# Our Safety, Our Future

Tasmanian Road Safety Strategy 2007-2016



Department *of* Infrastructure, Energy *and* Resources

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12. APPENDIX I



Trying to understand why crashes happen is fundamental to determining how we can prevent them.

# I. MINISTER'S FOREWORD

Ask anyone who has been injured in a crash or who has had someone close to them injured in a crash and they are likely to tell you it changed their lives forever. It might be that they sustained a minor injury that restricts their movement for the rest of their life, or perhaps the emotional trauma they experienced means they are too frightened to drive again. They might be in a wheelchair or they may have had to learn to live with having seen a best friend or their life partner die.

We can talk about road safety in an impersonal way as statistics and trends, or analysing data by age and gender, crash cause or crash type. Or we can try to understand the grief of losing a child in a car crash or the loss of meaning and purpose if you can no longer earn a wage to support your family. Trying to understand why crashes happen is fundamental to determining how we can prevent them. But the science of road safety should never lose sight of the emotional and financial cost to our community from death and injury on our roads.

Tasmania has made significant progress when it comes to reducing road trauma. In 1976, 108 people were killed on the road; in 2006, 52 people died. During the period covered by the first *Tasmanian Road Safety Strategy* (2002-2006), there was a 25% decrease in serious injuries. This is inspite of a 15% increase in the number of vehicles on Tasmanian roads.

But the reality is that most of the injuries and deaths on our roads are preventable. In 2004 the United Nations World Health Organization recognised death and injury from road trauma as one of the primary preventable health care issues for the future<sup>1</sup>. Every Tasmanian life is precious and as a community we need to adopt a new approach that refuses to tolerate preventable injury and death.

### The Tasmanian Road Safety Strategy

2007-2016 represents a new way of looking at road safety. It represents an approach that no longer places all the responsibility for crashes on the vehicle driver or motorcycle rider. It acknowledges that we can make changes to our roads so that if and when a driver does make a mistake, the injuries will not be as severe and death may be prevented. But it is also an approach which calls on the driver to accept responsibility for their own safety – to accept that a safe driver is usually a slower driver and that the safer the car the better the outcome if there is a crash.

As Minister responsible for road safety I believe that the Tasmanian community is at a turning point. We can change our thinking about what level of injury is acceptable and embrace change or we can continue to tolerate the current loss of life and injury levels. I believe we as a community are ready to embrace a new approach to road safety and turn around current levels of road trauma. I commend this new Strategy to the Tasmanian community and encourage every Tasmanian to accept the challenge of reducing road trauma.

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Jim Cox MHA Minister for Infrastructure

# 2. MESSAGE FROM THE CHAIRMAN OF THE TASMANIAN ROAD SAFETY COUNCIL

The release of the first Tasmanian Road Safety Strategy in 2002 was a significant event. There had been significant milestones in road safety prior to 2002 such as the introduction of compulsory seat belts in 1973, the lowering of the alcohol tolerance to 0.05 Blood Alcohol Content (BAC) in 1982, and the introduction of speed cameras in 1992. However, until the release of the Tasmanian Road Safety Strategy (2002-2006) the approach to road safety was generalised and largely reactive.

Tasmania's first Road Safety Strategy provided a targeted blueprint for road safety improvements over a five-year period, identifying problem areas and listing achievable strategies to address those problems. The value of this strategic approach has been confirmed by the fact that serious injuries in Tasmania have reduced by 25% over the life of the first strategy.

But while progress has been made, too many people continue to be killed and injured on our roads. The strategies that have been successful in the past are no longer sufficient. It is now necessary to identify new initiatives that will further reduce the road toll in what is a challenging and at times problematic environment. While road safety funding remains stable, Tasmania faces the challenge of increasing numbers of vehicles on our roads, and the continued promotion of speed and fast, high performance cars across the media. To make a significant impact in this environment, the Tasmanian Road Safety Strategy 2007-2016 must offer a strategic and targeted approach that focuses on high return initiatives that address key problem areas.

In developing the new Strategy, the Tasmanian Road Safety Council (the Council) was keen to hear the community's views on road safety. Over 500 individuals and stakeholders responded to our invitation to identify the main road safety issues that were of concern to them. Dangerous driving behaviours – including speed, inattention, drink and drug driving – were raised, as well as broader issues such as young driver safety, safer vehicles and speed limits. Consistent across all the responses was a grave concern for the number of Tasmanians who continue to be injured or killed in road crashes.

This Strategy and first supporting Action Plan present a new approach, building on the foundation of the past but addressing key areas of concern with targeted initiatives. They draw on successful road safety developments from overseas and interstate while being mindful of Tasmania's unique situation. I am confident that this new blueprint will ensure that Tasmania continues to be at the forefront of road safety reform and that it will result in fewer serious and fatal injuries on Tasmanian roads.

As Chairman of the Tasmanian Road Safety Council, I am committed to continuing to work with the Tasmanian community to reduce road trauma in our State.

Graeme Sturges Chairman Road Safety Council Tasmania



It is now necessary to identify new initiatives that will further reduce the road toll in what is a challenging and at times problematic environment.



