

# **Speed Cameras: Life Savers or Revenue Raisers? *Road Safety in South Australia***

A Report Prepared for

**Ivan Venning, MP**

by  
Jasmin Weatherley

South Australian  
Parliamentary Internship Scheme  
University of Adelaide

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## **Executive Summary:**

Speed cameras were first introduced as a road safety initiative to reduce the number of fatalities and serious injuries caused by road accidents, but their use has become a contentious issue in recent years.

Various case studies from Australia and other countries in this report demonstrate that speed cameras do not have an impact on the road toll as much as governments claim that they do. Furthermore, many studies often fail to control for potential variables, such as regression-to-mean and the effects of other road safety measures, which further overestimates the impact that speed cameras have had.

Speed cameras have been operating in South Australia since 1990, but their effect on the road toll is questionable, in comparison to other road safety measures introduced in the state. Revenue-raising claims against the Government also continue to occur, and may even be justified, considering that only two of the state's top 10 revenue-raising locations were also in the state's worst black-spot areas in 2009 (Nankervis 2010).

Preliminary research in this report into the use of speed cameras in rural South Australia has also suggested that speed cameras are not being used in the right locations to reduce accidents on rural roads. A four week observation found that at least 37% of speed cameras were located in rural towns on rural streets, even though studies by Baldock, Kloeden and McLean (2008) found that only 4.2% of accidents occur on these roads. Furthermore, since accidents in rural areas are also caused by factors other than driving behaviour, alternative policy solutions to improve road conditions should also be considered.

Further research and investigation into the operation of speed cameras in South Australia is also required. Therefore, the report recommends that this occurs with the establishment of a select committee, which should be supported by additional research into the placement and use of speed cameras across the state.

The report also recommends increasing the number of police patrols on urban and rural roads and transferring responsibility for speed camera enforcement to local police, especially in regional areas.

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**List of Abbreviations:**

BAC	Blood Alcohol Content
CBD	Central business district
Kmh	Kilometres per hour
KSI	Killed or seriously injured casualties
PASA	Police Association of South Australian
PIC	Personal injury collisions
RTM	Regression-to-mean
SAPOL	South Australian Police
TRL	Transport Research Laboratory
UK	United Kingdom

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## 1. Introduction:

Road safety has become a serious issue for governments, policymakers and road users worldwide, especially as the number of vehicles and road users continues to increase. In South Australia alone, nearly 12,000 road fatalities have been recorded since 1950 (Cameron 2002: 579) and road accidents now cost the state approximately \$1,175,924,453 every year (Baldock and McLean 2005: iii). Furthermore, this cost does not include the severe emotional pain and anguish experienced by people who are affected by road accidents.

Subsequently, speed cameras are one initiative used by governments to reduce fatalities and injuries caused by road accidents, by “reprimanding driver behaviour and deterring subsequent speeding tendencies” (Kloeden, Edwards and McLean 2009: 7).

They can be used overtly or covertly with fixed or mobile technology, and can also be used for a number of different purposes, such as “treating black-spot locations or addressing problem behaviour across the entire road network” (Cameron and Delaney 2008: 2).

However, the use of speed cameras has become a contentious issue in recent years. While some analysts believe that speed cameras play a critical role in saving the lives of motorists, some critics argue that speed cameras are simply used by governments to generate revenue.

Therefore, this report investigates whether speed cameras are used to save lives or raise revenue in Australia and in other countries. The report then focuses on this debate in South Australia and analyses the use of speed cameras in the state’s rural areas, where little research has previously been conducted. Finally, this report also briefly discusses contributing factors to road accidents other than speeding, as well as alternative policies that would improve road conditions and therefore reduce the number of accidents on rural roads.

However, one of the limitations of this report is its scope. This report only analyses fixed and mobile speed cameras, because of the limited time-frame in which this research had to occur. However, fixed and mobile speed cameras were also chosen, because they are generally the most popular forms of speed detection, and therefore enabled worldwide case studies to be used for the purpose of this report. Other speed detection devices, such as speed and red light cameras and point-to-point speed cameras, were also not analysed due to these research time constraints.

## 2. Speed-Related Accidents - The Controversy:

The controversy with speed-related accidents arises, because "it is not speed itself that is normally the primary cause of an accident" (Mountain, Hirst and Maher 2005: 742). Speed is generally only a secondary causal factor in road accidents, simply because "speed is a factor in any accident involving a moving vehicle" (Booker and North 2007: 213). In fact, a number of factors other than speed are just as likely to cause fatalities or serious injuries in road accidents. These factors include driving under the influence of drugs or alcohol, fatigue and inattention (Fildes and Lee 1993). Nevertheless, the line between speed as a 'cause' or 'contributing' factor in accidents has become blurred (Buckingham in Cadogan 2004: 30), which has had an effect on the type of road safety policies that have been implemented.

Furthermore, statistics about the percentage of speed-related accidents have also been exaggerated by some governments. For example, a report from the UK's Transport Research Laboratory (TRL) claiming that "speed was a major contributory factor in about a third of all road accidents" (Department for Transport in Booker and North 2007: 212) was exaggerated. In fact, the report actually concluded that excessive speed was only the causative factor in 7.3% of all accidents (Booker and North 2007: 212). The TRL argued that it had attained this one-third figure, because speed was also a factor in accidents included under other headings, such as sudden braking and careless driving (Booker and North 2007: 212). However, in 2006, the UK Department for Transport itself finally conceded that only 5% of road accidents were caused by drivers exceeding the speed limit (Booker and North 2007: 219).

Furthermore, it has also been generally accepted amongst most researchers worldwide that changes in accident frequencies not only include changes "attributable to the impact of the scheme, but also changes which would have occurred in any case: changes arising due to general trends in accidents and regression-to-mean (RTM) effects" (Mountain, Hirst and Maher 2005: 743). RTM is a complicated factor in many studies, especially when a period of high accident frequency is analysed (Mountain, Hirst and Maher 2005: 743). This is because the RTM effect will tend to result in a decrease in accidents in the following period, regardless of whether speed cameras are used or not (Mountain, Hirst and Maher 2005: 743).



### 3. Speed Cameras in South Australia:

Speed cameras were first used in South Australia in 1990, but there are now 18 mobile and 78 fixed speed cameras operating in the state (Marsh 2010). These cameras are generally used overtly to adjust the mindset of drivers, by giving motorists the perception that they could be caught speeding anytime anywhere (Marsh 2010).

The cameras are operated by the Traffic Camera Unit in the South Australian Police, however, the unit has no discretion about where speed cameras are used (Marsh 2010). Instead, a general order approved by the Commissioner of Police governs where cameras are placed (Marsh 2010). Data analysed by the police's Traffic Intelligence Unit about road accidents, serious injury crashes and excessive speed locations is used to give roads a road safety risk rating (Marsh 2010). The Traffic Camera Unit are then authorised to deploy a speed camera to roads based on these ratings (Marsh 2010). In rural areas, the unit has two cameras operating at any one time (Marsh 2010).

Senior Sergeant Robert Marsh -- officer-in-charge of the Traffic Camera Unit in the South Australian Police - believes that speed cameras have been effective in reducing average speeds and the road toll in South Australia, but notes that they are "part of a larger series of initiatives that have been introduced" (Marsh 2010).

However, he denies that speed cameras are used in South Australia to raise revenue, for a number of reasons. Firstly, speed camera locations are released on the news and on the police website to counter this revenue-raising tag (Marsh 2010). Secondly, all speed camera revenue is directed into a Community Road Safety Fund (Marsh 2010). This fund was established by the Labor Government in 2003 (Buckby 2003: 1042) and is used to finance various initiatives that improve roads and road safety (Marsh 2010).

Furthermore, although police have kerbside hour targets to meet - that is, a certain number of hours which they must operate speed cameras - they do not have a target for detection numbers (Marsh 2010). However, motorcycle police officers interviewed in a 2010 report about the proposed restructuring of traffic policing in South Australia, stated that "LSA and Traffic Enforcement Section commanders were placed under pressure to meet increasing road use regulation quotas" (Spoehr and Parnis 2010: 17), including speed detection hours.

#### 4. The Use of Speed Cameras in Australia and Overseas:

Speed cameras can be used overtly or covertly. Overt speed cameras are highly visible and are intended to increase the perceived risk of being detected for speeding (Cameron et al 2003: 3). However, they only produce localised effects on the immediate behaviour of drivers in the time and space that they are used (Cameron et al 2003: 3).

Alternatively, covert speed cameras are not intended to be seen by motorists, and are used to create a perception among drivers that detection for speeding can occur at any location at any time (Cameron et al 2003: 3). Therefore, covert cameras have a more general deterrent effect beyond specific speed camera sites, because motorists become aware that speed cameras could be operating anywhere (Keall, Povey and Frith 2001: 283).

The three case studies below discuss the effectiveness of various overt and covert speed camera operations in New Zealand, Victoria and Queensland.

##### Case Study 1 - New Zealand:

Overt speed cameras were introduced in 1993 on roads with speed-related accidents (Keall, Povey and Frith 2001: 277). However, a covert speed camera trial in 1997 found that accidents and casualties decreased by 11% and 19% respectively, compared to accidents in control regions where overt cameras were used (Cameron et al 2003: 12). However, the validity of these results have been questioned, because enforcement levels in the trial region were higher than in the control region (Cameron et al 2003: 12) and the crash rate seemed to be declining before the introduction of these measures (Wundersitz et al 2002).

##### Case Study 2 - Victoria:

A study into the use of covert and overt speed cameras in 1995-7 found that reductions in casualty accidents were more evident with covert, rather than overt, speed cameras (Diamantopoulou and Cameron 2002: x). In rural Victoria, there was a 9.1% reduction in road accidents one to four days after covert mobile radar operations, but only a 7.8% reduction for overt mobile speed cameras (Diamantopoulou and Cameron 2002: 19). However, the largest crash reductions – 19.2% - occurred when a combination of covert and overt cameras were used (Diamantopoulou and Cameron 2002: 19).

**Case Study 3 - Queensland:**

An evaluation of Queensland's overt speed camera program found that fatal accidents within close proximity of camera sites decreased by 45%; injury crashes decreased by 19%, and non-injury accidents decreased by 21% (Soole, Lennon and Watson 2008: 222). Furthermore, these results do not seem to have been affected by regression-to-mean variables (Newstead and Cameron 2003: 33). However, researchers noted that "it would be difficult to estimate any generalised effects of the Queensland speed camera program independently from those of other major road safety programs that have been run in parallel" (Newstead and Cameron 2003: 4).

