

# SAFE VEHICLES



## IMPROVING THE SAFETY OF THE LIGHT VEHICLE FLEET

### WHAT IS THE PROBLEM?

- The average age of our light vehicles is 12 years old. This is old by international standards and it means our vehicles are less safe than those in other countries.
- Older vehicles generally have fewer safety features and provide less protection to their occupants in a crash.

There have been major advances in vehicle safety technologies over the last decade and vehicle safety features are becoming more common.

Since 2000, the safety of our light vehicle fleet has improved by four percent each year as safer vehicles have replaced less safe ones. It is also estimated that vehicle improvements reduced rural road fatalities by about 15.7 percent and urban fatalities by about 20 percent between 1997 and 2005. However, if our vehicles were newer, these safety gains could have been significantly greater.

If we compare ourselves to Australia, over 50 percent of the light vehicles entering the Australian fleet have at least a four star occupant protection rating. The equivalent figure for light vehicles entering the New Zealand fleet is estimated to be 15 to 20 percent.

### WHAT SAFER JOURNEYS WILL ACHIEVE

There is significant room for improvement in our current vehicle fleet. We will encourage vehicles with the latest safety features to enter the New Zealand fleet as soon as possible to replace old vehicles that do not have these safety technologies.

Vehicle safety technologies can improve road safety in three ways:

- preventing crashes (eg through electronic stability control)
- protecting drivers and their passengers in the event of a crash (eg airbags and restraints)
- protecting other road users in the event of a crash (eg through a less rigid vehicle front structure).

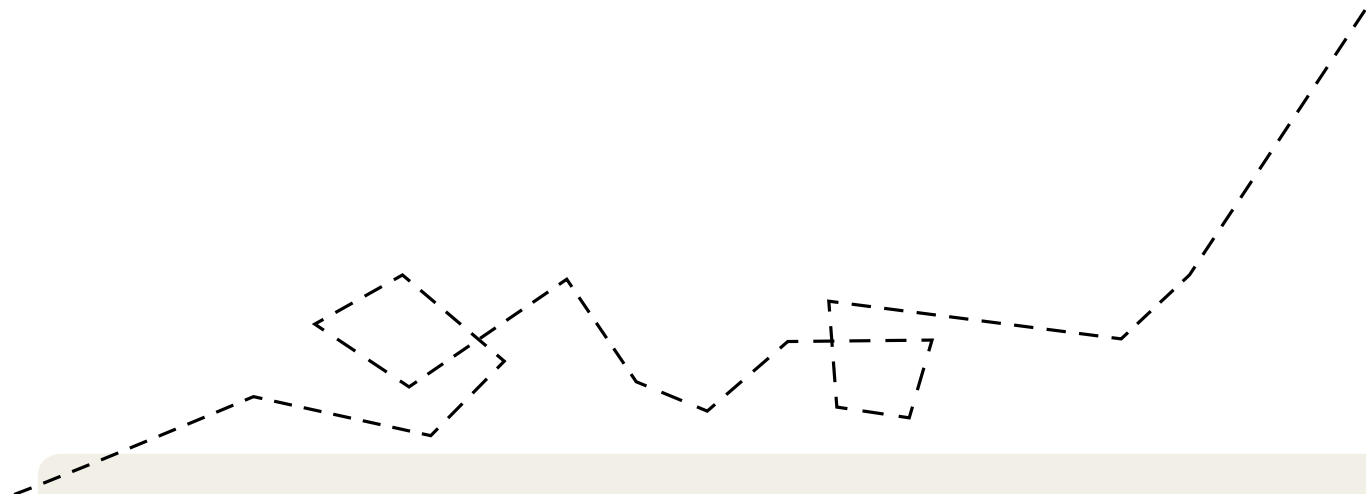
### WHAT ACTIONS CAN WE TAKE?

- Consider mandating electronic stability control (ESC) and side curtain airbags (SCA) on all light vehicles entering the fleet.
- Promote vehicle safety systems to consumers.
- Monitor any safety issues with electric vehicles.

## OUR 2020 GOALS

A Safe System means we have a vehicle fleet where all of the cars, vans, motorcycles, buses and trucks have the latest proven vehicle safety technologies.

Overseas manufacturers, importers and dealers have an important role to play in providing safe vehicles to the market at an affordable price. Under a Safe System where everyone has a responsibility for road safety, proven safety features should not be offered as optional extras or sacrificed for performance and appearance. Workplaces also have a responsibility to provide safe vehicles for their employees. This links with the Workplace Health and Safety Strategy, which has workplace vehicles as one of its eight national priorities.



It is international best practice to promote the uptake of safe vehicles through both consumer awareness programmes and vehicle standards. This approach signals a change away from our previous reliance on regulation to achieve road safety gains.