The Tasmanian Government's and the Tasmanian Road Safety Council's vision is the elimination of fatalities and serious injuries caused by road crashes in Tasmania.

# 3. OUR VISION

During the period 1996 to 2005, 4,749 people were killed or seriously injured on Tasmanian roads. This equates to approximately 48 lives lost and more than 470 people admitted to hospital every year.

The Tasmanian Government's and the Tasmanian Road Safety Council's vision is the elimination of fatalities and serious injuries caused by road crashes in Tasmania. This vision for the future is long term, and can only be achieved in incremental steps. It will not happen overnight and it cannot happen without the commitment and support of all members of the Tasmanian community.

# 4. OUR TARGETS

Tasmania *Together* is the Tasmanian Government's long term social, economic and environmental plan for the future. It is a vision for Tasmania based on the wishes of the Tasmanian people and contains a number of community goals and benchmarks that will help shape government policy, service delivery and budgets into the future.

Tasmania *Together* includes a number of specific targets for road safety:

- By 2010: 20% reduction in serious injuries and fatalities from 2005.
- By 2015: 20% reduction in serious injuries and fatalities from 2010.
- By 2020: 20% reduction in serious injuries and fatalities from 2015.

The Tasmanian Road Safety Strategy 2007-2016 will provide the strategic direction to support the achievement of these targets. The Strategy will be supported by a number of Action Plans outlining the key initiatives to be implemented if we are to reduce fatalities and serious injuries on our roads.

# 5. BACKGROUND

### 5.1 THE IMPACTS OF ROAD TRAUMA

### **Emotional Impacts**

Road trauma has both financial and emotional impacts on the community. The emotional cost is impossible to quantify and extends from the grief of the bereaved to the constant struggle of a quadriplegic dealing with a permanent disability. The emotional impact of the death or disablement of young people is particularly profound and extends broadly throughout the community. Road trauma affects not only the injured person and their immediate family and friends, but also people who work to treat and rehabilitate those injured in crashes. In a small community like Tasmania, these effects can be far-reaching.

### **Financial Impacts**

The financial impacts of road trauma are significant. There are a variety of methods for calculating the financial cost to society which take into account such factors as lost productivity, medical costs, property damage and administrative costs. According to the conservative Human Capital method, it has been estimated that road trauma costs the Australian economy \$18 billion per annum. Using the same approach, it is estimated that road crashes in Tasmania cost the State on average nearly \$500 million a year.

Recent Tasmanian figures indicate that the cost of an 18 year old male with acquired brain injury as a result of road crash will be \$12 million in care, support and medical fees over his lifetime.

Reducing road trauma in the State would not only reduce those costs to the community, but create savings by reducing the burden on the health system, reducing personal injury claims and allowing greater investment in preventative health.

### 5.2 ACHIEVEMENTS TO DATE

### National

There has been a significant improvement in road safety throughout Australia in the past 30 years. In 2001, Australia ranked 11th among 25 OECD countries, ahead of the USA but behind Sweden, the Netherlands and the United Kingdom. This improvement has primarily been the result of initiatives such as compulsory seatbelts, random breath testing and speed enforcement, supported by public education campaigns, and improvements in vehicle design.

The release of the *National Road Safety Strategy 2001-2010* marked a new approach to road safety in Australia and has provided direction as to best practice. Unfortunately Australia is not expected to reach the strategy's target of a 40% reduction in fatalities by 2010.

### Tasmania

The release of the *Tasmanian Road Safety Strategy (2002-2006)* marked the introduction of a strategic approach to road safety in which specific strategies were identified for particular problem areas.

A number of significant reforms have been achieved during the lifetime of the Strategy including:

- a range of novice driver reforms that have placed Tasmania at the forefront of young driver safety;
- the introduction of the compulsory carriage of licence;
- implementation of a 50 km/h default urban speed limit, which has resulted in reduced serious casualties in urban areas; and
- the establishment of community road safety partnerships to foster community road safety programs.



Road trauma has both financial and emotional impacts on the community. It is significant that, since the introduction of the Strategy, there has been a 25% reduction in serious injuries in the State. In contrast, however, the number of fatalities over the same period has remained relatively stable.

### 5.3 NEW APPROACHES

The approach adopted in the *Tasmanian Road Safety Strategy 2007-2016* reflects significant road safety developments that have taken place in Europe over the past decade. It is no coincidence that those OECD countries with the lowest fatality rate by population are the same countries that have fundamentally changed the way they view safety on the roads.

### Sweden

Sweden's Vision Zero approach represents one government's uncompromising commitment to safety, based on the moral standing that human life must be protected, whatever the cost. With the fundamental premise that no person should be killed as a result of a road crash, Vision Zero requires government to provide a forgiving road environment to accommodate inevitable human error. But while the road system is designed with safety as its prime consideration, individual drivers are still responsible for abiding by the road rules.