Speed cameras can also be used for different purposes in various jurisdictions. For example, the Victorian speed camera program is based on the idea that "speeding is a deliberate offence in which a rational individual wants to drive as fast as possible and consciously calculates the costs and benefits of his behaviour" (Belin et al 2010: 2168). However, Sweden's speed camera program is based on the idea that drivers only speed because of a lack of information and social support (Belin et al 2010: 2168). Therefore, speed cameras are used in Sweden to offset dangerous road environments where there is poor speed adaptation by drivers and to support drivers to make safer speed choices (Belin et al 2010: 2168).

#### 4.1 The Effectiveness of Speed Cameras as Life-Savers:

Several studies have suggested that speed cameras are successful in reducing the number of road injuries and fatalities caused by speeding (Belin et al 2010: 2165). For example, research from the UK and Sweden into the effectiveness of fixed speed cameras found that there was a reduction of 5-10kmh at speed camera sites (Cameron et al 2003: 42). Furthermore, while the number of casualty accidents in the UK at speed camera sites reduced by 28-35%, this number was only 5% in Sweden and was deemed to be statistically unreliable (Cameron et al 2003: 42).

However, as the four case studies below demonstrate, the effectiveness of speed cameras in improving road safety is also related to various circumstances in the areas that they are used (Pilkington and Kinra 2005). Many studies also do not have adequate comparison groups or controls for potential variables, such as RTM and other road safety measures introduced at the same time (Pilkington and Kinra 2005). Therefore, the impact that speed cameras actually have on reducing the road toll is often overestimated.

##### **Case Study 4 - Netherlands:**

A study into the effectiveness of speed cameras in Friesland - a rural region of the Netherlands - found that the average speed of drivers and the percentage of speeding offenders had decreased (Goldenbeld and van Schagen 2005: 1140). There was also a 21% reduction in all casualty accidents and serious casualties over a five year period (Cameron and Delaney 2006: 7).

However, the study could not completely conclude that speed cameras had solely been responsible for these reductions, because it could not rule out the effects of other road safety developments (Goldenbeld and van Schagen 2005: 1141). Furthermore, these results may be "over-estimated due to regression to the mean effects and the influence of road engineering measures" (Cameron and Delaney 2006: 7), which were not considered.

#### **Case Study 5 - Victoria:**

Speed cameras were first introduced on a trial basis in 1985 (Delaney, Diamantopoulou and Cameron 2003: 2). However, there were no statistically significant reductions in casualty accidents in the areas around the camera sites, and the effect on speed was limited to 1-2 kilometres from speed camera sites (Portans 1988 in Delaney, Diamantopoulou and Cameron 2003: 2).

On the other hand, the introduction of covert speed cameras in 1989 resulted in speeds of more than 30kmh above the speed limit falling by two-thirds, accidents declining by 45% and the proportion of speeding vehicles falling by three-quarters (Corbett 2000: 309). However, the introduction of the RBT initiative in 1989 as well meant that "the effect on crashes of the two initiatives could confound estimations ascribed to the speed camera program only" (Cameron, Cavallo and Gilbert 1992: 22). Many critics also note that 1989 was a significantly higher year for fatalities in Victoria.

In 2002, changes to the speed camera program occurred with an increase in camera operating hours, a reduction in the speed detection limit and the introduction of flash-less cameras (Cameron et al 2003: 40). However, these initiatives only reduced casualty crashes by 3.8%, which was largely due to a 4.62% reduction of casualty crashes in Melbourne (D'Elia, Newstead and Cameron 2007: 26). There was even an estimated 1.53% increase in casualty accidents in non-metropolitan locations, although this was considered to be "non-statistically significant" (D'Elia, Newstead and Cameron 2007: 38).

#### **Case Study 6 - Spain:**

Fixed cameras were installed on the 80kmh beltway surrounding Barcelona in 2003 and on some 50kmh arterial roads in 2005 (Novoa et al 2010: 12). On the beltway, the average number of people injured fell from 79-62, and the number of collisions fell from 48-33 after the cameras were introduced (Novoa et al 2010: 14). However, there was no effect on arterial roads, where the number of accidents remained the same and the number of people injured fell by one (Novoa et al 2010: 14). This could be explained by the roads' high traffic density and the already small number of collisions (Novoa et al 2010: 13).

However, the study concluded that the effectiveness of speed cameras might also be subject to "road characteristics, such as the speed limits, or the presence of traffic lights" (Novoa et al 2010: 16).

### Case Study 7 - UK:

Speed cameras were introduced in West London in 1992 under section 23 of the 1991 Road Traffic Act (Corbett 2000: 307) to help “reduce traffic speeds, traffic collisions, and casualties” (Pilkington 2003: 293).

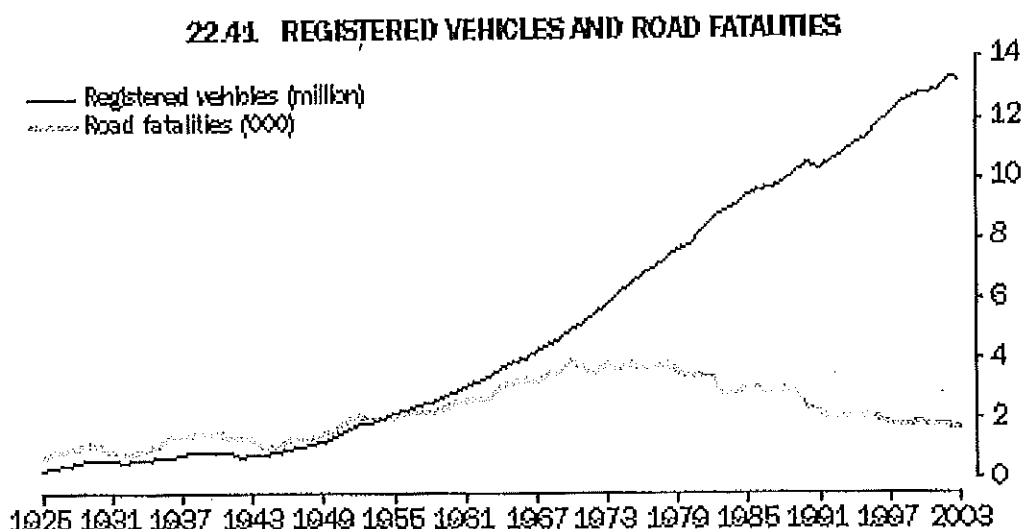
A four year speed camera evaluation report in 2005 found that the number of killed or seriously injured casualties (KSIs) at camera sites fell by 42% – 27% in rural areas and 73% in urban areas (Gains et al 2005: 33). However, some of these reductions were due to the effects of regression-to-mean (Gains et al 2005: 33). The number of personal injury collisions (PICs) also fell by approximately 22% - 15% in rural areas and 85% in urban areas – but the study noted that ‘a modest proportion’ of these reductions were due to RTM (Gains et al 2005: 34).

However, a report from the Transport Research Laboratory (TRL) found that speed cameras actually increased the risk of accidents by causing drivers to become distracted (Booker and North 2007: 215). TRL Report 595 found that speed cameras on open motorways and road works increased the risk of injury by 31% and 55% respectively, and that fatal or serious accidents were 32% more likely to occur in areas where speed cameras were being used (Booker and North 2007 215-216). Furthermore, a survey of rural drivers found that a substantial proportion of motorists perceived speed cameras to encourage dangerous driving behaviour, by causing motorists to watch their speedometers instead of the road, and increasing the risk of rear-end collisions because of drivers suddenly braking when sighting speed cameras (Blincoe et al 2006: 376).

As the graph in Appendix 2 demonstrates, the UK road toll has also declined at a slower rate since speed cameras were introduced (The Taxpayers’ Alliance 2010: 2). Furthermore, the number of road fatalities between 1998 and 2008 remained fairly steady, even though the number of speed cameras greatly increased during this period (Smale 2010).

In Australia, some analysts also note that there was a long-term decline in the road toll up until 1997 of almost 3% each year (Buckingham in Cadogan 2004: 30), as Figure 1 on the next page demonstrates. But this rate has stalled since then, which corresponds to the increasing use of speed cameras in Australian states (Buckingham in Cadogan 2004: 30).

Figure 1: Australian Road Toll from 1925-2003



Source: Australian Bureau of Statistics 2006

Furthermore, studies into driver behaviour have found that not all drivers respond to speed cameras in the same way (Blincoe et al 2006: 372). For example, there are 'conformers', or drivers who are not affected by speed cameras because they usually comply with speed limits (Corbett 2000: 309-310). There are also 'deterred' drivers, who reduce their speeds on speed camera roads to avoid being caught (Corbett 2000: 310). Then there are 'manipulators', who slow down on the approach to a speed camera, before accelerating away once they have passed the camera, and 'defiers', who continue to speed regardless of the presence of speed cameras (Corbett 2000: 310).

## 4.2 Speed Cameras as Revenue Raisers:

Some analysts argue that a little revenue-raising from speed cameras is acceptable, because since speeding is considered to be dangerous and have socially undesirable effects, “raising money from the taxation of socially undesirable behaviour – whether it be smoking, emitting greenhouse gases or parking at road junctions – is a perfectly sound principle” (New Statesman 2004: 5).

However, the excessive amount of revenue that has been raised by speed cameras has caused concern among motoring groups, road safety analysts and politicians in Australia and around the world. The Queensland Police Union even raised concerns about the use of speed cameras in Queensland, stating that increasing the number of cameras was “simply an exercise in revenue-raising” (Queensland Police Union in Poyhonen 2010) which would not reduce the road toll.

Furthermore, motorists are becoming increasingly concerned about the placement of cameras, with studies demonstrating that many motorists perceive speed cameras to be used in areas where there is no significant accident history (Soole, Lennon and Watson 2008: 225). A Queensland driver attitudes study also found that revenue-raising claims occurred when there was “a perceived sense of trickery or lack of transparency in speed enforcement operations and the purpose of speed enforcement efforts” (Soole, Lennon and Watson 2008: 224).

Revenue-raising controversies have also occurred in other Australian states, and in other countries around the world, as the three case studies below demonstrate.

### Case Study 8 - Tasmania:

In 2010, it was revealed that Tasmanian Police are expected to issue a minimum of 7,450 tickets to drivers exceeding the limit by 15kmh, and a minimum of 845 tickets to drivers exceeding the speed limit by 30kmh (Brown 2010). Acting Commissioner, Darren Hine, said that each police district had benchmarks for a range of crimes and that it was “a perfectly normal way of policing” (Hine in Brown 2010). Tasmanian Police Minister, Lin Thorp, also claimed that these benchmarks were a measuring tool, not a revenue-raising tool (Thorp in Brown 2010).



