

Stronger road safety performance monitoring in South Australia

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Abstract

Over the last 5 years South Australia has shown the greatest road safety improvement of all Australasian jurisdictions, reducing fatalities from 10.3 to 6.2 fatalities per 100,000 population. In consolidating recent progress and preparing for further improvements, cross government attention has been given to substantially improving South Australia's road safety performance monitoring systems.

This paper outlines the progress South Australia has made from a simple annual reporting of behavioural causes and crash totals to a more comprehensive report on all aspects of road safety management. Based on Australia's safe system approach to road safety, intermediate outcome and output delivery measures are presented under the key areas of 'Safer Speeds, Roads, Users and Vehicles', using a range of transport and policing data sources.

Key performance measures include:

- Single vehicle run-off road crashes
- Mean traffic speeds
- Drink drivers/riders killed
- Young people killed or seriously injured
- Safety technology in new car sales

From these indicators a more comprehensive report of crash data and road safety enforcement is now publicly available through a Road Safety Progress Report. Published quarterly, it monitors current progress as well as developing a data series that will support future target setting. Monitoring systems for mean speed, restraint use and vehicle safety technology are the current focus of attention.

Introduction

South Australia has experienced the greatest road safety improvement of all jurisdictions in Australasia in the last 5 years by reducing its fatality rate by an average of 9% per year from 10.3 fatalities per 100,000 population in 2003 to just 6.2 by the end of 2008.

The reduction of road death and serious injury in South Australia has been achieved through implementing a range of initiatives, improving partnership between Government agencies and generating greater cooperation and support of the South Australian community. (Please see Appendix 1 for definition of crash terms).

Previously road crash reporting in South Australia was through the publication 'Road Crash Facts South Australia' which reported road crash fatalities and injuries by variables such as age and road user type. Commentary was provided on the level of trauma for different road user groups, where the crashes occurred and types of crashes that occurred in a given year. While informative, it reported road crashes at a basic level, and did not report on progress towards road safety targets, or on the delivery of any major safety related outputs such as police enforcement levels.

In consolidating recent progress and preparing for further improvements, cross Government attention has been given to substantially improving South Australia's road safety performance monitoring systems.

This paper outlines the progress South Australia has made in its reporting of road crashes and their causes. The system used for reporting in South Australia is based on Australia's Safe System approach which has led to a set of key performance indicators using crash, transport and enforcement data being developed (1). From the indicators a more comprehensive report of crash data and road safety enforcement is published quarterly and made available to the public.

South Australia's progress and its current targets and strategies

In 2008 South Australia had its lowest fatality total on record with just 99 fatalities for the 12 month period. This was 21% below the 2007 total of 125 fatalities and 28% below the previous 5 year average of 137. Similarly serious injuries have also declined to 1213 in 2008 compared to 1361 in 2007 and the previous 5 year average of 1362.

South Australia has set two main road safety targets as part of 'South Australia's Strategic Plan 2007' (2):

- To reduce road fatalities to less than 90 persons per year by 2010.
- To reduce serious injuries to less than 1000 per year by 2010.

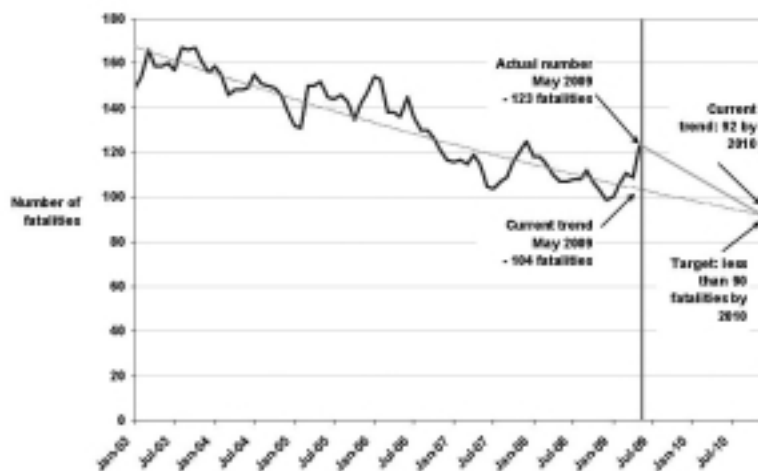
These current South Australian targets are based on the Australian National Road Safety Strategy Target of bringing the annual number of road deaths per 100,000 population below 5.6 by the end of 2010, representing a 40 percent reduction from the benchmark in 1999 (3).