### The Netherlands

The Netherlands' *Sustainable Safety* approach aims to create a traffic system in which the probability of a crash is limited by means of an inherently safe road environment. In the event that a crash occurs the aim is to prevent serious injury through improvements in the road, the roadside and the vehicle. The road user is considered to be the weakest link in the chain, and largely unpredictable. In the Netherlands, the road network is designed and maintained according to three key principles: functionality (each class of road has its own characteristics); predictability (where each road is clear and unambiguous regarding its function and rules); and homogeneity (where large differentials in vehicle speed, mass and direction along any given road are prevented).

# 6. WHAT THE FUTURE LOOKS LIKE

The following factors will influence road safety outcomes in Tasmania over the next decade and beyond.

### 6.1 TASMANIA'S ECONOMY

Over the past 10 years Tasmania has undergone a period of significant economic growth, with record levels of public and private investment over the past five years. Increases in economic activity or decreases in unemployment are usually associated with increases in road trauma, due to factors such as increased numbers of vehicles on the roads and greater disposable income to spend on travel.

### 6.2 TASMANIA'S POPULATION

Tasmania's total population growth has been small over the past 10 years, and our population is ageing. An ageing population is expected to impact on the level of serious casualties and the nature of injuries sustained, as older people's bodies may be frail. Older people are more likely to suffer trauma in road crashes, particularly as pedestrians.

# 6.3 INCREASED ROAD TRAFFIC AND AN OLDER VEHICLE FLEET

As with elsewhere in Australia, the number of vehicles on Tasmanian roads is increasing.

In the 10-year period from 1997 to 2006 total vehicle registrations increased from 418,000 to 487,000, an increase of 16.5%. In the same period the number of driver licences increased by 11% from 295,750 to 329,145. Heavy vehicles registrations increased by 21% and it is estimated that Tasmania's freight growth will double by 2030, with current trends supporting this level of growth.

In addition, many of our roads are used by a diverse mix of vehicles, with key freight routes often also being utilised for tourism or commuting purposes.

Tasmania has the oldest vehicle fleet in Australia, with an average age of 12.5 years, meaning that a large proportion of the driving population are unlikely to be protected by enhanced vehicle safety features.



Increases in economic activity or decreases in unemployment are usually associated with increases in road trauma, due to factors such as increased numbers of vehicles on the roads and greater disposable income to spend on travel.



A large proportion of serious casualty crashes occur on roads that carry the highest volumes of traffic.

# 7. TASMANIA'S ROAD CRASH PROBLEM AREAS

This section examines 10 years of crash data to present a picture of the key problem areas for road safety in Tasmania. The data analysed is collected by Tasmania Police and stored in the Crash Data Manager database in the Department of Infrastructure, Energy and Resources.

### Definitions

In this section the term 'serious casualty' is used to collectively describe fatalities and serious injuries. A fatality is where a person was dead before a report was made by Tasmania Police or died up to 30 days after the crash. A serious injury refers to a person being admitted to hospital for 24 hours or more.

Unless otherwise stated, data referred to in this section relates to the ten year period 1996 to 2005.

### Serious Casualties in Tasmania

Between 1996 and 2005 there was a total of 4,749 serious casualties resulting from road crashes in Tasmania. As Figure 1 shows, since 2000 there has been a downward trend in the number of serious injuries, which stabilised in 2004-2005, at an average of around 410 per year.

# 7.1 WHERE AND WHEN DO FATAL AND SERIOUS INJURY CRASHES OCCUR?

As Figure 2 shows, a large proportion of serious casualty crashes occur on roads that carry the highest volumes of traffic. These include urban roads, State highways and a number of secondary roads.

Over 65% of serious casualties occur during daylight hours. Fewer crashes occur on Mondays, gradually increasing over the week, with a peak number occurring on Saturdays. There are a greater number of serious casualties during summer months (December to March) with a peak during March.



Figure 1: Number of injuries (1996-2005) Source:Tasmanian Crash Data Manager



### Figure 2: Example of Traffic Volumes and Serious Casualty Crashes

Source: Tasmanian Crash Data Manager 2001-2005 and RIMS Database 2003

0 to

600

### 7.2 WHAT TYPES OF CRASHES ARE THEY?

There are three types of crashes that result in a significant number of serious casualties in Tasmania:

### Run-Off-Road Crashes

The most common crash type resulting in serious casualties is run-off-road crashes. Run-off-road crashes occur when a vehicle veers off the road into the verge or across the opposing traffic lane. Run-off-road crashes accounted for over 1,870, or 39% of serious casualties, which is more than double any other crash type. The number and proportion of run-off-road crashes have increased substantially since 1996 and showed an upward trend. Forty percent of fatal and serious injuries from run-off-road crashes involved young people aged 16-25 years. Run-off-road crashes typically involved males, who comprised 67% of the total.

### Intersection Crashes

At intersections, the potential for conflict is high as traffic is travelling in opposing directions. Additionally, the mix of traffic is often diverse including light vehicles, motorcycles, heavy vehicles and pedestrians. At intersections where speed limits are higher, the risk of serious injury is greater. During the period 1996 to 2005, there were 968 serious casualties resulting from intersection crashes, representing 20% of all serious casualties. These crashes predominantly involved light vehicles, but also a significant number of pedestrians and motorcyclists. They often involved young people (31%), but also a significant number of people aged 66 years or older (18%).