**Case Study 8 – Tasmania (*continued*):**

However, a 2009 Auditor-General's report found that more speed cameras were located on roads below 60kmh in Tasmania, even though police statistics demonstrated that more fatalities occur on 100-110 kmh roads (ABC 2010a). Additionally, only two of the state's top 10 accident locations were also in the top 10 speed detection sites (ABC 2010a).

**Case Study 9 - Victoria:**

One of the state's biggest speed camera controversies occurred in 2003, when a faulty speed camera issued up to 165,000 speeding fines (Willis 2005: 9). This cost some motorists their licenses and jobs, Victorian taxpayers \$26 million and severely undermined public confidence in the accuracy and purpose of speed cameras (Willis 2005: 9).

In 2008, a Herald Sun survey also found that more than 70% of Victorian police officers believed that speed and red light cameras were more about revenue-raising than road safety (Fallah 2008). While 3,459 police officers were surveyed, only 6%, or 207 officers, believed that speed cameras helped save lives (Fallah 2008). This evidence is supported by former Victorian Police Assistant Commissioner (traffic), Noel Ashby, who stated that from his own experiences in the police force, "as far as the Government was concerned, it was always as much about revenue-raising as it was about road safety" (Ashby in Moor 2010).

In 2010, it was revealed that Victorian Assistant Police Commissioner, Luke Cornelius, filed an affidavit claiming that the government tried to pressure him into fining motorists that were caught by faulty speed cameras in 2007 (ABC 2010). However, Victorian Police Minister, Bob Cameron, denied that speed cameras were used to raise revenue in Victoria and that an Auditor-General's report in 2006 reached the same conclusions (ABC 2010).

Nevertheless, budget papers demonstrate the Government's intentions to collect \$437 million from speed cameras in 2010 and install more fixed cameras across the state (Moor 2010). However, according to former VicRoads Manager, John Lambert, although Victorian drivers are the most heavily fined in the world by a factor of ten, there is no significant reduction in the road toll that correlates to this (Lambert in A Current Affair 2010).

### Case Study 10 - UK:

In England and Wales, speed camera revenue in 2008-9 was £65,748,850 (The Taxpayers' Alliance 2010: 2). However, in 2010, the Government cut its road safety grant to local authorities from £77 million to £56 million and withdrew funding for new speed cameras (Satchell 2010). This has put many regional speed camera programs in jeopardy and has resulted in councils reducing or totally removing their cameras. For example, Somerset Council is removing one-third of its cameras and in Wokingham, Berks, councillors said that funding cuts meant that "other road safety schemes were a higher priority than catching people who are speeding" (Dawa 2010).

In 2009, Swindon became the first UK town to abolish speed cameras (PoliceSpeedCameras.info 2010). The Swindon Council withdrew funding for the program stating that money would be spent on alternative speed-reducing methods, such as education, better street lighting and reduced speed limits in problem areas (PoliceSpeedCameras.info 2010). The cameras were removed partly because the Council were forced to pay for their maintenance while the Government collected the speed camera revenue (PoliceSpeedCameras.info 2010), and partly because they were ineffective in reducing road accidents, with only 6% of crashes in the area caused by speeding motorists (Smale 2010). Furthermore, in the first six months after the speed cameras were removed, the number of accidents across the old speed camera sites remained the same (Smale 2010).

In Oldham, road casualty rates have also remained static for the past five years, despite the widespread use of speed cameras (PoliceSpeedCameras.info 2010). In the same period, speed cameras in the area have generated over £350,000 in fines (PoliceSpeedCameras.info 2010). Additionally, £5 million pounds a year has been generated from speed cameras in the Avon and Somerset counties, even though data collected by the Avon and Somerset police found that only 3% of accidents were caused by drivers exceeding the speed limit (Booker and North 2007: 217).

Alternatively, Durham was the only police district in Britain that refused to install speed cameras (Booker and North 2007: 214). Paul Garvin, the chief constable of Durham, explained that from 1,900 accidents in the county each year, only 3% (or 60 accidents) were caused by excessive speed (Booker and North 2007: 214). Instead, drug-taking and fatigue were major factors in fatal accidents in the area (Booker and North 2007).

### 4.3 Life-Saving or Revenue-Raising - The South Australian Context:

From 1990-2002, more than 2.35 million expiation notices were issued and over \$283 million dollars in revenue was collected from speed cameras in South Australia (not including on-the-spot speeding fines and fines from laser cameras) (Cameron 2002: 579). However, as Table 1 below demonstrates, this has not had a significant effect on the number of fatalities in the state. (Revenue statistics after 2002 were not available).

**Table 1: Revenue Collected and Road Fatalities in South Australia from 1992-2001**

Year	Fines Issued	Revenue Collected	Road Fatalities
1992	245,788	\$26,879,224	165
1993	235,216	\$25,724,612	218
1994	204,108	\$22,903,510	159
1995	198,302	\$22,972,131	181
1996	193,302	\$27,217,258	181
1997	275,171	\$37,734,092	149
1998	274,016	\$36,327,819	168
1999	239,006	\$27,321,759	153
2000	241,234	\$28,492,872	166
2001	244,347	\$28,139,847	154

Source: Cameron 2002: 579

Instead, other road safety measures have had more of a pronounced effect on the road toll. For example, in 2003, mobile random breath testing, dual speed and red-light cameras and 50 kmh speed limits were introduced, which reduced the road toll the following year from 156 to 139 (The Advertiser 2009). In 2005, the introduction of 24 hour mobile RBTs, anti-hoon driving legislation and immediate loss of license for drink-driving reduced the road toll from 147 to 117 in 2006, and the introduction of drug-driving testing in 2007 and 2008 also lowered the road toll from 125 to 99 (The Advertiser 2009).

However, the only major change in traffic enforcement before these initiatives was the introduction of advanced speed cameras in 1999 (The Advertiser 2009), which had no significant effect on the road toll. In fact, the road toll actually *increased* by 13 the following year, even though speed camera revenue increased by over \$1 million from 1999-2000.

Furthermore, a driver behaviour study from the University of Adelaide found that although the number of speeding motorists caught by speed cameras had increased by 70%, “the only measurable effect [of speed cameras] on driver behaviour was that it may have helped reduce speed by 0.76kmh” (Kemp 2010). Additionally, from 2007 to 2008, the percentage of speed-related fatalities remained almost unchanged in the state, causing 37% and 36% of fatal accidents in those years respectively (Kemp 2010).

In 2009, 119 fatalities were recorded on South Australian roads, which increased from 99 in 2008 (Nankervis 2010). However, the number of motorists caught on fixed cameras increased by 3713 up to November 2009, compared to the same time in 2008 (Nankervis 2010).

Furthermore, according to South Australian Police Commissioner, Mal Hyde, a road toll of only 99 in 2008 was due to road-rule changes that had been initiated five years earlier when the road toll was 156 (The Advertiser 2009). These initiatives included localised police campaigns instead of state-wide campaigns, a blitz on country roads and an increased focus on drug testing and school education programs (The Advertiser 2009). However, Mr Hyde did not mention that speed cameras had contributed to this reduction in the road toll.

Traffic Support Branch officer-in-charge, Superintendent Mark Fairney, also noted that the rural highway saturation management program was a major factor in reducing the road toll in 2008, stating that “it is about more police rubber on the road state-wide” (Fairney in The Advertiser 2009).

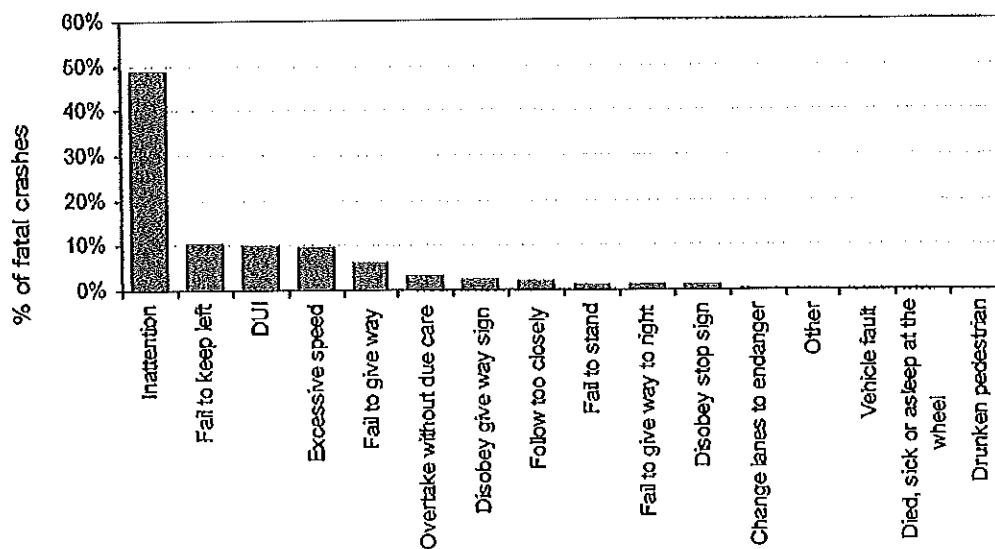
Furthermore, officer-in-charge of the Traffic Camera Unit, Senior Sergeant Marsh, also believes that there should be a balance between the use of speed cameras and police patrols on the road (Marsh 2010). He described speed cameras as a long-term strategy to change driver behaviour, but police patrols as an immediate response to motorists engaging in dangerous driving practices, because police are able to take these drivers off the road straightaway (Marsh 2010).

Dangerous driving practices, such as inattention and drink-driving, are also more likely to cause accidents, compared to motorists that slightly exceed the speed limit. For example, in South Australia in 2009, 36% of people who died in road accidents had a Blood Alcohol Concentration (BAC) of 0.05% or higher (SA Police 2010). Inattention was also reported as a contributing cause of 52% of fatal accidents and 47% of serious injury accidents from July

2009 to June 2010 (Department for Transport, Energy and Infrastructure 2010a). Furthermore, the number of South Australian motorists who admitted to using a mobile phone while driving increased from 42% in 2006 to 61% in 2009 (Department for Transport, Energy and Infrastructure 2010a). However, studies have shown that using a mobile phone when driving increases the risk of an accident approximately four times (Government of Victoria 2008 in Spoehr and Parnis 2010: 13). On the other hand, increasing a 60kmh speed limit by 5kmh doubles the risk of a casualty accident (Kloeden, Edwards and McLean 2009: 7).