Research suggests that countries which have road safety targets tend to perform better than countries without targets (1, 4). By setting targets in key areas, stakeholders can see where its efforts are required and monitor the outcomes of specific countermeasures. Targets also reflect the Government's dedication to allocating resources and supporting policy and legislative change to make road safety improvements (1).

While South Australia has achieved a considerable reduction in fatalities and the current trend is positive (see figure below) further countermeasures will be required in the final two years of the decade to continue this decline and to achieve less than 90 fatalities by 2010.

Options for new targets are being prepared as part of the development of the next Australian National Road Safety Strategy, which will provide the framework for the next South Australia Road Safety Strategy post 2010. Targets will be set through analysis and research of the fatality trend of the last decade, taking into account prior performance and predicting potential gains from ongoing measures and future new initiatives.

Number of fatalities in South Australian (rolling 12 month total)



To reach the target of less than 1000 serious injuries per year by 2010 will require a considerable decrease. While the 2008 figure was the lowest recorded figure on record, significant commitment is required to achieve less than 1000 serious injuries by 2010. A reduction of at least 130 people seriously injured each year for the next 2 year period based on our current figure of 1213 in 2008 (see figure below).

Number of serious injuries in South Australian (rolling 12 month total)

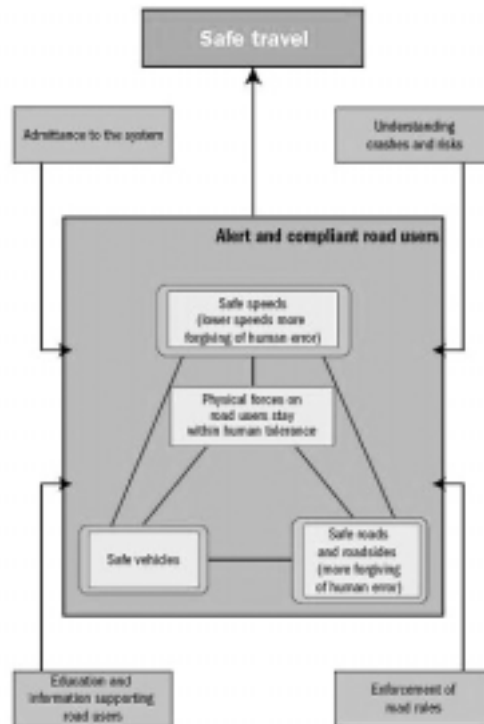


The South Australian Road Safety Action Plan 2008-2010 was released by the Government in July 2008 and highlights the key priority actions over the 3 year period 2008-2010 in order to focus on initiatives that will assist in achieving the 2010 targets set by the South Australia State Strategic Plan (5). The focus of the Action Plan is on measures that have the greatest likelihood of achieving significant reductions in crashes and trauma, and are known to be cost effective based on evaluation and targeted road safety research. The Action Plan outlines four key areas containing priority road safety actions in South Australia over the remainder of this decade. These are based on the Safe System Approach and include:

- Safer Roads,
- Safer Speeds,
- Safer Road Users and
- Safer Vehicles

Across Australia the Safer System approach is being used as the framework for improving road safety. Recommended by the OECD, the Safe System approach is based on extensive analysis, research and experience (1). It recognises that no matter how well road users are trained and educated about responsible road use, how much crash risks are understood or how much enforcement of road rules is undertaken, human error is inevitable. The Safer System approach therefore requires the road transport system to make allowance for human error in the design and management of both the road environment and motor vehicles, and in the setting of speed limits.

The Safe System Framework



(Reference: National Road Safety Action Plan 2009-2010 (6))

Current Performance indicators and their link to the 'Safe System' approach

One of the recommendations from the OECD 'Towards Zero - Ambitious Road Safety Targets and the Safe Systems Approach' was to develop data collection procedures to report safety performance indicators that included levels of mean traffic speeds, drink driving and vehicle safety ratings (1).

Performance indicators are essential in determining road safety performance. Outcome measures clearly indicate current road trauma trends and opportunities for intervention (1).