### Head-On Crashes

A head-on crash occurs where vehicles travelling in opposing directions impact one another head/front on. During the period 1996-2004<sup>2</sup> there were 454 serious casualties resulting from head on crashes, representing 10% of the total number of serious casualties. These crashes tended to involve light vehicles (89%) and young people represented 32% of the total.

### 7.3 WHO IS MOST AT RISK?

Table 1 shows the number and proportion of serious casualties for high-risk road user groups over the period 1996-2005.

Road user groups	Number of serious casualties	Percentage of serious casualties
16 – 25 year olds	1,575	33.2
Motorcyclists	705	15.0
66+ year olds	528	11.0
Pedestrians	510	11.0
Children (0-15)	429	8.9
Bicyclists	173	4.0
Heavy vehicle drivers	100	2.0

# Table 1: Number and proportion of serious casualties (1996-2005) for high risk road user groups

Note: numbers cannot be added to give total number of serious casualties as categories may overlap.

During the period 1996 to 2005, over 33% percent of serious casualties were young road users aged 16-25 years. Motorcycle riders and passengers represented 15% of serious casualties, with the number of serious casualties showing an increasing trend over the past 10 years. Older road users (66+ years) accounted for 11% of serious casualties, as did pedestrians (11%). Over 58% of all serious casualties were male.

# 7.4 WHAT BEHAVIOURS CONTRIBUTE TO THE MOST SERIOUS CASUALTIES?

Note: Contributing factors are based on Tasmania Police opinion at the time of the crash.

### Speed

During the period 1996 to 2005, 563 serious casualties involved excessive speed (either exceeding the speed limit or excessive speed for the conditions), representing 12% of the total number of serious casualties. Serious casualties involving excessive speed comprised significant numbers of young people - 50% were aged between 16 and 25 years. They also predominantly involved males (69%). A significant proportion of these injuries were as a result of run-off-road crashes, and occurred on roads with a speed limit of 100 km/h or 110 km/h.

### Failure to wear seatbelts or helmets

For the same period (1996-2005), over 430 serious casualties involved drivers or passengers not wearing seatbelts, or motorcycle riders not wearing helmets. This represents 9% of the total number of serious casualties. Young road users were much less likely to wear a seatbelt than other road users – 13% of young serious casualties failed to wear a seatbelt compared to 5% of older serious casualties aged 66 years and over.

### Drink Driving

From 1996-2005 420 or 9% of serious casualties involved drink driving. Young road users aged 16-25 years represented 41% of all serious casualties involving alcohol.

#### Inattention

Inattention may involve a range of behaviours that compromise a driver's or rider's ability to apply their full attention to driving/riding. Serious casualties involving inattention gradually increased over the period 1996-2005. In total, inattention accounted for 623 or 13% of all serious casualties. Inattention contributed to serious casualties across all road users and a variety of different types of crashes. As a contributing factor, inattention may be difficult to clearly define and may be increasingly reported where other factors are not immediately apparent.



Improvements to the road environment potentially offer the greatest opportunity to reduce road trauma.

# 8. THE WAY FORWARD

# 8.1 CONTINUING SUCCESSFUL STRATEGIES

There are a number of successful road safety strategies that are already undertaken that contribute to reducing serious casualties on our roads. It is essential that these activities are continued as they provide us with a strong base for any future road safety gains.

### Enforcement

Effective enforcement of road safety laws and regulations is an essential component of any successful road safety strategy. Tasmania Police plays a critical role in helping Tasmania reduce road trauma, and has been a key proponent of many effective road safety measures, such as random breath testing and speed enforcement.

Tasmania Police currently adopts an enforcement strategy that combines high visibility and targeted enforcement with covert activities that could occur 'anywhere, any time'. Maintaining this enforcement mix is important – research and practice has consistently shown that this strategy is the most successful in encouraging positive road safety behaviour.

Department of Infrastructure, Energy and Resources (DIER) Transport Inspectors also play a critical role in promoting the safety of heavy and public passenger vehicles, through ensuring vehicle standards are complied with, and enforcing safe driving hours requirements. Transport Inspectors continually review education, compliance and enforcement activities to promote safer outcomes.

A number of Tasmania's road safety problem areas, such as excessive speed and drink driving rely heavily on enforcement to provide a safe driving environment. In order to address these issues, it is essential that current levels of enforcement are maintained.

### **Road Programs**

Improvements to the road environment potentially offer the greatest opportunity to reduce road trauma. To realise this potential there is a need for ongoing commitment from all three tiers of government.

Local Government owns and manages the majority of the State's roads (approximately 80%) with the State Government owning approximately 20%. However, State roads and those comprising the Federal Auslink Network carry the largest proportion of traffic.

Tasmania already commits considerable resources to safely maintaining Tasmania's roads and improving the safety of the road network, through a range of programs including: the Safer Roads Program; State and Federal Black Spot Programs; and maintenance and traffic management programs.

It is essential that this level of commitment is maintained if continuing reductions in serious road trauma are to be realised.