As Figure 2 below demonstrates, 2004 data also found that the largest factor causing rural accidents in South Australia was inattention, with excessive speed only the cause of 10% of accidents (Spencer 2004).

Figure 2: Apparent Error of Fatal Crashes in Rural Areas



Source: Spencer 2004

Subsequently, as a motorcycle police officer interviewed for a Police Association of South Australia report noted, “interacting with people has the greatest driver deterrent and driver rehabilitation. A speed camera won’t pick up seatbelt infringements, or mobile phone [use] or bad driving” (Spoehr and Parnis 2010: 20) - a view also shared by the president of the Queensland Police Union (Poyhonen 2010).

Therefore, based on this evidence, increasing police patrols instead of using speed cameras appears to be a more effective measure in reducing the number of dangerous drivers who

cause accidents on South Australian roads. However, recent budget cuts by SAPOL has resulted in highway motorcycle patrols being cut from 50 to 22, although this has now been compromised to 36 (Spoehr and Parnis 2010: 5). Nevertheless, a simple solution to this problem is to reduce funding for speed cameras, so that police patrols can be increased – instead of decreased - in both urban and regional areas.

**Recommendation 1: Increase police patrols on roads**

Revenue-raising debates in South Australia have also been very prevalent over the years. For example, from 2000-2001, only two of the top 10 locations for speed camera revenue in South Australia were also in the top 10 locations for casualty accidents, as demonstrated in Table 2 below.

**Table 2: Top 10 Locations for Speed Camera Revenue Compared to Top 10 Locations for Casualty Accidents in 2000-2001**

Top 10 sites for speed camera revenue	Top 10 sites for casualty crashes
Adelaide	Adelaide
Morphett Vale	North Adelaide
Blair Athol	Morphett Vale
Grange	Mount Gambier
Glenelg North	Salisbury
Happy Valley	Norwood
Croydon Park	Murray Bridge
Seaton	Prospect
O'Halloran Hill	Modbury
Parafield Gardens	Pooraka

Source: Holloway 2003: 1746

Furthermore, from 1997-2001, although the number of fatalities on rural roads was higher compared to urban roads, 90% of the expiation notices and revenue collected from speed cameras were issued in the city (Cameron 2002: 583).

In 2005, drivers were also fined more than \$2.5 million for slightly exceeding the speed limit on just three roads in the city of Adelaide (PoliceSpeedCameras.info 2005). On King William Road between North Terrace and North Adelaide alone, speed cameras raised \$926,586 in 2004 from motorists travelling more than 50kmh, but under 60kmh (PoliceSpeedCameras.info 2005).

Statistics released under Freedom of Information laws in 2009 further revealed that only “two of the top 10 revenue-raising speed camera sites were located in SA’s worst black spots” (Nankervis 2010). 2009 police data found that black-spots in Adelaide were on main arterial roads, but major revenue-raising roads were in the Adelaide CBD and eastern suburbs (Nankervis 2010). This indicates that speed cameras in South Australia are not being used effectively or in the right locations.

Furthermore, State Opposition Police Spokesperson, David Ridgway, revealed that 2010 Parliamentary Estimates demonstrate that the Government has a financial target that it wants to meet from the use of speed cameras (Ridgway 2010). The Government has indicated that it wants to raise an extra \$44.8 million from speeding fines over the next three years (Ridgway 2010). However, although the Government claims that speeding fines are a ‘voluntary taxation’, Police Minister Michael Wright even admitted that “the argument could be made that fines were increased to raise extra revenue” (Wright in Ridgway 2010). In 2008-9 speed camera revenue in South Australia was estimated to be \$77 million (Zollo 2008: 317).

Therefore, the operation of speed cameras in South Australia needs to be more transparent. For example, it is not possible to find speed cameras locations from previous weeks on the internet, as speed camera locations are only available for the current week. However, if such information was made available, it would demonstrate the government and the police’s long-term commitment to reducing the road toll with the use of speed cameras. South Australians should also be able to easily access information about where speed cameras are located in relation to accident black-spots; the areas in the state where the most speed camera revenue is raised, and how money from the Community Road Safety Fund is spent on road safety initiatives. Increasing transparency about how speed cameras are used will consequently also increase transparency about the purposes of the program.

**Recommendation 2: Increase transparency**

In 2009, South Australian Police Commissioner, Mal Hyde, “scrapped the requirement for signs to be placed in areas where cameras are operating” (Zed, Noonan and Vaughan 2009). Camera operators now do not have to place warning signs to notify motorists that speed cameras are in use, after industrial action was launched by camera operators who were concerned about increasing attacks from motorists (Zed, Noonan and Vaughan 2009). These attacks included rocks being thrown through speed camera car windscreens and verbal abuse and threats made against camera operators (Zed, Noonan and Vaughan 2009).

However, the fact that motorists are reacting violently against camera operators suggests that they are angry with how speed cameras are used in the state. Furthermore, if large numbers of low-level speeding motorists continue to be convicted, this could erode the relationship between the police and the public, by alienating people on whose goodwill the police rely upon (Buckingham in Cadogan 2004: 31). A fractured relationship between the police and the public not only negatively affects the reputation of the police profession, but could also significantly inhibit the police’s ability to effectively administer other road safety measures.

Figure 3: An example of one of the speed camera signs situated on roads around Adelaide.



Photograph taken by Jasmin Weatherley



## 5. Rural South Australia:

Although some research has been conducted into the use of speed cameras in rural regions in other countries, little research appears to have been done in this area in Australia, despite road fatalities in Australia often being higher in regional areas.

In South Australia, nearly 12,000 deaths have been recorded on the roads since 1950, with over 60% of these occurring in rural areas (Cameron 2002: 579). In 2009, 66% of the 119 fatalities on South Australian roads were in rural areas (Department for Transport, Energy and Infrastructure 2010). 53% of serious injuries also occurred on regional roads last year (SA Police 2010).

From 2005-2009, 59% of fatalities and 45% of serious injuries from road accidents occurred in rural regions, compared to 41% and 55% in urban areas respectively (see Appendix 1) (Department for Transport, Energy and Infrastructure 2010). During this time, 68% of serious casualties in regional areas also involved people who lived in rural areas (Department for Transport, Energy and Infrastructure 2010). Furthermore, over this five year period, 616 accidents occurred within rural towns in speed zones of 80 kmh or less, but 1,977 accidents occurred outside rural towns in speed limits over 80 kmh (Department for Transport, Energy and Infrastructure 2010).

However, Senior Sergeant Marsh noted that while police are aware of the extent of rural crashes, there are limitations to enforcement in these areas (Marsh 2010). While the sheer size and distance of the South Australian road network is one problem, another is that local communities are soon aware of an upcoming speed camera blitz in the region, because police have to book accommodation in rural areas months in advance (Marsh 2010). Therefore, while this makes the use of speed cameras in rural areas problematic, Senior Sergeant Marsh noted that "we have other rural initiatives that we focus on too" (Marsh 2010).

In 2008, research found that 67% of rural accidents occurred on rural highways, whereas only 4.2% of accidents occurred on rural streets, as demonstrated in Table 3 on the next page. (Baldock, Kloeden and McLean 2008: 6). This is supported by data from 2005-2009, which found that 64% of fatal and serious injury road accidents in rural areas occurred in 100-110 kmh speed limits (Department for Transport, Energy and Infrastructure 2010).

**Table 3: Crash Locations on Rural Roads**

Road Type	Number	Percent
National Highway	30	12.7
Rural Highway	159	67.4
Rural Road	37	15.7
Rural Street	10	4.2
<b>Total</b>	<b>236</b>	<b>100</b>

Source: Baldock, Kloeden and McLean 2008: 6

However, a four week observation of the placement of speed cameras in regional South Australia for this report suggests that the location of speed cameras does not correlate with where accident fatalities are occurring in regional areas.

From the 27<sup>th</sup> September until the 31<sup>st</sup> October 2010, the location of speed cameras released on the police website were recorded and noted on Google Maps each week (see maps in Appendix 3). One of the limitations of these observations was that it was not possible to determine exactly where the speed camera was located on the road, only on what road they were used on. Furthermore, two of the roads – Highway 47 at Hawker and The Causeway at Port Augusta – were excluded, because they were not able to be located on Google Maps. Port Victoria Road in Port Victoria was also excluded, because there were two Port Victoria roads – Port Victoria-Maitland Road and Port Victoria-Wauraltee Road – and the police website did not specify which one of these roads the camera was located on.

Although only four weeks were able to be observed, preliminary results suggest that speed cameras are not being used in areas where accidents occur. For example, it can be decisively concluded that 37% of cameras in the study were placed directly inside a rural town on a rural street, even though the data above demonstrates that only 4.2% of accidents occur in these areas. 37% is also a conservative figure, because cameras placed on main roads that ran through a town were excluded, as it was not known whether the camera was placed on the main road inside the town or on the main road outside of the town.

Therefore, responsibility for speed camera enforcement in South Australia should be decentralised and transferred to local police, especially in regional areas. This is because “local authorities...are best placed to decide how to make their roads safer” (King in Millward

2010). Local police are also more knowledgeable about road safety and speeding issues in their local region. Furthermore, by transferring responsibility to local police, enforcement problems – such as locals knowing when cameras will be used in the area – could be reduced. In order to further decentralise the speed camera program, the officer-in-charge of the Traffic Camera Unit in South Australia, instead of the Police Commissioner, should also have the final decision about where speed cameras are located.

**Recommendation 3: Transfer responsibility for speed camera enforcement  
to local police**

However, police officers interviewed for a Police Association of South Australia (PASA) report, consistently stated that there was a need for increased rural policing, but that “budget cuts imposed by SAPOL had led to a decline in recent rural traffic policing activity” (Spoehr and Parnis 2010: 21). SAPOL reports have also admitted that the current traffic policing system is resulting in less ‘high visibility policing’ in regional areas (Spoehr and Parnis 2010: 20). For example, a Police Traffic Support Branch report indicated that there was a decrease in rural highway patrol activity in 2010, compared to the same time in 2009 (Spoehr and Parnis 2010: 20).

Interviewees for the PASA report also noted that benchmarks imposed by SAPOL meant that police were patrolling roads “where it is realistic that they will achieve their required benchmarks and not on minor rural roads where many fatalities happen” (Spoehr and Parnis 2010: 17). Interviewees also asserted that SAPOL management had regularly directed police from the Northern and Southern Traffic Enforcement Sections’ to remain in metropolitan areas and not go out to patrol rural areas (Spoehr and Parnis 2010: 21), despite overwhelming evidence demonstrating that more accidents occur on rural roads.