Safety performance indicators should include the following elements (7):

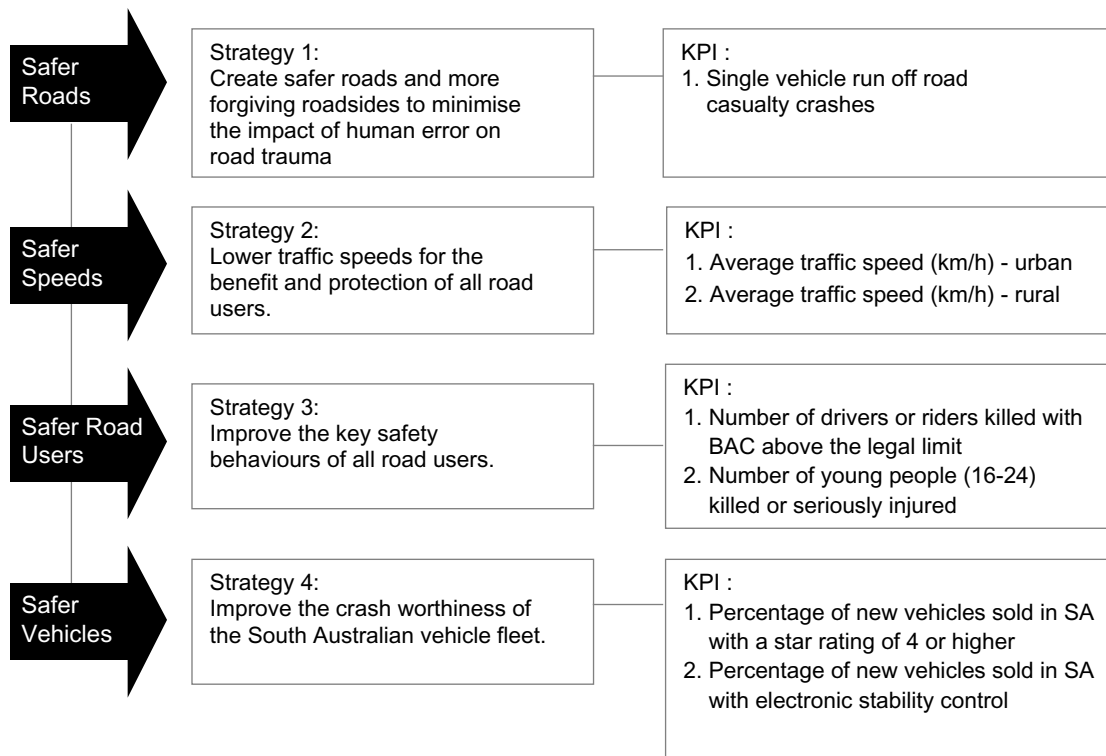
- They should be clearly defined
- The measurement should be reliable
- The measurement should be readily available
- The measurement should be available within a reasonable timeframe

The two head line Key Performance Indicators (KPIs) directly relating to South Australia's road safety targets are:

1. Number of fatalities in a 12 month period
2. Number of serious injuries in a 12 month period

A set of KPIs were developed for monitoring progress against these targets by assessing the principle road safety issues in South Australia and how they could be effectively measured to monitor road safety improvements. The KPIs sit under the strategies listed in the Action Plan covering the four areas of the Safe System. These KPIs will monitor the implementation of new and ongoing initiatives and the progress towards the 2010 target (see diagram 1). While aspirational targets relative to the KPIs have been developed they are used for indicative purposes only.

Diagram 1:

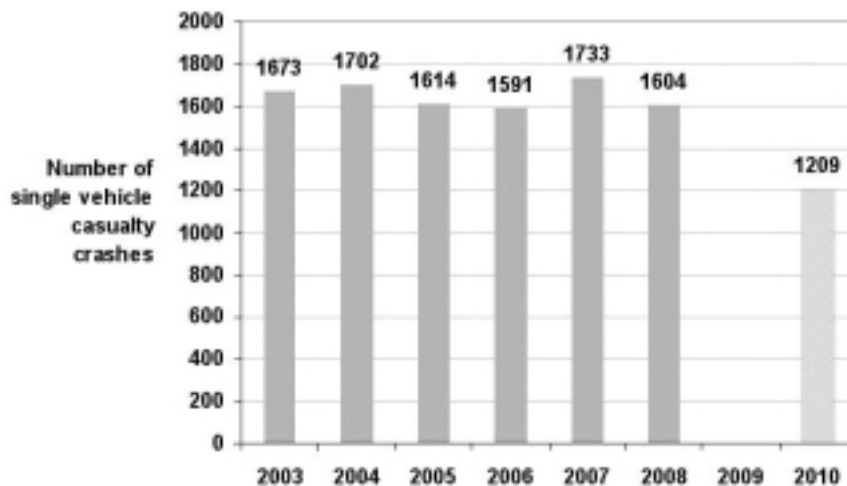


Safer roads - KPI 'Single vehicle run off road casualty crashes'

South Australia is sparsely populated outside its capital city and a few regional cities. Around 60% of fatal crashes and 50% of serious crashes are in these more sparsely populated areas with the majority being single vehicle run off road crashes. This KPI measures the scale of programs and safety improvements in maintaining and upgrading safer roadsides in the State. Under the 'Safer Roads' approach, general improvements, maintenance and targeted investment in road infrastructure such as shoulder sealing, median wire rope barriers and black spot treatment are important for safety outcomes.