### **Consider mandating ESC and SCA on all light vehicles entering the fleet**

ESC reduces the likelihood of crashes occurring by helping drivers stay in control of their vehicle during an emergency manoeuvre, such as swerving or braking suddenly to avoid an obstacle. SCA increases the protection to occupants in the event of a side-impact crash.

Many studies show 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. SCA can significantly reduce the risk of death in side impact crashes by well over 30 percent.

Promotional activities have increased the uptake of ESC and SCA in new vehicles over the past few years, but very few used imports entering the fleet have these safety features.

If we mandate these technologies, it is likely all New Zealand-new vehicles entering the fleet would be required to have ESC and SCA earlier than used imports. The staged implementation acknowledges that a larger proportion of New Zealand-new vehicles entering the fleet have these safety features as standard, but the figure is much lower for used imports. Mandating is also reliant on the development of international safety standards for these technologies.

To illustrate the benefits, if all New Zealand-new vehicles entering the fleet have ESC from 2014 and all used imports entering the fleet have ESC from 2015, it is estimated that this action will save 32 lives and prevent 170 serious injuries by 2020. This is a social cost saving of \$265 million. If all New Zealand-new vehicles entering the fleet have SCA from 2014 and all used imports entering the fleet have SCA from 2015, it is estimated that this action will save 9 lives and prevent 50 serious injuries by 2020. This is a social cost saving of \$62 million.

Analysis carried out overseas and in New Zealand has shown the benefits of mandating ESC significantly outweigh the costs. Further analysis will be necessary, including the impact that this proposal will have on the market for vehicles (both availability and price). The potential safety benefits are particularly large in New Zealand. The old age of our fleet, and the fact that the majority of our vehicles come from Japan, means that a relatively low proportion of New Zealand vehicles have these features. Less than 10 percent of newly manufactured vehicles for the Japanese domestic market have ESC.

The government intends to show leadership by ensuring the government fleet moves towards being equipped with ESC and SCA. This will give importers an early incentive to supply vehicles with these technologies. It will also have a downstream benefit as these vehicles move into the second-hand market.

### **Promote vehicle safety systems to consumers**

Overseas experience shows that consumer awareness programmes combined with vehicle standards are the best way to increase the uptake of safer vehicles.

Mandating ESC and SCA for all light vehicles would ensure that there is a minimum level of safety set for entry into the fleet. However, ESC and SCA are just two safety features and we want to encourage people to purchase vehicles with other safety technologies.

By increasing consumer awareness of the benefits of buying a vehicle with the latest safety features, consumer demand for safer vehicles will increase. This in turn will encourage importers to bring more of these vehicles into the country.

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

- Increase the coverage of the Right Car<sup>20</sup> website so it provides safety ratings for older vehicles.
- Work with the motor vehicle industry to give vehicle buyers standard and easily understood safety information, eg star ratings.
- Work with the motor vehicle industry to promote vehicle safety technologies to consumers as they become available. Vehicle safety systems are continually being developed. Known systems include lane departure warnings, night vision assistance, fatigue/distraction warnings, automatic braking, intelligent speed assistance, and adaptive cornering headlights.

It is estimated that promoting safety systems will save one life and prevent one to five serious injuries each year. This is an annual social cost saving of \$1.5 million to \$7.6 million.

### **MONITOR ANY SAFETY ISSUES WITH ELECTRIC VEHICLES**

There is expected to be an increase in the number of electric vehicles entering the vehicle fleet over the next 10 years. It will be important to ensure these vehicles meet appropriate safety standards.

## IMPROVING THE SAFETY OF HEAVY VEHICLES

### WHAT IS THE PROBLEM?

- In 2008, crashes involving heavy vehicles accounted for 18 percent of road deaths and 9 percent of total injuries. This equates to 65 deaths, 258 serious injuries and 1,144 minor injuries.
- About 80 percent of people killed in heavy vehicle-related crashes are other road users.

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

However, heavy vehicles pose a particular challenge to road safety because the consequences of their crashes are more severe. Regardless of fault, other road users usually come off second best in a crash with a heavy vehicle. Heavy vehicle crashes also create significant delays on our roads and this congestion creates additional costs for businesses and people.

Since 2000, the distance travelled by heavy vehicles has increased but the number of deaths in heavy vehicle-related crashes has dropped. However, serious injuries have increased over the same period. We need to ensure the predicted increase in heavy vehicles on our roads does not mean an increase in serious crashes.

### WHAT SAFER JOURNEYS WILL ACHIEVE

By 2020 we will have improved the level of safety of our heavy vehicle fleet and as a result reduced the number and consequences of some of the most costly, disruptive and severe crashes on our road network.