The role of the Northern and Southern Traffic Enforcement Sections’ in policing rural roads also appeared to be “subsumed by events and corporate operations centred in the metropolitan area” (Spoehr and Parnis 2010: 20). Furthermore, although South Australia now has a record number of sworn police officers – with the Government recruiting 400 additional police officers from 2006-2010 - only 19 of these 400 officers (or 4.75%) have been placed in a position that could be considered “related to traffic policing” (Spoehr and Parnis 2010: 19). However, there are currently 67 vacancies for police officers in regional areas in South

Australia, which suggests that “SAPOL has not maximised its opportunity to resource rural traffic positions despite record numbers of sworn officers” (Spoehr and Parnis 2010: 19).

In 2008, the Liberal Party supported a motion by the Hon. Bob Such, Member for Fisher, to establish a select committee to inquire into the effectiveness of speed cameras in reducing accidents, injuries and fatalities, and in particular, whether these cameras are being used for revenue-raising or for road safety purposes (Such 2008: 395).

This report has presented evidence demonstrating that speed cameras are ineffective in reducing road fatalities around the world to the extent that governments claim that they do. Furthermore, their effectiveness in reducing the road toll in South Australia is also questionable, as is the purpose for which they are being used. Therefore, this select committee should be established to investigate the operation of speed cameras in the state.

**Recommendation 4: Establish a select committee into the effectiveness of speed cameras in South Australia**

In order to support the work of this committee, further research is needed into the use of speed cameras in South Australia. Preliminary research in a four week study analysing speed cameras in regional South Australia suggests that the location of cameras does not correlate with where accidents occur in regional areas. However, more detailed research needs to be undertaken in this area, by investigating exactly where speed cameras are placed in regional – and urban – areas in relation to accident black-spots.

**Recommendation 5: Undertake further research to investigate the placement of speed cameras in South Australia, especially in comparison to accident black-spots**

## 6. Alternatives to the Speed Camera Policy:

The Australasian College of Road Safety notes that “in terms of the National Road Safety Strategy, there is no issue of greater importance than the necessity for safer roads and safer roadsides...[which] should not be lost in the fog of well-intended but disparate efforts to improve driver behaviour” (Australasian College of Road Safety 2004: 55-56). Improving roads and roadsides is especially important in rural areas, because it can help to reduce the severity of crashes (Australasian College of Road Safety 2004: 56).

A South Australian study found that single vehicle accidents were responsible for 44% of rural crashes investigated (Baldock, Kloeden and McLean 2008: 40). Furthermore, the most commonly identified road factor that caused almost half of all the single vehicle crashes investigated was an unsealed shoulder (Baldock, Kloeden and McLean 2008: 40). Although excessive speed was also a factor, this demonstrates that road conditions can also significantly contribute to a loss of vehicle control on rural roads.

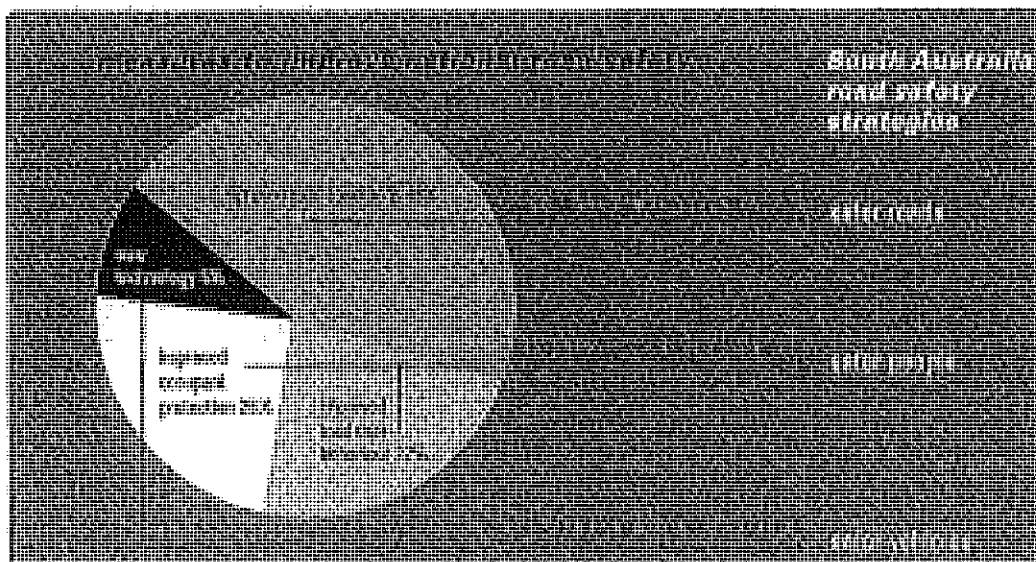
One of the suggested solutions to this problem was to seal the left shoulder on all right-hand curves on rural roads (Baldock, Kloeden and McLean 2008: 40). This is because drivers tend to overcorrect their vehicles when they drift onto an unsealed shoulder, which results in them losing control of the vehicle (Baldock, Kloeden and McLean 2008: 40). Therefore, it may also be beneficial to educate drivers about appropriate vehicle responses should such a situation occur (Baldock, Kloeden and McLean 2008: 40).

In accidents resulting from collisions with roadside hazards and trees, it was found that over 90% of trees, poles and fences struck by vehicles were within nine metres of the edge of the road (Baldock, Kloeden and McLean 2008: 105). Therefore, it was also recommended that a ‘clear zone’ of at least nine metres be developed on the sides of rural roads that have a speed limit of 80kmh or more (Baldock, Kloeden and McLean 2008: 105). This is because the “further from the edge of the road [that] a hazard is located, the less likely it is to be struck and the lower the impact speed in the event of a collision” (Baldock, Kloeden and McLean 2008: 103). However, if this is not feasible, a barrier to protect drivers from colliding with roadside objects should be installed, or lower speed limits in these areas should be introduced, to reduce the likelihood of the vehicle leaving the road and colliding with the object (Baldock, Kloeden and McLean 2008: 105).

In urban areas, a study into the effectiveness of speed enforcement measures in the UK found that 'vertical deflections' on roads – such as road humps and speed cushions – reduced accidents by 44%, compared to only a 22% reduction in accidents with the use of speed cameras (Mountain, Hirst and Maher 2005: 748). Horizontal deflections, such as traffic islands and pinch points, also reduced accidents by 29% (Mountain, Hirst and Maher 2005: 748). Furthermore, fatal and serious injury accidents were reduced by 34% with vertical deflections, but only fell by 11% with speed cameras and 14% with horizontal deflections (Mountain, Hirst and Maher 2005: 748).

Figure 4 below also demonstrates that the South Australian police's own road safety strategy suggests that 48% of future road safety initiatives should come from improved road conditions and not speed cameras.

**Figure 4: Measures to Improve Road Safety**



Source: SA Police 2006

Therefore, alternative policy solutions should be considered so that the most effective road safety policy can be developed. While speed cameras do not necessarily have to be entirely disregarded, the issue at hand is “the place that speed policy should have in the overall context of road safety” (Buckingham 2003: 11). Furthermore, poor road conditions often contribute to road accidents in rural areas. Therefore, alternative policy solutions and road safety initiatives to improve road conditions should also be developed and further researched.

**Recommendation 6: Consider alternative policy solutions**

## **7. Summary of Recommendations:**

The following recommendations have been developed from the research and evidence that has been presented in this report:

### **Recommendation 1 – Increase police patrols on roads:**

A number of factors other than speeding can contribute to road accidents. In South Australia, 36% of people who died in road accidents in 2009 had a BAC of 0.05% or higher (SA Police 2010); inattention was a contributing cause of 52% and 47% of fatal and serious injury accidents from July 2009 to June 2010, and the number of drivers who admitted to using a mobile phone when driving increased to 61% in 2009 (Department for Transport, Energy and Infrastructure 2010a). Therefore, although speed cameras do not capture these forms of dangerous driving, police patrols can.

### **Recommendation 2 – Increase transparency:**

South Australians should be easily able to access information about the operation of speed cameras in the state, including where they are located in relation to accident black-spots, where the most revenue is raised in urban and regional areas, and how money from the Community Road Safety Fund – where speed camera revenue is directed into - is spent on road safety initiatives.

### **Recommendation 3 -Transfer responsibility for speed camera enforcement to local police:**

Preliminary research in this report found that over a four week period, 37% of speed cameras were placed in rural towns on rural streets, even though research by Baldock, Kloeden and McLean (2008) found that only 4.2% of accidents occur in these areas. Therefore, responsibility for speed camera enforcement should be decentralised and transferred to local police, especially in rural areas, because local authorities are more knowledgeable about road safety and speeding issues in their region.

**Recommendation 4 – Establish a select committee into the effectiveness of speed cameras in South Australia:**

This report has used case studies from Australia and overseas to demonstrate that speed cameras do not have an impact on the road toll as much as governments claim that they do. The effectiveness of speed cameras in reducing the road toll in South Australia is also questionable, as is the purpose for which they are being used. For example, in 2009, only two of South Australia's top 10 revenue-raising speed camera locations were also in the state's worst black-spots areas (Nankervis 2010). Therefore, a select committee should be established to investigate the operation of speed cameras in the state.

**Recommendation 5 - Undertake further research to investigate the placement of speed cameras in South Australia, especially in comparison to accident black-spots:**

To support the work of a select committee and preliminary research that has already been undertaken in this report, further research is needed into the use of speed cameras in South Australia.

**Recommendation 6 - Consider alternative policy solutions:**

Ultimately, alternative policy solutions to reduce the road toll, especially in rural areas, should be considered. Furthermore, SAPOL's own road safety strategy suggests that 48% of future road safety initiatives should come from improved road conditions and not speed cameras (SA Police 2006).



## 8. Conclusion:

The issue of whether speed cameras are used to save lives or raise revenue has been prevalent in many countries around the world. However, this debate is simply not a matter of 'don't speed and you won't have to pay the fine', as many politicians espouse. Instead, it is a serious matter concerning the effectiveness of a road safety initiative, which is intended to reduce the number of fatalities and injuries on our roads. If speed cameras have little impact on the road toll, then an alternative policy solution that reduces road fatalities and injuries must be developed.