Progress to date:

Number of single vehicle casualty crashes



Safer speeds - KPIs 'Average traffic speeds in both urban and rural areas'

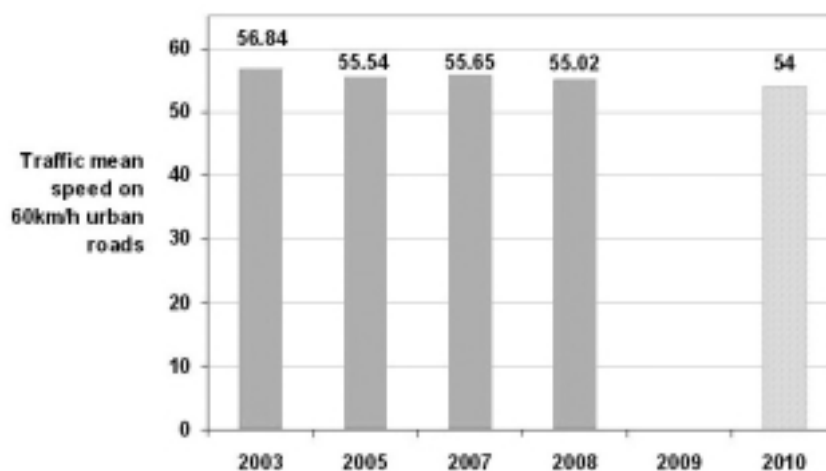
Research shows that there are fewer crashes at lower travel speeds (8). Crashes that do occur will be less severe because impact speed is reduced (8). Decreasing travel speeds chosen by drivers and riders is essential in gaining a safer road system.

This KPI measures travel speeds of vehicles in urban and rural areas. It monitors progress of programs implemented aimed at decreasing travel speeds in both urban and rural areas. Under the 'Safer Speeds' approach, developing new speed enforcement technologies including fixed speed cameras, automatic enforcement such as point to point cameras, specific policing operations for rural highways and lowering of speed limits will lead to improved safety outcomes.

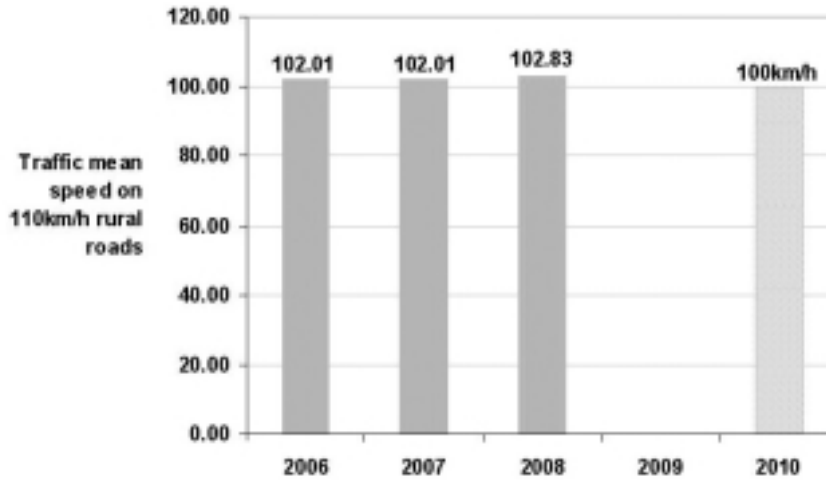
Progress to date:

Average traffic mean speed on 60km/h urban arterial roads

(Please note data was not available in 2004 and 2006)



Average traffic mean speed on 110km/h rural roads
(Please note data was not available in 2003 to 2005)