### Partnerships

There is already strong cooperation and coordination between government and private organisations working in areas relating to road safety. Through the Tasmanian Road Safety Council, the peak road safety policy advisory body to the Minister for Infrastructure, key road safety stakeholders work together to develop and promote best practice road safety policy and strategies. Membership of the Council includes: DIER; Tasmania Police; the RACT; the Coroner's Office: the Local Government Association of Tasmania; the Tasmania Motorcycle Council; an interstate road safety expert and a community representative. The Motor Accident Insurance Board (MAIB) is also an important road safety partner funding both the Road Safety Task Force and more recently, a State Black Spot Program.

At the local community level, the Community Road Safety Partnerships Program has been established by the Tasmanian Government to develop partnerships with local government authorities and community networks to achieve a greater focus on road safety outcomes at a local community level. 15 local government communities have now enlisted in the program, and local community involvement is increasing.

Each community develops action plans to target local road safety issues and develops their own locally based solutions. Initially established as a pilot program, the State Government has signalled the ongoing importance of community based road safety by continuing to fund the program until June 2009.

The Heavy Vehicle Safety Advisory Council, in partnership with DIER, is addressing a range of heavy vehicle safety issues including vehicle stability, roadworthiness and driver recruitment, training and behaviour through the development of an industry code of practice.

DIER continues to work with cycling groups and local government to promote safe cycling through planning, infrastructure provision, policy development and education.

### Public Education

Continued targeted public education plays an important role in raising awareness, changing community attitudes, influencing behaviour and preventing complacency about familiar road safety issues.

Research has shown that public education campaigns are most successful when combined with targeted Police enforcement. The MAIB funded Road Safety Task Force develops, implements and monitors an integrated public education and enforcement program aimed at decreasing the incidence and severity of serious casualties on Tasmanian roads.

Current campaigns aimed at changing undesirable driver behaviour include: speed, drink/drug driving; fatigue; inattention/distraction; and seatbelt compliance. These target areas are consistent with key road safety problem areas identified in Tasmania's crash data. The Department of Infrastructure, Energy and Resources in partnership with the Department of Education, also facilitates school based road safety education for Grade 9 and 10 students.

Ongoing work in these areas, including support and promotion of new initiatives, will be critical in ensuring road trauma reduction targets are met.



To move forward we need to recognise that road safety is a shared responsibility and that we all have a part to play.

# 9. A NEW APPROACH FOR THE FUTURE

### 9.1 A SHARED RESPONSIBILITY

Historically we have been very successful in modifying driver behaviour through a combination of education, legislation and enforcement (see Figure 3). Driver behaviour initiatives such as compulsory wearing of seatbelts, random breath testing and speed enforcement have resulted in significant reductions in road trauma over the past few decades. However evidence suggests that these kinds of strategies alone will only result in very modest decreases in road trauma in coming years. Research and best practice offer persuasive evidence as to where the next significant gains can be made in Tasmania. To move forward we need to recognise that road safety is a shared responsibility and that we all have a part to play:

• As drivers, we all have a responsibility to obey the road rules to the best of our abilities. However, drivers are human, and humans make mistakes, and the human body can only withstand a certain level of force before sustaining serious injuries.

• Road designers, managers and regulators have responsibility to provide a safe road environment. Our road environment needs to be forgiving of error and protect us from injury when mistakes occur.

• The vehicles we travel in should assist us to drive safely and not contribute to injuries if we crash. Vehicle manufacturers, designers and fleet owners have a critical role to play.



**Figure 3: Distribution of Fatalities (1965-2004) with Road Safety Reforms** *Note: RBT refers to Road Breathalyser Testing for 0.05 BAC.* 

## 9.2 TARGETED RESPONSES TO ACHIEVE MAXIMUM INJURY REDUCTIONS

There are numerous measures that could be implemented in Tasmania to improve safety on our roads. However, Tasmania is a small State with limited resources and there is strong competition for those resources amongst many areas of need.

Not all best practice measures are suitable or cost effective for implementation in Tasmania. We need to identify targeted initiatives that are evidence based, achievable and that will be likely to deliver the best possible results in terms of reducing serious injuries and fatalities. Where possible, we need to look for initiatives that will work together to deliver higher safety returns in both the short and longer term. We need to focus our efforts on a small number of initiatives and do these well.

This Strategy contains four key Strategic Directions that have been identified through research and expert advice as the areas of focus that are the most likely to target Tasmania's crash problems and reduce the level of serious casualties on our roads. They build on the experience of global road safety leaders, the views of the Tasmanian community and of road safety stakeholders. If measures can be implemented that support these Strategic Directions, Tasmania will be well placed to achieve significant reduction in serious trauma on our roads.



Priority areas for action that support the Strategic Directions identified in this Strategy are outlined in the Action Plans that support this document.

# 10. FOUR KEY STRATEGIC DIRECTIONS

### 10.1 SAFER TRAVEL SPEEDS

Speed is the most critical factor in determining the forces the human body is exposed to in the event of a crash. Faster vehicle speeds at the time of a crash mean that the body must absorb more energy on impact. Vehicle speed influences the likelihood of a crash occurring and the severity of injuries sustained in a crash.