Furthermore, the idea that speed cameras reduce speeds, accidents and fatalities is often far too simplified. As studies have shown, there are a number of other factors that can affect the use of speed cameras and a number of road safety measures that can help reduce the road toll. The fact is that road safety does not begin and end with speed cameras, and speed cameras are not the only method that can influence driving behaviour. However, by simply focussing on speed and speed cameras to reduce the road toll, policymakers are ignoring other factors which contribute to the complex causes of accidents (Booker and North 2007: 213). As a report commissioned by the Police Association of South Australia noted, "there is insufficient attention devoted to the widely accepted view that road fatalities are influenced by a range of variables requiring a holistic policing response" (Spoehr and Parnis 2010: 23).

Therefore, through evidence presented in this report, it appears that there needs to be an investigation into South Australia's road safety policy and a fundamental restructuring of the state's speed camera program. This report recommends establishing a select committee to investigate this, which should be supported by additional research into the placement and use of speed cameras. This report also recommends increasing police patrols in both rural and urban areas, even though SAPOL recently reduced the number of highway motorcycle police patrols. Speed camera enforcement should also be transferred to local police, who are more knowledgeable about road safety and speeding problems in their region.

Ultimately, South Australians deserve a transparent road safety policy that will be the most effective in reducing accident fatalities and injuries. As a result, it may be time for the government to seriously reconsider its road safety policy so that it has "a broadened focus, not solely based on speed" (Roberts in Dawa 2010) and speed cameras.

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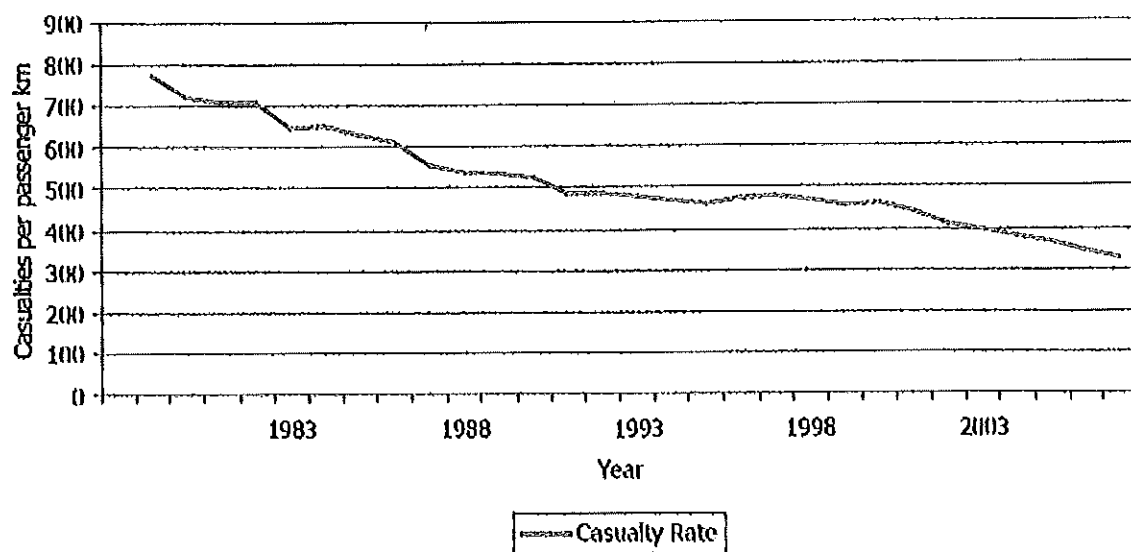
**Appendices:**

**Appendix 1: Rural and Regional Road Fatalities in South Australia from 2005-2009**

<b>Year</b>	<b>Urban</b>	<b>Rural</b>
2005	35%	65%
2006	46%	54%
2007	39%	61%
2008	44%	56%
2009	34%	66%

Source: Department for Transport, Energy and Infrastructure 2010

Appendix 2: Road Fatalities in the UK from 1978-2007:



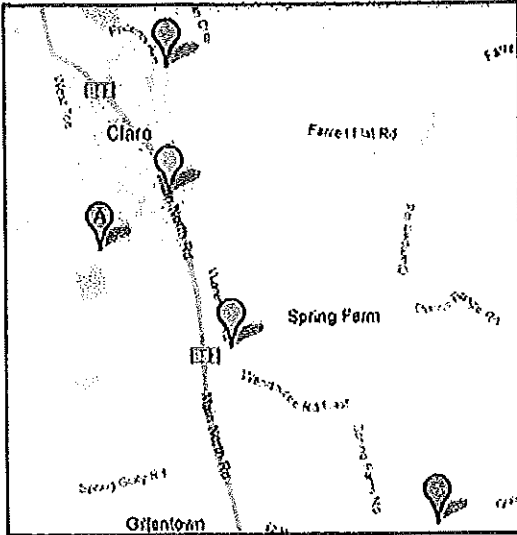
Source: The Taxpayers' Alliance 2010: 10



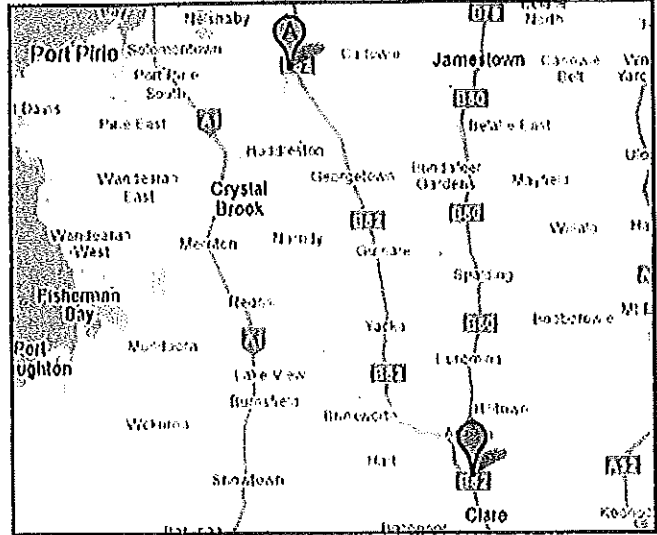
**Appendix 3: South Australian Speed Camera Location Maps:**

**WEEK 1: Selected Traffic Safety Camera Locations from Monday 27th September 2010 to Sunday 3rd October 2010**

**Clare:**



Map 1



Map 2

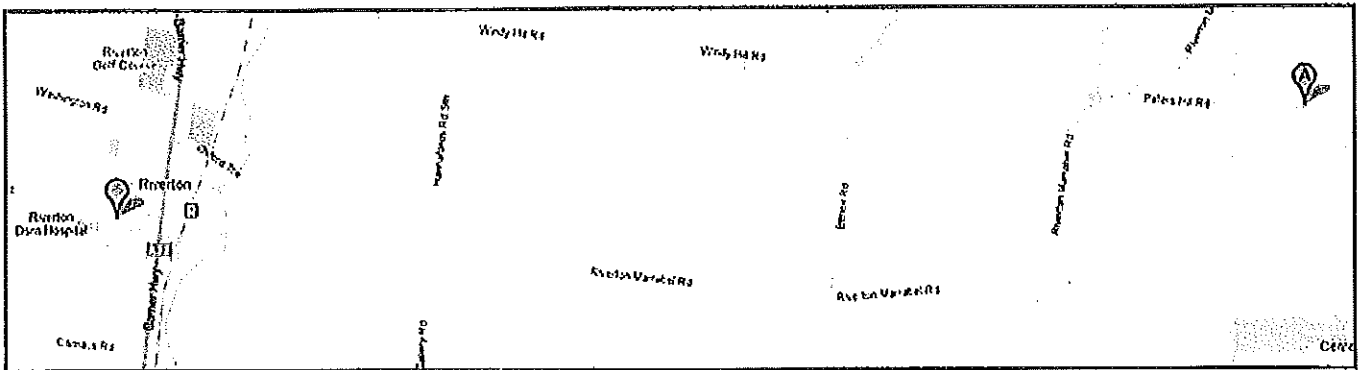
**Locations:**

- Main North Road (Map 1 – yellow)
- Quarry Road (Map 1 – purple)
- Farrell Flat Road (Map 1 – pink)
- Warena Road (Map 1 – orange)

- Clare-Spalding Road (Map 2 – purple)
- Laura-Port Pirie Road (Map 2 – red)
- Neagles Rock Road (Map 1 – red)

**WEEK 2: Selected Traffic Safety Camera Locations from Monday 4th October 2010 to Sunday 10th October 2010**

**Riverton:**

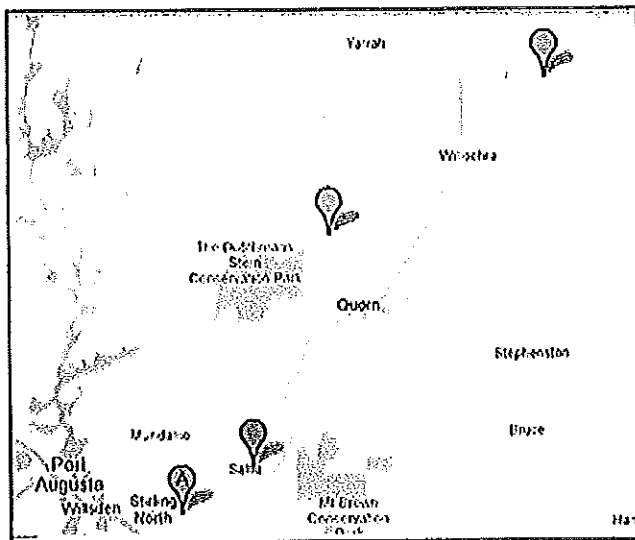


**Locations:**

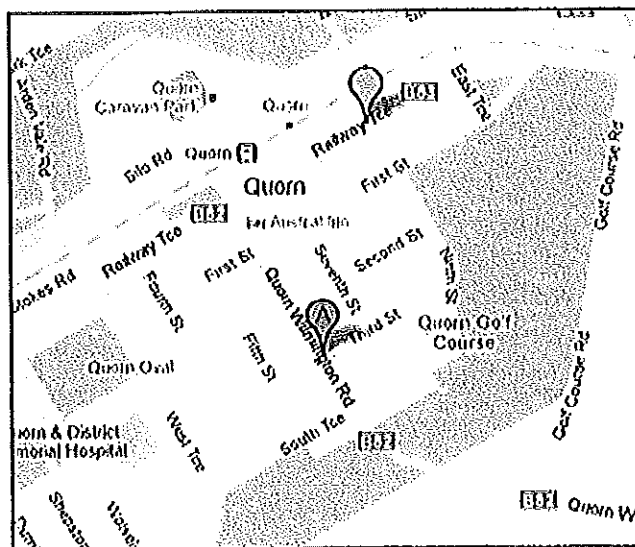
- Moorhouse Terrace (pink)