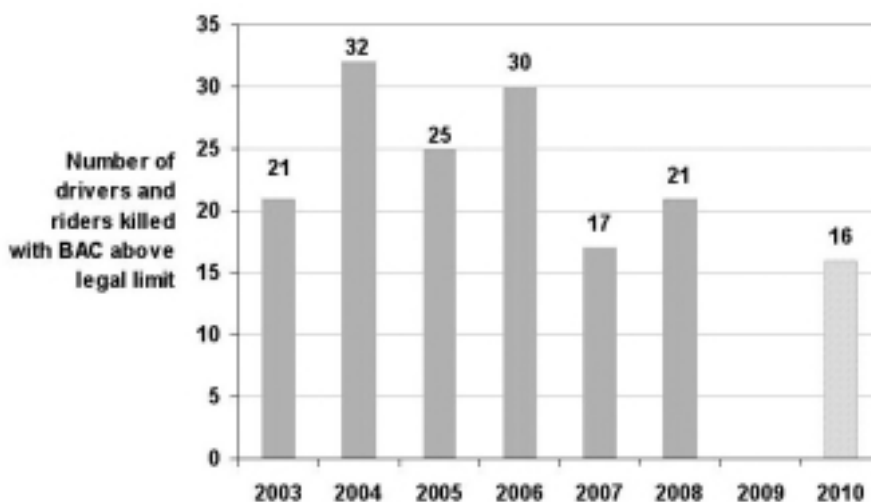


Safer road users - KPIs 'Number of drivers or riders killed with BAC above the legal limit and Number of young people (16-24) killed or seriously injured

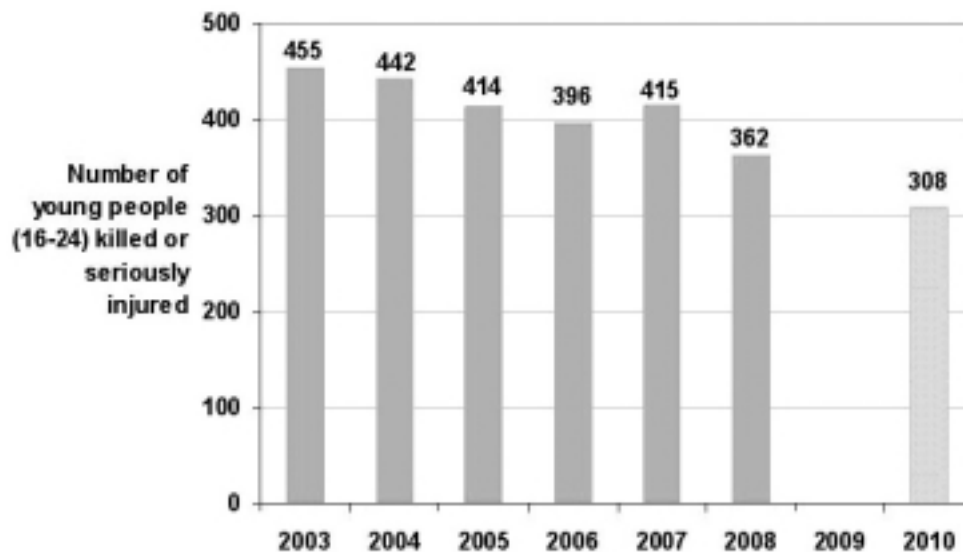
Improving road user behaviour is fundamental in the achievement of a safer road system. Alcohol impairment continues to be one of the biggest contributors to serious road trauma in South Australia. At least a third of all drivers and motorcycle riders killed in the State have an illegal Blood Alcohol Concentration (BAC) of 0.05 grams of alcohol per 100 millilitres of blood. Similarly younger people aged 16 to 24, many novice drivers, face high levels of risk due to lack of experience, risk tasking and distraction. Their rate of death or serious injury is at least 3 times that of drivers aged 25 and above. Countermeasures aimed at improving roads, lowering speeds and improving vehicles will have an effect on the safety of these two road user groups as well as all other road users. There are also actions that are specific to improving the behaviour and safety of young people and reducing the incidence of drink driving. These include stronger legislation such as mandatory alcohol interlocks for repeat drink drive offenders and a reviewed graduated licensing scheme for novice drivers and tougher policing and improved education. These KPIs will monitor and report on the effectiveness of a suite of initiatives.

