost more to enforce and could increase pressure on the courts

A risk with lowering the BAC is that it could require more work to enforce. It may also result in an increase in the number of apprehensions. This could place unreasonable pressure on the courts to efficiently process drink drive cases.

This risk could be managed by having an infringement penalty regime for offences between 0.05-0.079. This is suggested in the alcohol and drug impaired driving section of this document.

It would be reasonable to expect a short term increase in the number of apprehensions if the BAC was lowered, which has implications for enforcement. However, Australian experience suggests that there would only be an increase in apprehensions for around three months.

International experience also suggests that a lowered BAC combined with enforcement and a public awareness campaign significantly reduces the overall level of offending as fewer people drink and drive.

A lowered BAC can also help to change attitudes toward drink driving. For example, in Denmark when the limit was reduced to 0.05 the number of drivers who abstained from drinking when driving rose from 37 to 41 percent and the number who drank less when driving increased from 71 percent to 80 percent.

Over the medium term lowering the BAC should result in enforcement and court savings as less people drink and drive over the legal limit.

A BAC 0.05 limit could interfere with social drinking

Some people are concerned that a BAC 0.05 limit would prevent people from enjoying a glass of wine with dinner or a drink after work. This could be seen as having a negative impact on the alcohol and hospitality industries.

However, a BAC of 0.05 is consistent with a social drink. Australian guidelines for 0.05 suggest the limit for men is two standard drinks in the first hour and one standard drink per hour thereafter. For women the limit is one standard drink per hour.

There is very little awareness about the amount of alcohol that can be consumed within the legal BAC limit. New Zealand focus groups found that when people are asked how many drinks a person should be allowed to drink before driving most people give an answer equivalent to a BAC of 0.05 or lower. This result has been confirmed by a recent AA survey of members.

A BAC of 0.05 should not affect responsible social drinking.

A BAC of 0.05 will not deter the repeat offenders who are the real problem

Some believe that a lower BAC would not only criminalise social drinkers but also detract attention from the small minority of 'hard core' recidivist drink drivers.

However, a strict division between social drinkers and recidivists ignores much of what we know about alcohol use and drink driving in New Zealand.

The Ministry of Health's *Alcohol Use in New Zealand: Analysis of the 2004 New Zealand Health Behaviours Survey*, suggests that over 50 percent of New Zealand adults can be classified as binge drinkers. This suggests that social drinkers sometimes drink to excess and that recidivist drink drivers are not necessarily alcoholics.

This view is supported by the Ministry of Transport's 2008 public attitudes survey. Twenty-three percent of people who answered the survey reported driving slightly intoxicated at least once over the past 12 months.

In 2007, 33,184 drink drive offences were detected by the Police. Of those that were convicted 73.2 percent were first time offenders and 26.8 percent were recidivists. Of the recidivists, 20.2 percent had one previous drink drive conviction in the last five years, 5.1 percent had two previous convictions and 1.5 percent had three or more convictions.

New Zealand crash data from 2003-2004 shows that 72 percent of fatal and injury crashes were caused by a drink driver who had no prior drink driving convictions in the five years before the crash. This shows that there is a need to focus on all potential drink drivers and not just on recidivist drink drivers.

International experience shows that a reduction in the BAC is likely to bring down mean alcohol levels amongst all drivers, including the 'hard core'. For example, after the limit was lowered to 0.05 BAC in the Australian Capital Territories there was a 41 percent reduction in those caught with more than 0.15 BAC.

APPENDIX 2

Costs and benefits of different types of road safety engineering treatments

Potential Reductions (%) in Various Injury Crash Types

Treatment		Lost Control (Bends and Straights)	Head-on	Collision with roadside objects	Intersection Collisions	Relative cost to implement
Road signs – eg curve coming up, suggested speeds		15-35	15-35	15-35	15-35	$
Road marking (painted lines and white pickets)		10-40	10-40	10-40		$
Reduce speeds (per 10km/h reduction in speed)		15-30	15-30	15-30	15-30	$
Rumble strips (edge lines or centre lines that generate a noise and vibration when driven over)		20-45	20-35	20-45		$$
Lighting		5-10	5-10	5-10	10-20	$$
Removal of roadside objects (eg power poles, trees)				60-80		$$
Roadside barriers		20-40		20-40		$$

Potential Reductions (%) in Various Injury Crash Types

Treatment		Lost Control (Bends and Straights)	Head-on	Collision with roadside objects	Intersection Collisions	Relative cost to implement
Dedicated lanes for turning traffic					20-40	$$
Widen sealed edge of road		10-30	10-30	10-30		$$
Improved anti-skid road surface		10-40	10-40	10-40		$$
Overtaking lanes		20-40	20-40	20-40		$$$
Divided roads and/or median barriers			70-90			$$$
Roundabouts					40-80	$$$
Straighten out curvy roads		30-50	30-50	30-50		$$$

KEY:

$ Less than $50,000 per km or low cost

$$ $50,000 to $500,000 per km or medium cost

$$$ greater than $500,000 per km or high cost

NOTE: The effect of combined treatments is not cumulative, as various treatments are often targeting the same types of crashes.

NATIONAL ROAD SAFETY COMMITTEE

New Zealand Government