- Peters Hill Road (red)

**Quorn:**



Map 1

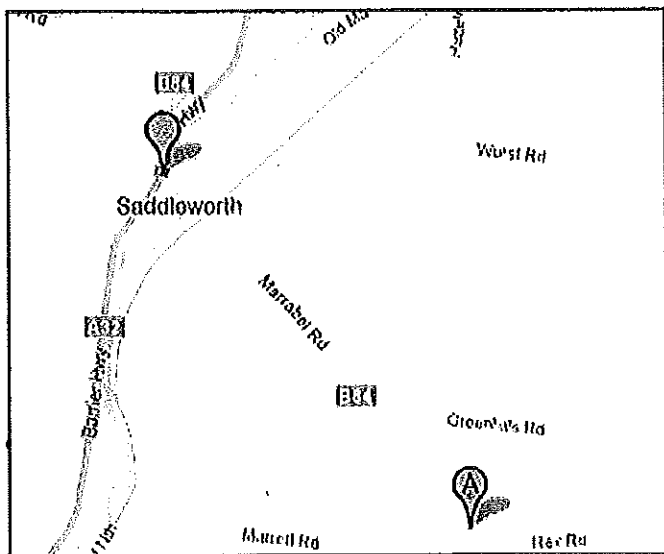


Map 2

**Locations:**

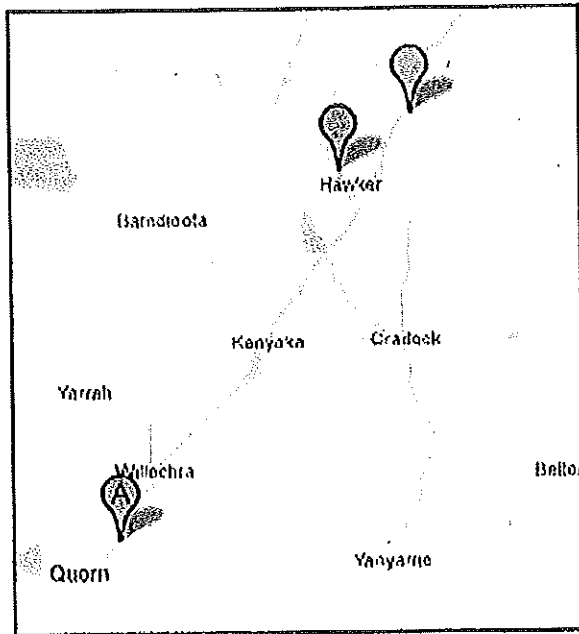
- Quorn-Hawker Road (Map 1- orange)
- Quorn-Port Augusta Road (Map 1 - purple)
- Hawker Road (Map 1- orange)
- Arden Vale Road (Map 1 - yellow)
- Stirling North Road (Map 1 - red)
- Port Augusta Road (Map 1 - purple)
- Railway Terrace (Map 2 - yellow)
- Sixth Terrace (Map 2 - red)

**Saddleworth:**



- Locations:**
- Burra Road (pink)
  - Marrabel Road (red)

**Hawker:**

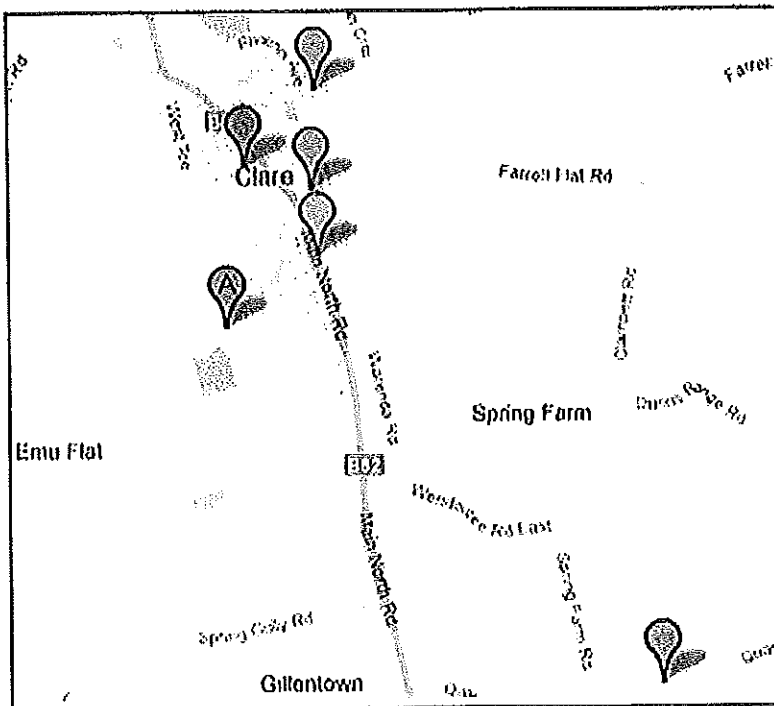


**Locations:**

- Wilpena Road (yellow)
- Blinman Road (yellow)
- Quorn Road (orange)
- Leigh Creek Road (purple)

Unable to locate: Highway 47

**Clare:**

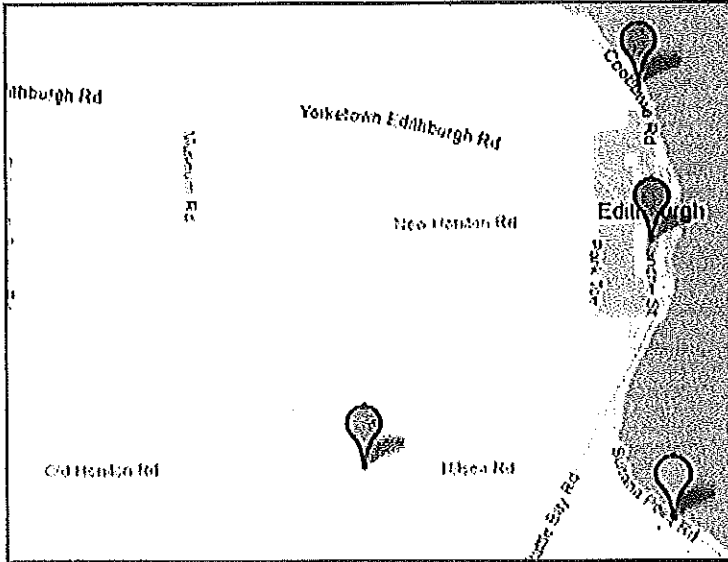


**Locations:**

- Farrell Flat Road (orange)
- Neagles Rock Road (red)
- Main North Road (yellow)
- Quarry Road (pink)
- Lennon Street (light orange)
- Strickland Street (purple)

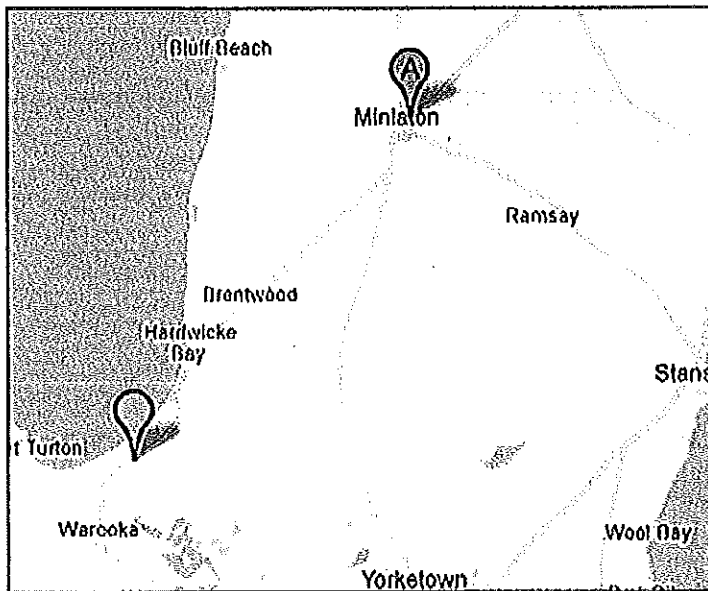
**WEEK 3: Selected Traffic Safety Camera Locations from Monday 11th  
October 2010 to Sunday 17th October 2010**

**Edithburgh:**



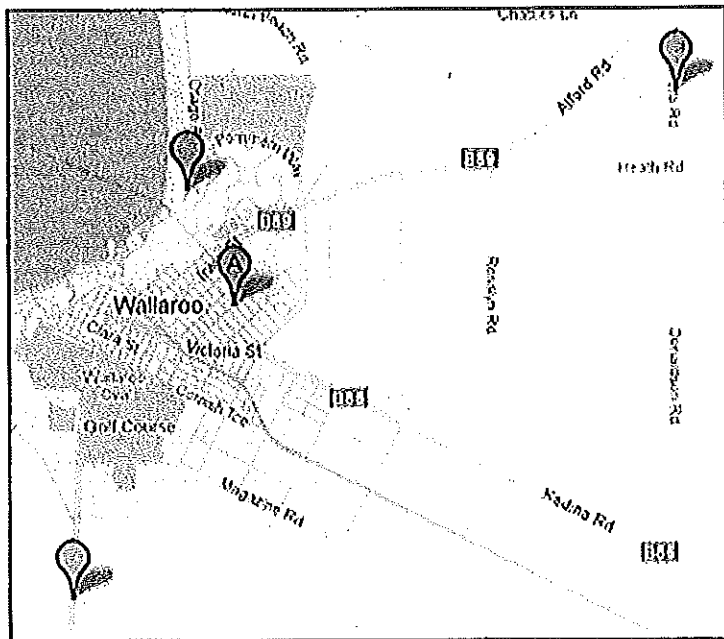
- Locations:**  
Coobowie Road (purple)  
Blanche Terrace (blue)  
Sultana Drive (yellow)  
Old Honiton Road (pink)