Progress to date:

Number of drivers and riders killed with BAC above the legal limit of 0.05 mg/100mL



Number of young people aged 16-24 years killed or seriously injured in road crashes

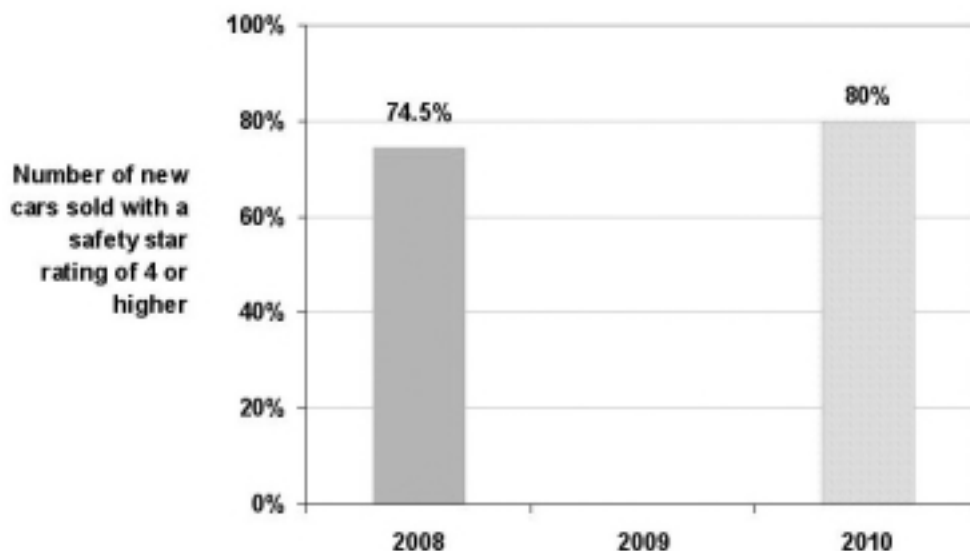


Safer vehicles - Percentage of new vehicles sold in South Australia with a star rating of 4 or higher and Percentage of new vehicles sold in South Australia with electronic stability control

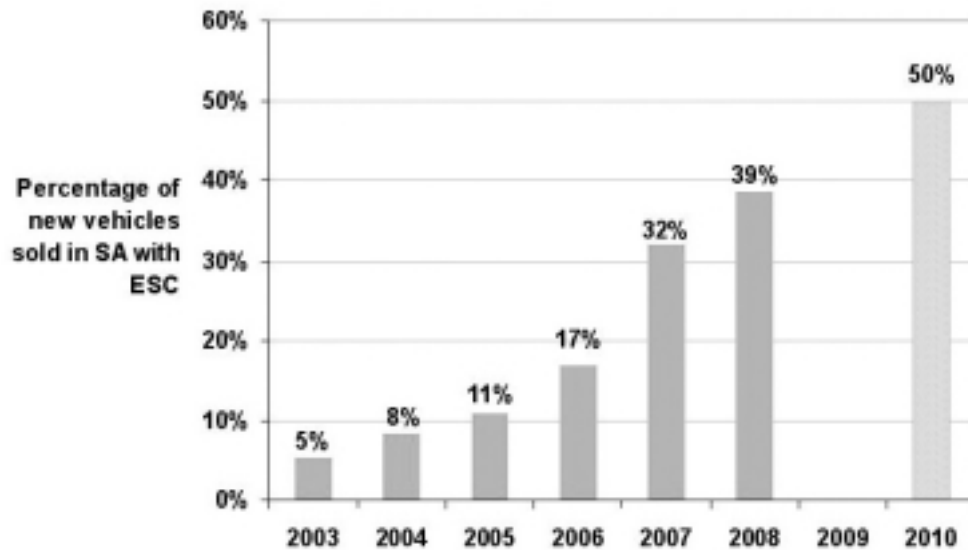
Improving vehicle safety minimises the risk of crashes and the severity of injury when a crash occurs. Benefits of new safer vehicles are generally seen in the longer term as it takes many years for the vehicle fleet to renew. South Australia has one of the oldest car fleets in Australia. The average age of the fleet is approximately 11 years, one year older than the national fleet (9). Regulatory change and influence on vehicle manufactures is at a national level, but South Australia can foster the demand for safer vehicles in the State through fleet policy and raising public awareness of new vehicle safety features. Consumer awareness programs such as the Australasian New Car Assessment Program (ANCAP) gives consistent information on the level of occupant protection provided by vehicles in crash test results (10).

Progress to date:

New vehicles sold in South Australia with a safety star rating of 4 or higher
(Please note data is not available prior to 2008)



New vehicles sold in South Australia with Electronic stability control (ESC)



A Road Safety Progress Report

Road safety is a shared responsibility and the South Australian Road Safety Action Plan, 2008-2010 recognises the importance of effective partnerships between organisations and community engagement and participation in the success of road safety strategies. Regular reporting of road safety crashes and information provides opportunity for publicity and recognition of road safety principles in the community at large.