In the event of a crash, the human body can only withstand so much force before being seriously or fatally injured. Research shows that pedestrians have a one in 10 chance of being killed if they are hit at a speed of 30 km/h. Drivers have the same chance of being killed when two cars collide at an impact speed of 70 km/h.

Speeds just 5 km/h above the speed limit in urban areas and 10 km/h in rural areas are sufficient to double the risk of a casualty crash occurring. This is roughly equivalent to the risk associated with driving with a blood alcohol concentration of 0.05<sup>3</sup>.

The slower a person travels, the less likely they are to crash. Travelling more slowly provides a person with more time to take evasive action to prevent a crash happening. If they do crash, the slower a driver travels the less likely they are to be badly injured.

Speed limits provide a driver with a cue about the maximum speed they should be travelling on a road. Ensuring vehicle speeds match the inherent safety of the road environment is an essential element of a safe road system. In Sweden, speed limits are determined by the technical standards for roads and vehicles so that people are not exposed to potential impact speeds that are likely to kill or seriously injure them. In Sweden only a high standard road, with separated traffic and protective barriers, will have a high speed limit.

Road safety authorities throughout the world now recognise the huge potential of lower vehicle speeds for achieving very significant injury savings. Reducing travel speeds is highly cost-effective. Small reductions in average vehicle speeds have consistently been shown to result in significant percentage reductions in deaths and injuries. Tasmania experienced these benefits first hand following the introduction of the 50 km/h general urban speed limit, where serious casualties decreased in 40, 50 and 60 km/h zones. Likewise, where speed limits have been raised, deaths and serious injuries have increased.

In 2005 and 2006, 404 serious casualties occurred in 100 km/h and 110 km/h zones (51% of all serious casualties) and 117 serious casualties (15% of all serious casualties) occurred in 60 km/h zones. If vehicles travelled as little as 1 km/h slower, in these zones, serious casualties would be reduced.

In Victoria in 2001 and 2002, significant reductions in injuries in urban areas were achieved by a combination of increased enforcement hours, and lower speed camera tolerances. These changes were supported by a public education campaign. The number of infringements rose sharply initially, but declined as driver compliance improved. Measured vehicle speeds declined on many parts of the road network, not just at enforcement sites.

It is also possible to design roads that assist drivers to drive at a lower speed. In the Netherlands, local roads 'look and feel' very different to traffic carrying routes, and have many design features that cue a driver to slow down and assist drivers to recognise what speed limit applies to the road. These features include: road narrowing, different pavement surfaces; speed humps; raised intersections; and roundabouts.

In order to achieve reductions in serious casualties, research and best practice suggests a number of options to achieve lower vehicle speeds, including:

- lowering speed limits;
- increasing the number of speed cameras;
- modifying infrastructure to force lower travel speeds; or
- educating people to drive more slowly.

The best results will be delivered through a combination of measures.

Priority areas for action that support the Strategic Directions identified in this Strategy are outlined in the Action Plans that support this document.

### 10.2 BEST PRACTICE INFRASTRUCTURE

The design and installation of best practice infrastructure on the road network plays a key role in creating a safe road environment. Both Sweden's *Vision Zero* and the Netherlands' *Sustainable Safety* approach recognise that human error in the road environment is inevitable, and that infrastructure should accommodate this error and minimise the consequences.

Appropriate infrastructure becomes increasingly important on high-speed routes with high traffic volumes. In this situation, large numbers of road users are continuously exposed to travel speeds that far exceed human biomechanical tolerances, therefore increasing the risk of a serious crash occurring.

In Tasmania, most of the crashes that lead to serious injuries and fatalities are run-off-road crashes, head-on crashes or crashes occurring at intersections. There are numerous proven infrastructure measures available to target the safety areas that are a priority in Tasmania.

Research indicates that flexible barriers are the best performer in targeting run-off-road and head-on crashes. A study by Corben and Johnston (2004) found that flexible barriers installed along national and other major highways of Victoria would be highly cost-effective, with reduction in serious casualty crashes of the target crash types of up to 90%.<sup>4</sup> Research also shows roundabouts are highly effective in targeting intersection crashes. A recent evaluation of Victoria's Black Spot Programs has found statistically reliable reductions in serious casualty crashes of around 80-90% where roundabouts were installed.<sup>5</sup> These types of infrastructure treatments will protect all road users, and will reduce injuries regardless of the cause of the crash.

A best practice approach to infrastructure recognises that where it is not possible to install infrastructure that prevents exposure to impact speeds beyond levels tolerable to humans, then safe speed limits should be implemented. For example, when safe infrastructure such as barriers or lane separation cannot be installed, then vehicle speed must be reduced to ensure that any crashes that do occur do not cause serious injury.

Research and best practice identify a number of infrastructure measures that enhance safety including<sup>6</sup>:

- separation of opposing vehicles in high-speed settings (>70 km/h zones), using flexible barriers;
- roadside barriers;
- roundabouts at intersections in both urban and rural settings;
- safer roadside areas;
- high standards of delineation;
- sealed shoulders in rural areas;
- consistently high skid resistance of road pavements; and
- comprehensive coverage of roadside hazards using crashworthy barriers.

