Stronger road safety performance monitoring in South Australia

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Abstract

In consolidating recent progress in South Australia of reducing the road fatality rate from 10.3 to 6.2 fatalities per 100,000 population, and in preparation for future monitoring, cross government attention has been given to substantially improving South Australia’s road safety performance monitoring systems.

The most recent National Road Safety Action Plan highlights the need for more effective performance monitoring and progress measurement. South Australia has identified a relevant and specific set of indicators for effective monitoring and reporting of its State road safety targets.

Based on Australia’s safe system approach to road safety, intermediate outcome 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 indicators 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.

In addition to these indicators a comprehensive report of road crashes and road safety enforcement is now available for the public and reported on a quarterly basis. It monitors both current progress as well as developing a data series that will support future target setting.

This paper overviews the key performance indicators reported and identify the principles and collaboration behind the quarterly road safety report development and content.

Keywords

Key performance indicators, Safe System, Targets

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.

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 South Australia’s approach to reporting road crashes and their causes. The system used for reporting in South Australia is based on the Safe System approach, which has led to a set of key performance indicators using crash, transport and enforcement data being developed [1]. From these 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 - 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.

The Government’s strategic direction for South Australia ‘South Australia’s Strategic Plan 2007’ has a number of targets of which two concern road safety [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 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].

International research suggests that countries which set road safety targets tend to perform better than countries without targets [1, 4]. By setting targets in key areas of road safety, stakeholders can see where effort is required and can 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 decline 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 reduction and to achieve fewer than 90 fatalities by 2010.

Options for new targets are being prepared as part of the development of the next 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.

![Figure 1: Number of fatalities in South Australian (rolling 12 month total), 2003-2010](image_url)
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 fewer than 1000 serious injuries by 2010. A reduction of at least 130 people seriously injured each year is needed for the next 2 year period based on our current figure of 1213 in 2008 (see Figure 2 below).

![Figure 2: Number of serious injuries in South Australian (rolling 12 month total), 2003-2010](image)

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, Speeds, Road Users and Vehicles.

**Current performance indicators and their link to the Safe System approach**

One of the recommendations from the OECD (2008) is to develop data collection procedures to report safety performance indicators that include 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 principal road safety issues in South Australia and how they can be effectively measured to monitor road safety improvements. The KPIs relate to the strategies listed in the Action Plan, and cover 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 for the Government.

**Diagram 1:**

- **Safer Roads**
  - **Strategy 1:** Create safer roads and more forgiving roadsides to minimise the impact of human error on road trauma
  - **KPI:**
    1. Single vehicle run off road casualty crashes

- **Safer Speeds**
  - **Strategy 2:** Lower traffic speeds for the benefit and protection of all road users.
  - **KPI:**
    1. Average traffic speed (km/h) - urban
    2. Average traffic speed (km/h) - rural

- **Safer Road Users**
  - **Strategy 3:** Improve the key safety behaviours of all road users.
  - **KPI:**
    1. Number of drivers or riders killed with BAC above the legal limit
    2. Number of young people (16-24) killed or seriously injured

- **Safer Vehicles**
  - **Strategy 4:** Improve the crash worthiness of the South Australian vehicle fleet.
  - **KPI:**
    1. Percentage of new vehicles sold in SA with a star rating of 4 or higher
    2. Percentage of new vehicles sold in SA with electronic stability control

- **Safer roads - KPI ‘Single vehicle run off road casualty crashes’**

In South Australia 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:

![Graph showing numbers of single vehicle casualty crashes from 2003 to 2010]

**Figure 3**: Numbers of single vehicle casualty crashes, 2003-2010

- **Safer speeds - KPI ‘Average traffic speeds in both urban and rural areas’**

Research shows that there are fewer crashes at lower travel speeds and 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 implemented programs 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:

![Traffic mean speed on 60km/h urban roads](image)

**Figure 4:** Average traffic mean speed on 60km/h urban arterial roads, 2003-2010 (Please note data were not available in 2004 and 2006)

![Traffic mean speed on 110km/h rural roads](image)

**Figure 5:** Average traffic mean speed on 110km/h rural roads, 2006-2010 (Please note data were 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 or more of alcohol per 100 millilitres of blood. Similarly, younger people aged 16 to 24, many who are novice drivers, face high levels of risk due to lack of experience, and greater propensity for risk taking 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 both drink drivers and young drivers 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:

![Bar chart showing numbers of drivers and riders killed with BAC above legal limit](image1)

**Figure 6:** Numbers of drivers and riders killed with BAC above the legal limit of 0.05 mg/100mL, 2003-2010

![Bar chart showing numbers of young people aged 16-24 years killed or seriously injured](image2)

**Figure 7:** Numbers of young people aged 16-24 years killed or seriously injured in road crashes, 2003-2010

- **Safer vehicles KPIs - 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**

Non peer-reviewed full paper
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 average age of the national fleet [9]. Regulatory change and influence on vehicle manufacturers occurs 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) give consistent information on the level of occupant protection provided by vehicles in crash test results [10].

- **Progress to date:**

![Figure 8](image_url)

**Figure 8:** New vehicles sold in South Australia with a safety star rating of 4 or higher, 2008-2010

(Please note data is not available prior to 2008)

![Figure 9](image_url)

**Figure 9:** New vehicles sold in South Australia with Electronic stability control (ESC), 2003-2010
A South Australian 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 crashes and road safety information provides opportunity for publicity and recognition of road safety principles by the community at large.


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 its own road safety portfolio by appointing the nation’s first nominated State Government Minister for Road Safety. The World Health Organisation recommends collaboration between different sectors of government in monitoring road safety data to ensure that major road safety stakeholders act effectively [11].

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. Coordinate 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.

Four 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 its number of road fatalities and serious injuries. In order to consolidate recent improvements and recognise where further progress can be made, a new framework, KPIs and the Road Safety Progress Report, was established for both monitoring and reporting of road safety data.

In this framework, road safety KPIs quantify the achievements made through adopted countermeasures and set a focus on where further efforts are required to achieve future targets.

The quarterly Road Safety Progress report monitors both road trauma and police enforcement operations. It allows a consistent reporting of road crashes to a wider audience.

Partnership between 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 strategies. The Road Safety Progress Report is a key element in this collaboration of agencies.
References:


Appendix A

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.