The South Australian Road Safety Progress Report details South Australia's progress towards the 2010 target by reporting fatalities and serious injuries each quarter as well as monitoring police enforcement levels. The Report has been made possible by a partnership between three government departments South Australia Police, South Australia Motor Accident Commission and the South Australia Department for Transport, Energy and Infrastructure. In 2006, the South Australian Government established a road safety portfolio with the nation's first nominated Government Minister for Road Safety. WHO recommends the collaboration between different sectors of government in monitoring road safety data to ensure that major road safety stakeholders act effectively (11).

A public document, the Report is released each quarter on the Department for Transport, Energy and Infrastructure website (http://www.dtei.sa.gov.au/roadsafety/road_crash_facts).

The Road Safety Progress Report assists in the identification of road user trends and enables the assessment of the effectiveness of police enforcement. The aim of the Report is to:

1. Review road safety activity in South Australia each quarter.
2. Report progress in implementing the road safety strategy by monitoring the number of fatalities and serious injuries.
3. Collaborate all elements of road safety reporting including crash data, costs, levels of police enforcement data and compulsory third party insurance claims.
4. Make road crash information available and easily accessible and understood to the wider public.

The main elements reported are:

- *Fatalities and serious injuries*

The monitoring of death and injury is a meaningful indicator not just for road safety stakeholders but is a daunting reminder of the effect road crashes can have to the entire community.

The Report monitors fatalities and serious injuries per month and progress towards the 2010 targets. Fatalities are also compared against other jurisdictions in Australia and the national fatality rate target.

- *Cost of road crashes*

Reporting the cost of road crashes improves understanding of how road trauma impacts financially on livelihood, lifestyle and the benefits of expenditure for improving infrastructure and proposed behavioural countermeasures. The estimated costs reported are based on 'human costs' and include lost labour in the work place, household and community, quality of life, ambulance, hospital and medical care, vehicle and other associated costs. Road crashes in South Australia are estimated to cost the state over \$1 billion per year in 2008, the majority of cost attributed to serious injury crashes. Insurance claim costs are also reported (12). The South Australia Motor Accident Commission is responsible for the administration of South Australia's Compulsory Third Party insurance scheme. This scheme provides cover to people injured in road crashes. Insurance claim costs in 2008 were nearly \$425 million, 45% from fatal and serious injury crashes.

- *Travel, economic and crash casualty indicators*

The Report charts quarterly indicators relevant for road safety indexed to a common fixed point to directly compare trends. It shows how different exposure factors may be affecting road death and injury numbers. Economic indicators such as annual petrol sales, unemployment and annual gross domestic product (GDP) are reported. Studies have shown that the levels of economic activity are associated with differing levels of road trauma (13). Generally if economic activity increases there is an increase in travel and an associated increase in road crashes. Recently we have seen a decline in the economy and there has been a notable increase in unemployment, a slowing of GDP, a sharp decline in fuel sales and a decrease in new motor vehicle registrations. Further monitoring of these against the fatal and serious crashes will be carefully monitored in the near future.

- *Speeding, drink or drug driving, inattention and non restraint use - enforcement and crash involvement*

The general public needs to be continuously provided with information about the influence of travel speeds, driving under the influence, inattentive driving and non seatbelt use on road crash death and injury. Highlighting these behavioural issues as a problem is critical in gaining public support for implementing new policy and legislation. In the Report information is provided on the enforcement and road crash outcomes of these four behavioural factors.

In depth analysis of fatal crashes has shown that speed is a contributing factor in up to 40% of fatal crashes in South Australia. Speed is not often reported as the sole causal factor in a crash and as a consequence the involvement of speeding in crashes is under reported. In the Report fatal and serious casualty crashes are reported by speed limit area, highlighting that crashes are equally a problem on the general urban network and the regional and remote areas of the state. Speed enforcement is reported for both camera and non-camera operations.

Alcohol involvement in fatal crashes has been on the increase in recent years in South Australia. Currently between 30 and 40% of drivers and riders killed and 20% serious injured have an illegal BAC. In cooperation with the State Forensic Centre, it has been possible to also report on driver and riders fatalities who have tested positive to illicit drugs such as cannabis, methamphetamine or ecstasy. Currently approximately 20% of drivers and riders tests positive to one or more of these drugs.

Inattention is consistently reported to contribute to around 50% of fatal and serious crashes in South Australia. Reporting the number of inattentive driving offences per quarter has shown a major increase in the number of expiations in the last 2 years. Most of this increase has been due to the number of driving offences for using a hand held mobile phone while driving more than doubling over a two year period.