### WHAT ACTIONS CAN WE TAKE?

The initiatives suggested in the Safe Roads and Safe Speeds sections will help reduce the impact of heavy vehicle crashes. However, we can also improve the safety of heavy vehicles themselves.

- Consider mandating electronic stability control (ESC) on all heavy vehicles entering the fleet.
- Publish operator safety ratings.

### Consider mandating ESC on all heavy vehicles entering the fleet

ESC significantly reduces the chances of loss-of-control crashes. Vehicle instability is a serious risk for heavy vehicles and heavy vehicle drivers are often unaware of this risk until their truck actually rolls. There are approximately 140 heavy vehicle rollovers each year due to instability. ESC improves stability and could prevent truck rollovers by 25 percent if fitted to vehicles that are at high risk.

ESC reduces the likelihood of crashes occurring by helping drivers stay in control of their vehicle during an emergency manoeuvre, such as when swerving or braking suddenly to avoid an obstacle.

A rule could be drafted so that all vehicles over 3.5 tonnes entering the fleet will be required to have ESC. In comparison with new light vehicles there is a small number of heavy vehicles with this safety feature and we need to allow time for a greater number of vehicles with ESC to be imported before making it mandatory. This would allow importers and heavy vehicle companies to obtain vehicles with this technology. Costs to business would also need to be carefully considered.

If all heavy vehicles entering the fleet were required to have ESC from 2015 it is estimated that half the heavy vehicle fleet would be equipped with ESC by 2020. The benefit is estimated to be a 25 percent reduction in loss of control crashes. This would save 10 lives and 260 injuries by 2020. This is an estimated social cost saving of \$147.5 million. This initiative is estimated to have a benefit/cost ratio of almost two to one.

Other countries are moving towards mandating ESC for heavy vehicles. In Europe, ESC will start to become compulsory on vehicles from 2012 with priority given to vehicles where the potential benefit is greatest, such as heavy truck/trailer combinations and touring coaches.

### Publish operator safety ratings

The Operator Safety Rating System (OSRS) gives 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.

The ratings will act as an incentive for heavy vehicle operators to be safety conscious. Customers are more likely to choose operators with good safety records, while poorer performing operators will have to improve safety 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 (or \$17 million) by 2021.

<sup>21</sup> Heavy vehicles are those motor vehicles operated under a transport service licence with a gross vehicle mass over 3.5 tonnes. This includes buses.

## IMPROVING THE SAFETY OF MOTORCYCLES AND MOPEDS

### WHAT IS THE PROBLEM?

- Motorcycle riding requires a higher level of both vehicle control and cognitive skills than car driving. The potential outcomes of any crash, whether caused by the rider, other road users, the road environment or the vehicle itself, are severe.
- The risk of a motorcyclist being killed or seriously injured in a crash is about 18 times higher than for a car driver.

Specific motorcycle-related actions proposed in both the Safe Roads and Roadsides and Safe Road Use sections will help improve the safety of motorcycle and moped riders. This section focuses on improving the safety of motorcycles themselves.

Motorcycles do not have the same safety features to prevent crashes and protect riders that we have grown accustomed to in cars. Motorcyclists are therefore more vulnerable on our roads.

A higher proportion of crashes involving large motorcycles (500 cc or larger) result in death rather than injury – riders of large motorcycles make up 41 percent of all casualties but 60 percent of deaths. This is partly a result of riding patterns.

### WHAT SAFER JOURNEYS WILL ACHIEVE

By 2020 more novice riders will be riding motorcycles that are better suited to their level of experience. We will also have more motorcycles with technologies that help prevent motorcycle crashes and protect riders, including motorcycle airbags and integrated braking systems. Together with the other proposed motorcycle actions in the strategy, this will lead to a reduction in the road fatality rate of motorcycle and moped riders; from 12 per 100,000 population to a rate similar to the best-performing Australian state, Victoria, of 8 per 100,000.

### WHAT ACTIONS CAN WE TAKE?

Actions are needed across all four elements of the Safe System to reduce the level of death and injury involving motorcycling. However, improving the safety of the motorcycles themselves will help reduce the high crash risk of riders.

#### Safer motorcycles for novice riders

Currently holders of learner and restricted motorcycle licences are restricted to riding motorcycles of 250 cc and less. This is because larger and more powerful bikes increase crash risk; and novice riders have more crashes per vehicle kilometres travelled than experienced riders.

However, recent advances in technology are limiting the effectiveness of the restriction. A number of powerful high-performance 250 cc motorcycles capable of high speeds and rapid acceleration are available on the market. These motorcycles are not suitable for novice riders due to their power, riding position and handling. Advances in motorcycle power and performance are likely to continue.