To provide value for money, infrastructure treatments need to be targeted to areas where the greatest protection can be provided to the most drivers. A number of the above options may be appropriate for use in Tasmania, depending on issues such as crash type, location, terrain and traffic volume. Although infrastructure treatments are relatively expensive, they are very effective in reducing road trauma, and the benefits are long lasting. Priority areas for action that support the Strategic Directions identified in this Strategy are outlined in the Action Plans that support this document.

### 10.3 INCREASED SAFETY FOR YOUNG ROAD USERS

Young road users aged 16-25 years are heavily over represented in Tasmanian crash statistics. On average, between 1996-2005 young road users comprised over a third of all serious casualties, and was the largest group of road user serious casualties in Tasmania.

In many developed countries worldwide, young drivers are among the most vulnerable road users, particularly during the first month and also during the first 6-12 months of unsupervised driving. While they represent only a small proportion of licensed drivers, young, newly licensed drivers have a substantially greater risk of crashing compared to drivers from older age groups.

Young drivers' over-representation in crashes is usually attributed to three factors:

- inexperience: it takes time for driving skills to be mastered and integrated;
- immaturity: characterised particularly by risk-taking and impulsiveness; and
- increased risk exposure: including speeding, night driving and drink-driving.

The safety of younger drivers is of the utmost concern to the Tasmanian community. Tasmania has already taken significant steps to try and protect younger, newly licensed drivers including:

- a requirement for 50 hours of supervised driving;
- a requirement that a learner licence be held for no less than six months;
- the period of issue for a learner licence being extended from one to three years;
- new supervisory driver requirements;
- a modernised electronic road law knowledge test;
- new publications, such as the Road Rules Handbook;

- a new, higher standard practical driving test to gain a Provisional licence; and
- professionally trained and accredited testing officers to conduct the practical driving test.

Current research recommends that at least 120 hours of practice is necessary to improve the safety of novice drivers once they are licensed to drive unsupervised (Gregersen, 1997, 2001)<sup>7</sup>.

The Learner Period (which is supervised by a fully qualified driver) is the safest period in which to gain experience, as Learner drivers worldwide have the lowest crash risk of any driver age group.<sup>8</sup>

The risk of driving at night is common for all drivers but has been shown to be magnified for young drivers (Maycock, 2002; Williams, 1996).<sup>9</sup> Young drivers also have a significant risk of crashing and being seriously injured when carrying peer- passengers and the risk increases with every additional peer-passenger. There is widespread acceptance that night-time driving and peer-passenger restrictions are central components to a graduated licensing system as they have been associated with the highest crash reductions for provisional licence holders (Lin & Fearn, 2003).<sup>10</sup>

Based on research and best practice, the safety of Tasmania's young newly licensed drivers could be significantly improved through further strengthening of the graduated licensing system through measures such as:

- increasing the number of hours of supervised driving experience during the learner phase; and
- introducing night-time driving restrictions (curfews); and
- peer-passenger restrictions during the Provisional licence stage.

The strongest safety benefit would be demonstrated if such measures were introduced as a package.

Priority areas for action that support the Strategic Directions identified in this Strategy are outlined in the Action Plans that support this document.

### 10.4 ENHANCED VEHICLE SAFETY

Improving the safety features of light vehicles has enormous potential to reduce serious road trauma. Increasingly sophisticated safety features in cars offer greatly improved occupant protection in the event of a crash. Research estimates that if everyone drove the safest car in each vehicle class (small, medium, large) road trauma involving light passenger vehicles could be reduced by 26%.<sup>11</sup> For cars sold in the last few years, the risk of death or serious injury for drivers involved in a tow-away crash is less than half of the risk for cars built in the early 1970s.

Vehicle safety features can be categorised as either passive or active. Passive safety improvements are designed to improve the crash worthiness of the vehicle and reduce injuries for occupants if a crash occurs. Passive safety improvements include: seatbelts; air bags; crumple zones<sup>12</sup>; side impact protection; pedestrian friendly bonnet design; and seat belt pre-tensioners.<sup>13</sup> Active safety features aim to reduce the chance of a crash occurring. Examples include electronic stability control (ESC), advanced suspension systems, ABS brakes, tyre technology and low centre of gravity design.<sup>14</sup>

'Intelligent transport systems' technology is also developing numerous advanced systems that combine crash prevention with preparing a vehicle and its occupants if a crash is imminent. A widely used example is seat belt reminder systems that alert the driver if a seatbelt is not being worn. Recent developments include visibility assistance, lane guidance and collision warning systems.

The majority of new cars in Australia are sold as fleet vehicles. Improving the safety of light-vehicle fleets would significantly improve overall fleet crashworthiness and would improved the safety of individuals during work-related travel. By exercising their purchasing power as consumers, fleet owners can encourage vehicle manufacturers to incorporate safety features into their new cars.