Despite the introduction of compulsory seatbelt wearing in the 1970s, non restraint use still appears in 35% of all drivers and passengers killed and 12% of those seriously injured in South Australia. The number of restraint use offences is also monitored, with a recent peak in expiations coinciding with the South Australian Police campaign 'Operation Belt Up' targeting seatbelt offences.

- *Overview of road user groups - younger and older road users, motorcyclists, cyclists and pedestrians, unlicensed or disqualified drivers.*

Monitoring the crash and injury incidence for particular road user groups improves the awareness of their involvement in the road crash problem and can highlight under what circumstance they are likely to be involved in a road crash.

Younger road users are over represented as a group in road crashes in South Australia. People aged 16 to 24 years make up 12% of the population, but account for 27% of road fatalities and 30% of serious injuries.

There are relatively few older road users involved in road crashes compared to their younger counterparts. But when they are involved in a crash they are more likely to be severely injured or killed. South Australia also has an ageing population. It is estimated that by 2012 the number of people aged over 65 will outnumber children under 15 (14). It is important to continue monitoring older road users and their contribution to the road toll.

Despite improvements to the road toll in South Australia in the last decade, serious crashes involving motorcyclists remain a concern in South Australia. While driver fatalities and serious injuries have generally decreased over the past 10 years, motorcycle rider fatalities and serious injuries have remained at the same level as they were a decade ago averaging 170 fatalities and serious injuries per year. The Australian Federal Chamber of Automotive industry reports substantial sales growth for motorcyclist and motor scooters (15).

Improving pedestrian and cyclist safety are important in achieving the 2010 targets. Although they make up a smaller proportion of fatalities and serious injuries each year than vehicle occupants, it is important to continue monitoring fatalities and serious injuries for these road user groups. There are strategies in place to promote walking and cycling as an alternative to motor vehicle travel for both health and environmental benefits. If participation rates grow for walking and cycling fatality and serious injury numbers will need to be closely monitored.

Unlicensed or disqualified drivers are a distinct group of road users that repeatedly make up a sector of fatalities each year in South Australia. Analysis of the offence records of drivers and riders involved in fatal crashes shows a high percentage have previously committed several offences and/or have lost their licence on a previous occasion or are unlicensed at the time of the crash. On average 65% of drivers or riders involved in fatal crashes have at least one previous offence, 34% had previously had their licence disqualified on at least one occasion and 13% were unlicensed at the time of the crash.

- *Reporting of fatal and serious crashes by Local Government areas within the state*

South Australia has 35 Community Road Safety Groups, which cover more than half of the local government areas in South Australia. Regular reporting on the fatal and serious crashes for distinct areas in the State allows Local Government to regularly track their progress over time and against other areas.

Three South Australia Road Safety Progress Reports have been released to date. Initial feedback shows that the Report has been well received by both the state's road safety stakeholders and the general community.

Conclusion

South Australia has recently seen a decline in the number of road fatalities and serious injuries. In order to consolidate recent improvements and recognise where further progress can be made, a new framework was established for both monitoring and reporting of road safety data.

Road safety performance indicators quantify the achievements made through adopted countermeasures and set a focus on where further efforts are required to achieve future targets.

The Road Safety Progress report provides a framework for the evaluation of road trauma and monitoring of police enforcement operations. It allows a consistent reporting of road crashes to a wider audience.

Partnership of the three key South Australia State Government departments involved in road safety has the real potential of achieving the targets set out in the current and future State Road Safety Strategy. The road safety progress report is a key element in this collaboration of agencies.

Appendix 1

Definitions of terms used:

Casualty Crash - A crash where at least one fatality, serious injury or minor injury occurs.

Casualty - A fatality, serious injury or minor injury.

Fatal Crash - A crash for which there is at least one fatality.

Fatality - A person who dies within 30 days of a crash as a result of injuries sustained in that crash.

Serious Injury Crash - A non-fatal crash in which at least one person is seriously injured.

Serious Injury - A person who sustains injuries and is admitted to hospital as a result of a road crash and who does not die as a result of those injuries within 30 days of the crash.

Minor Injury Crash - A crash for at least one person sustains injury but no person is admitted to hospital or dies within 30 days of the crash.

Minor Injury - A person who sustains injuries requiring medical treatment, either by a doctor or in a hospital, as a result of a road crash and who does not die as a result of those injuries with 30 days of the crash.

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