To better reflect the intent of the cc restriction, we could replace it with a power-to-weight ratio limit of 150 kilowatts per tonne. A 660 cc restriction for learner and restricted motorcycle licensed riders would also apply to ensure motorcycles are not too physically large for novice riders.

This restriction would give novice riders access to a greater range of motorcycles appropriate for their level of experience, including more that have safety features like automatic braking systems. It will also provide a more progressive step to larger bikes than the 250 cc restriction. Evidence from overseas jurisdictions shows a power-to-weight restriction encourages novice riders to stay on a less powerful bike for longer than a 250 cc restriction after their restriction period ends. This is positive for safety as familiarity with a motorcycle reduces crash risk.

#### PROBABLE FIRST STEP

The first step that we intend to take is to:

- introduce a power-to-weight restriction for novice riders.

## INCREASING THE LEVEL OF RESTRAINT USE

### WHAT IS THE PROBLEM?

- New Zealand has one of the highest child road fatality rates in the OECD and part of this is due to the lack, or incorrect use, of appropriate restraints.
- Passenger safety for 5 to 9 year-olds has improved less than that for younger children. Since the mid 1990s, the injury rate for 5 to 9 year-olds has been decreasing much more slowly than that for those aged four years or less.

New Zealand has fallen behind international best practice in child restraint use by primary school-aged children. Many child deaths and serious injuries could be prevented by ensuring children are appropriately restrained when travelling in a vehicle.

### WHAT SAFER JOURNEYS WILL ACHIEVE

By 2020 we will achieve a correct use and fitting rate of 90 percent for child restraints, and the use of booster seats will be the norm for children aged 5 to 10. As a result there will be less death and injury due to the lack of, or incorrect use of, appropriate restraints and we should no longer have one of the highest child road fatality rates in the OECD.

### WHAT ACTIONS CAN WE TAKE?

- Bring our child restraint laws in line with international best practice. This initiative includes a focus on the correct use and fitting of child restraints.
- Improve our data on the correct use of child restraints.

Restraints are one of the most important vehicle safety features. In a crash, seatbelts reduce injury severity by preventing occupants from being thrown from a vehicle. A number of other safety features designed to protect occupants in a crash (for example airbags) only work properly if the driver or passengers are correctly restrained. We can ensure that children, a group vulnerable in the event of a crash, receive additional protection.

## BRING OUR CHILD RESTRAINT LAWS IN LINE WITH INTERNATIONAL BEST PRACTICE

This action could be introduced in two stages to minimise costs. First we could introduce a requirement for all children up to the age of eight years to use an appropriate child restraint. Then later we could extend this requirement so that all children up to their tenth birthday or 148 cm in height, whichever comes first, use an appropriate child restraint. This initiative is estimated to have a benefit/cost ratio of more than three to one (based on \$80 per child restraint). In terms of practicality at the roadside, age can be difficult to determine for Police and so height is the preferred option for measurement in the field.

Seat belts and the seats in cars are designed to fit adults and children are usually too small for the seatbelt to cross their shoulders and hips in the correct place. These factors mean that a seatbelt crosses the child's neck and abdomen resulting in greater injury risk in a crash. Children's small size and tendency to slouch means they are more likely to slide under or be thrown out of the seatbelt.

An appropriate child restraint reduces the risk of serious and life-threatening injuries to a child in the event of a crash. Currently, 5 to 7-year-olds are only required to use a child restraint if one is present in the vehicle. There are no requirements for children aged eight years or older to use a booster seat.

For children aged 5 to 9, use of a restraint would reduce their risk of injury by 52 percent. It is estimated that strengthening our child restraint requirements will save one life and prevent five serious injuries each year. This is an annual social cost saving of \$9.8 million.

A number of countries, including member states of the European Union, Canada and several states of the United States, have strengthened restraint laws for children over the age of five years. Other countries, including Australia, are in the process of doing so. Research from these countries and in New Zealand has shown the benefits from mandating these technologies outweigh the costs.

To increase the benefit of this initiative we would also:

- **Educate parents and caregivers on the correct use and fitting of child restraints:** Parents and caregivers are often unaware of the danger of inappropriate or incorrect child restraint use. This can be addressed by building on our current education programmes. The key message will be that child restraints only work properly when they are the right size for both the child and the vehicle, and the child is correctly positioned and strapped in.
- **Improve our data on the correct use of child restraints:** Our current survey data on child restraints is based on wearing rates rather than correct use. One-off regional surveys carried out in 2005 and 2009 found that between 45 and 65 percent of families were not using child restraints correctly. We need more data to determine how much of a problem this is across the country. This will also help monitor the effectiveness of programmes focussing on the correct use of child restraints.