



# AREAS OF HIGH CONCERN



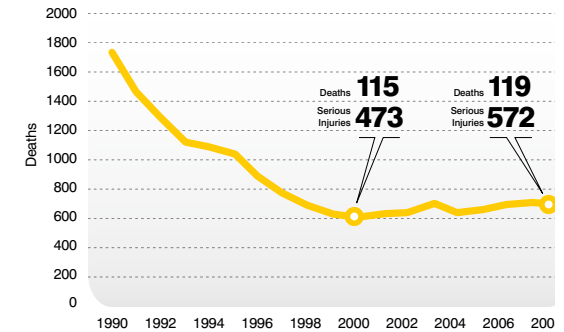


**WHAT IS THE PROBLEM?**

- 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<sup>4</sup> 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.

<sup>4</sup> 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

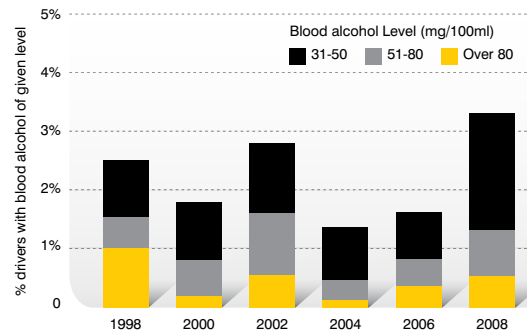
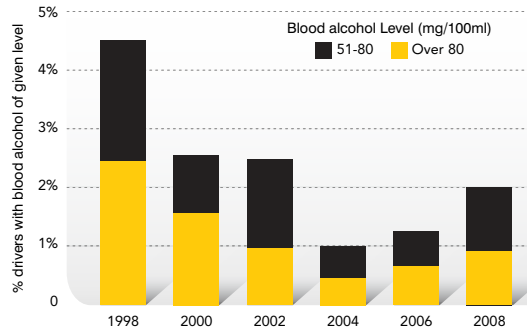


Figure 7: Blood alcohol levels: Ages 25-34



## 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<sup>5</sup>. Around 66 percent of all deaths resulting from alcohol-related crashes are sustained on rural roads<sup>6</sup>.

### **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<sup>7</sup> give an answer of around two standard drinks. This is equivalent to a BAC<sup>8</sup> 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<sup>9</sup> 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 mL 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.

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.

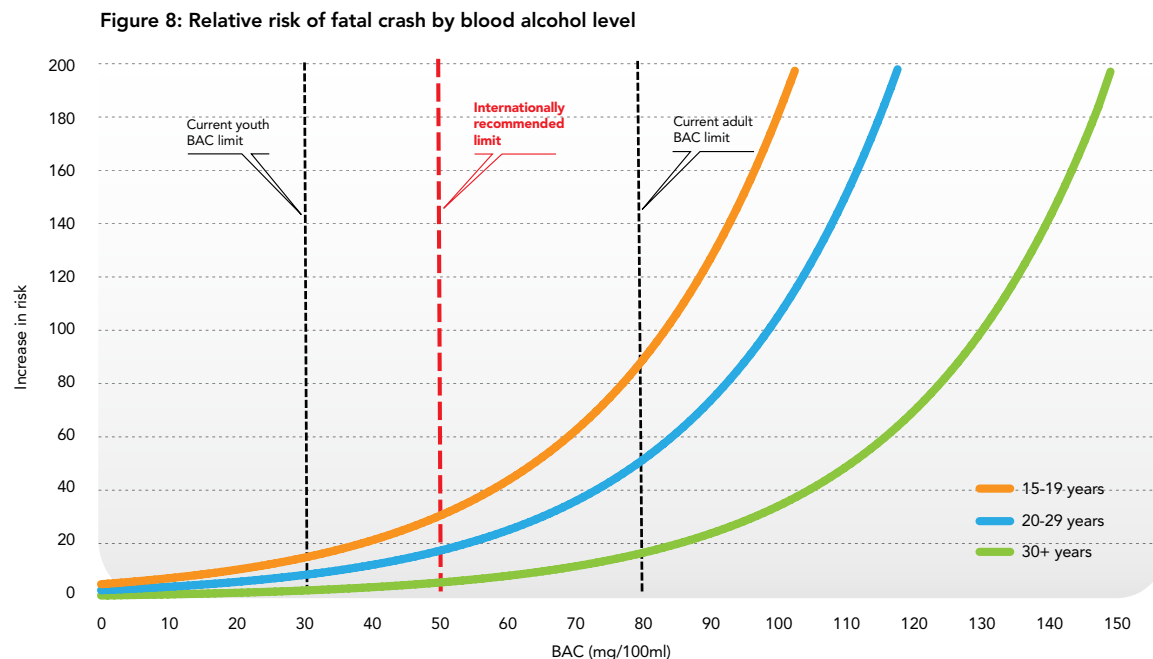
To make this initiative as effective as possible in preventing deaths and injuries we would need a public awareness campaign about the new BAC limit. This could involve a cost of up to \$1 million for nationwide television advertising. We would also have to ensure the new limit is adequately enforced.

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<sup>10</sup> 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.

### **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.

<sup>10</sup> Where the person has not caused death or injury to another person.

**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<sup>11</sup>, 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?**

<sup>11</sup> 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<sup>13</sup>.