In addition, there are significant benefits for the broader community as many vehicles originally sold as fleet vehicles are later passed on to other road users through the second hand car market. This would be particularly beneficial in Tasmania, which currently has one of the oldest fleets in Australia.<sup>15</sup> Safety features in vehicles are managed at the Federal level through the Australian Standards and Australian Design Rules. At this level, matters including national competition and trade are taken into account. While State Governments have limited capacity to influence vehicle safety standards at the national level, State Government fleet safety policies offer opportunities to raise the safety standard of local fleets.

Improved vehicle safety in Tasmania can be achieved by:

- State and Local Governments and large corporate fleet owners committing to purchase the highest level of safety features in their vehicles; and
- educating consumers about the benefits of vehicle safety features.

The Tasmanian Government can play a leadership role by committing to purchase the safest possible vehicle. As many ex-Tasmanian Government vehicles are sold directly to members of the Tasmanian community, over time, the relative safety of the Tasmanian vehicle fleet would improve. This initiative is potentially one of the most cost effective longer term strategies to substantially improve vehicle safety in Tasmania.

Priority areas for action that support the Strategic Directions identified in this Strategy are outlined in the Action Plans that support this document.



The Tasmanian Road Safety Strategy 2007-2016 provides the Strategic Directions to guide road safety activities in Tasmania.

# II. ACCOUNTABILITY

# II.I HOW WILL THE STRATEGIC DIRECTIONS BE DELIVERED?

The Tasmanian Road Safety Strategy 2007-2016 provides the Strategic Directions to guide road safety activities in Tasmania. Proposed road safety initiatives are detailed in the supporting Action Plans.

### Action Plans

Action Plans will detail targeted initiatives under each Strategic Direction and other supporting measures and identify the road safety benefit each initiative will deliver.

The first Action Plan will cover a period of three financial years 2007-08 to 2009-10. All following Action Plans will be developed at least every two years.

## II.2 MEASURING PERFORMANCE AND REPORTING

The Tasmanian Road Safety Council will provide annual reports to the Minister for Infrastructure outlining progress towards achieving key initiatives detailed in the Action Plans.

As the Strategy covers a 10 year period, a review of progress against targets will be made at regular intervals, so that adjustments can be made to programs as necessary. The Tasmanian Road Safety Council will also report against Tasmania *Together* targets in 2010 and 2015.

Action Plans will contain performance measures for each Strategic Direction. These will be reported to the Tasmanian Road Safety Council.

### ENDNOTES

- I http://www.who.int/world-health-day/2004/infomaterials/world\_report/en/intro.pdf
- $2 \quad \ \ A \ \ data \ translation \ \ issue \ \ prevented \ \ 2005 \ \ data \ being \ \ analysed.$
- 3 National Road Safety Action Plan 2007-2008
- 4 MUARC 2006 Development Of Future Directions For Tasmanian Road Safety Strategy 2007-2011: Stages 1 & 2
- 5 ibid
- 6 ibid
- 7 Cited in MUARC 2006 Development Of Future Directions For Tasmanian Road Safety Strategy 2007-2011: Stages 1 & 2
- 8 ibid
- 9 ibid
- 10 ibid
- 11 Newstead S, Delaney A, Watson L and Cameron M, A model for considering the 'total safety' of the light passenger vehicle fleet, MUARC Report 228, 2004.
- 12 "A Crumple Zone takes the impact of a crash by, as the name suggests, crumpling when a crash occurs. By doing this, the crumple zone provides a space that is designed to take the impact of a crash. The reason for the crumple zone is to increase the time from when the car hits an object to when the car comes to a complete stop. As this time increases, the force of the crash is spread longer and hence the impact of the force is minimized." http://www. caradvice.com.au/291/crumple-zone/
- 13 Australian Transport Council, 2006, Nation Road Safety Action Plan 2007-2008
- 14 ibid
- 15 MUARC 2006 Development Of Future Directions For Tasmanian Road Safety Strategy 2007-2011: Stages 1 & 2

# I2. APPENDIX I

### SUMMARY TABLE

Impact of Strategic Directions on Crash Problems

Crash Problem Area	Percentage of Serious Casualties (1996-2005)	POTENTIAL OF EACH STRATEGIC AREA TO ADDRESS CRASH PROBLEM •••= High, ••= Medium, •= Low						
CRASH TYPE		Safer Vehicle Speeds	Best Practice Infrastructure	Improved Safety for Young Road Users	Enhanced Vehicle Safety			
Run-off-road crashes	39%	•••	•••	••	••			
Intersection crashes	20%	•••	•••	••	••			
Head-on crashes	10%	•••	•••	••	••			
BEHAVIOURS								
Speed	12%	•••	•••	••	•••			
Inattention	13%	•••	•••	••	•••			
Failure to wear seatbelts	9%	• •	••	•	••			
Drink Driving	9%	••	••	•	••			
ROAD USER TYPE								
Young road users	19%	•••	•••	••	••			
Motorcyclists	15%	•••	•••	-	••			
Pedestrians	11%	•••	•••	•	••			

This table demonstrates the relative effectiveness of each Strategic Direction against Tasmania's identified Crash Problem Areas.



### CONTACT DETAILS

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