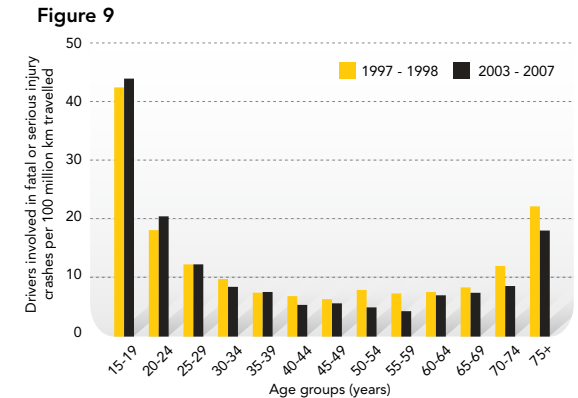
Most people killed by young drivers are their own passengers, who are their peers. This is a key reason why road crashes are the single greatest killer of 15–24 year olds, and the leading cause of their permanent injury. It also largely explains why our young people have a road fatality rate of 21 per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

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

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.



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

- **Age** - the crash risk is higher for those aged under 18<sup>14</sup> 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.

- **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.**

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

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<sup>15</sup>, 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

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<sup>17</sup> 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<sup>18</sup> 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.

<sup>18</sup> 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.

This situation creates the following crash risks:

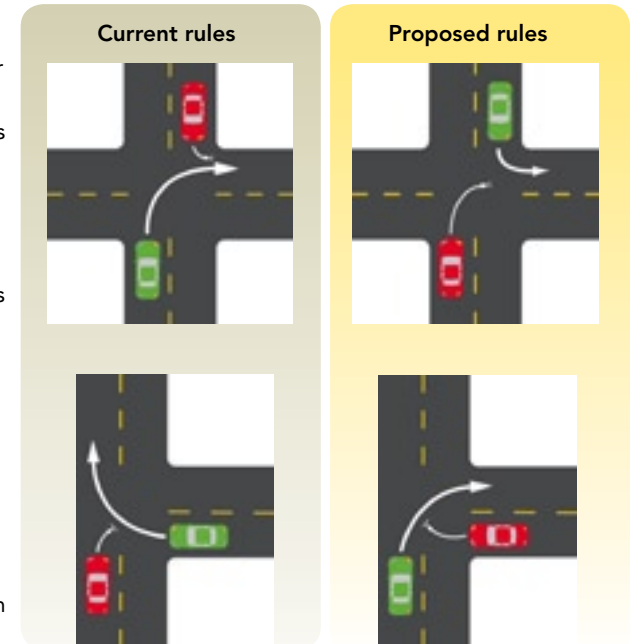
- between left-turning vehicles and pedestrians crossing the road that the vehicle is turning into, or cyclists on the inside, due to the driver of the vehicle watching for right turning traffic
- between right-turning vehicles and left-turning vehicles
- between right-turning vehicles and vehicles overtaking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

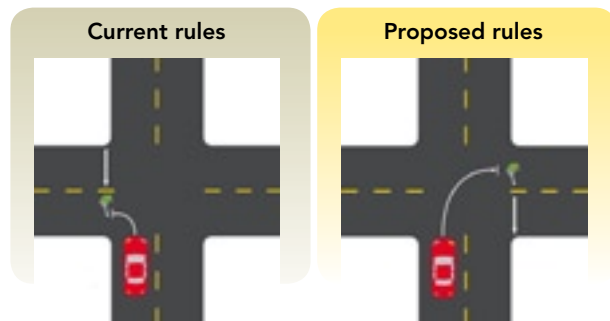
The number of intersection crashes involving pedestrians has increased by 60 percent since 2000, and many of them were hit by a turning vehicle. In 2008, the social cost of crashes involving a pedestrian and a turning vehicle was about \$33 million.

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.

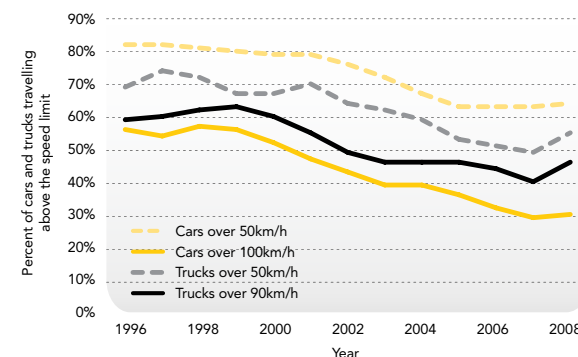
Figure 10: Chance of death at different impact speeds

Collision type	Probability of death		
	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?**

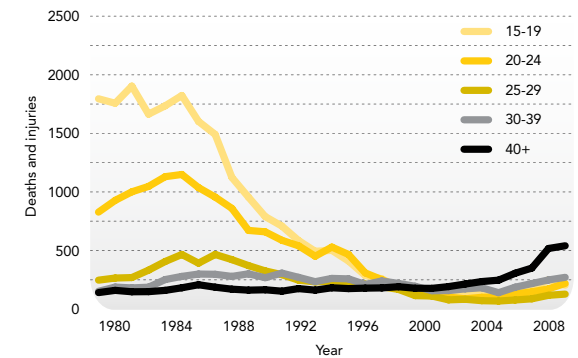
- The risk of a motorcyclist being killed or seriously injured in a crash is about 18 times higher than for a car driver. This is largely because motorcycles have less stability, offer lower levels of occupant protection, and are less visible to other road users.
- In 2008, 50 motorcyclists were killed, 456 were seriously injured and a further 940 suffered minor injuries. 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 through 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?**