**Warooka:**



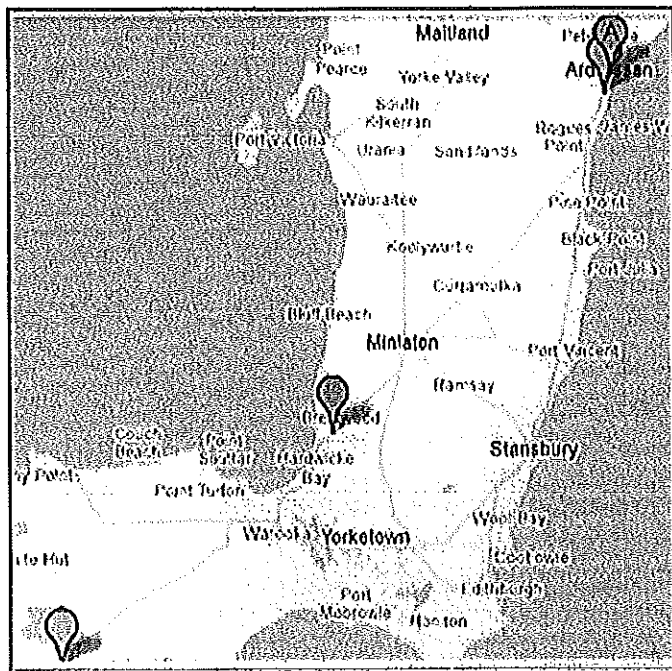
- Locations:**  
Park Terrace North (red)  
Brentwood Road (yellow)

**Wallaroo:**

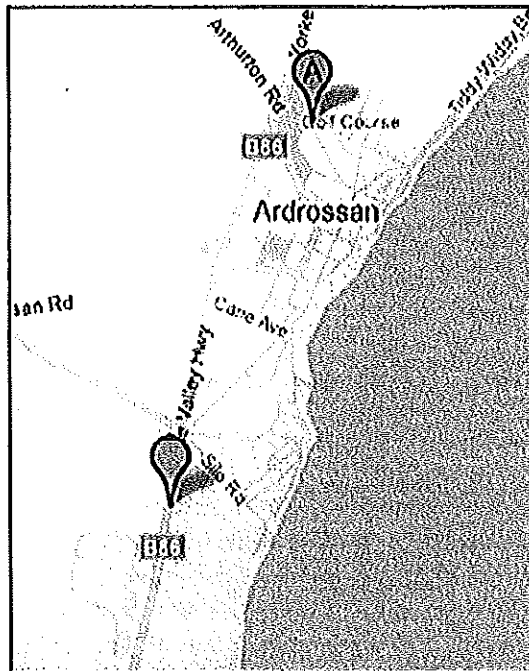


**Locations:**  
 North Beach Road (pink)  
 England Street (red)  
 Tickera Road (orange)  
 Wallaroo Road (yellow)

**Ardrossan:**



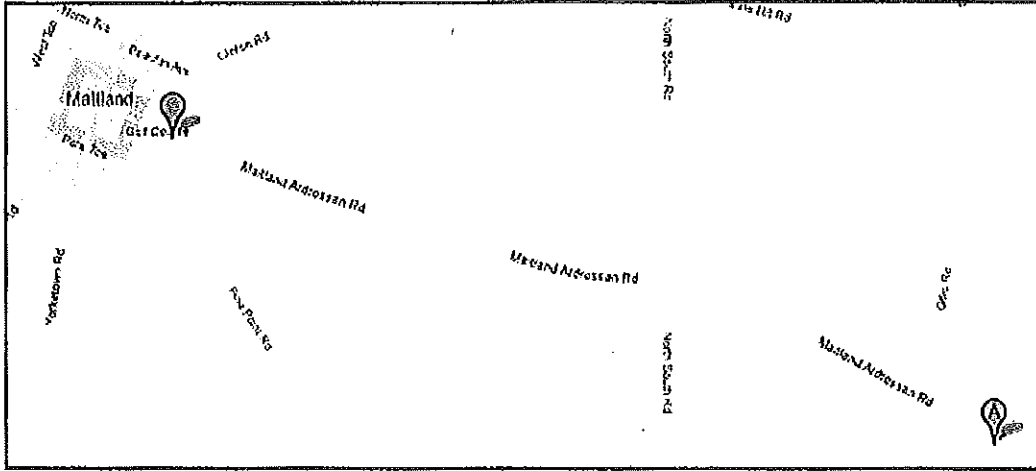
Map 1



Map 2

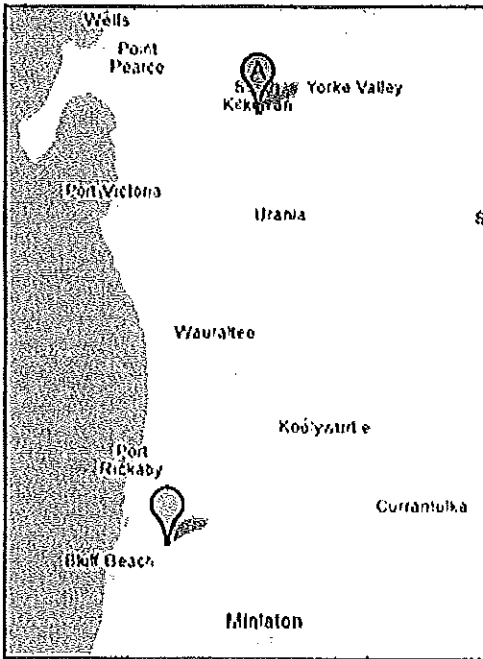
**Locations:**  
 Stenhouse Bay Road (Map 1 – yellow)  
 Minlaton-Warooka Road (Map 1 – purple)  
 Yorke Highway (Map 2 – pink)  
 Diagonal Road (Map 2 – red)

**Maitland:**

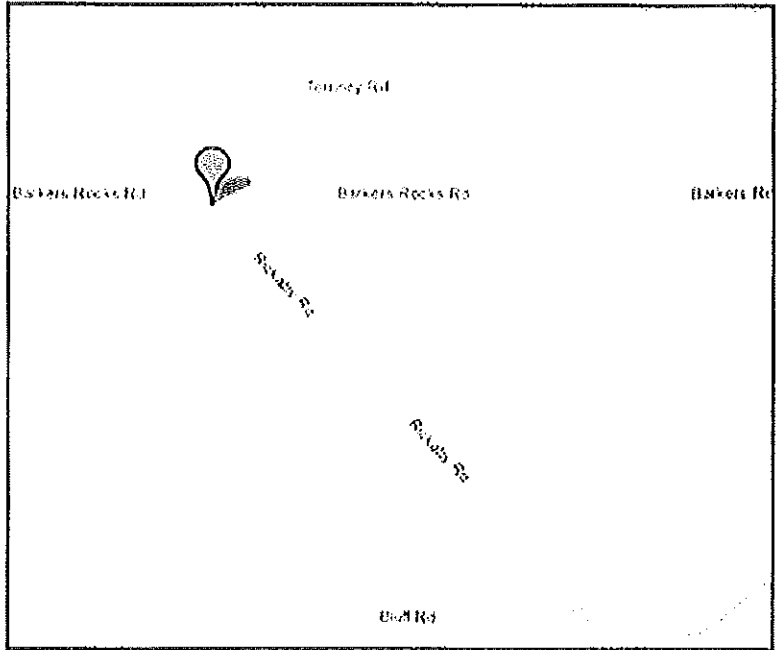


**Locations:**  
 Shannon Terrace (purple)  
 Ardrossan Road (red)

**Port Victoria:**



Map 1



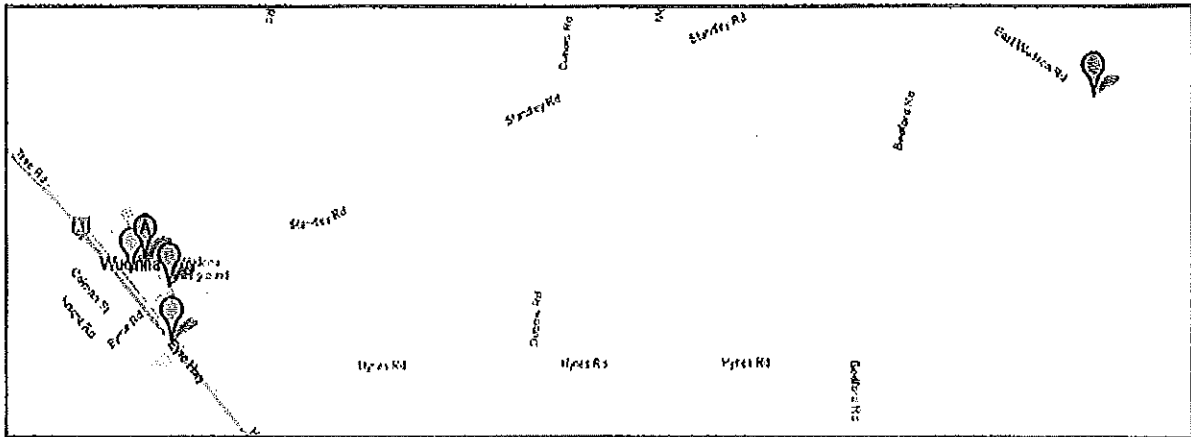
Map 2

**Locations:**  
 Maitland Road (red)  
 Rickaby Road (yellow – enlarged on Map 2)

Unable to locate: Port Victoria Road

**WEEK 4: Selected Traffic Safety Camera Locations from Monday 25th  
October 2010 to Sunday 31st October 2010:**

**Wudinna:**



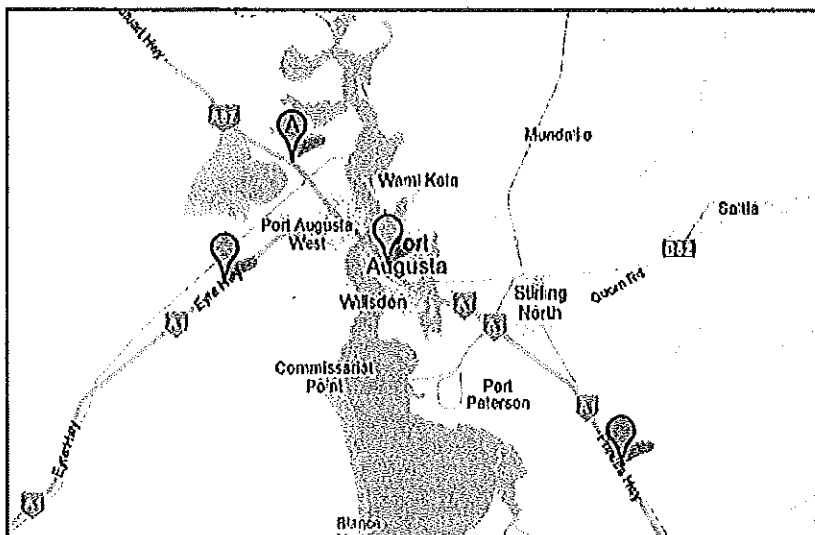
**Locations:**

Wudinna East Road (purple)  
Burton Terrace (yellow)

Naylor Terrace (pink)  
Medley Terrace (red)

Eyre Highway (orange)

**Port Augusta:**

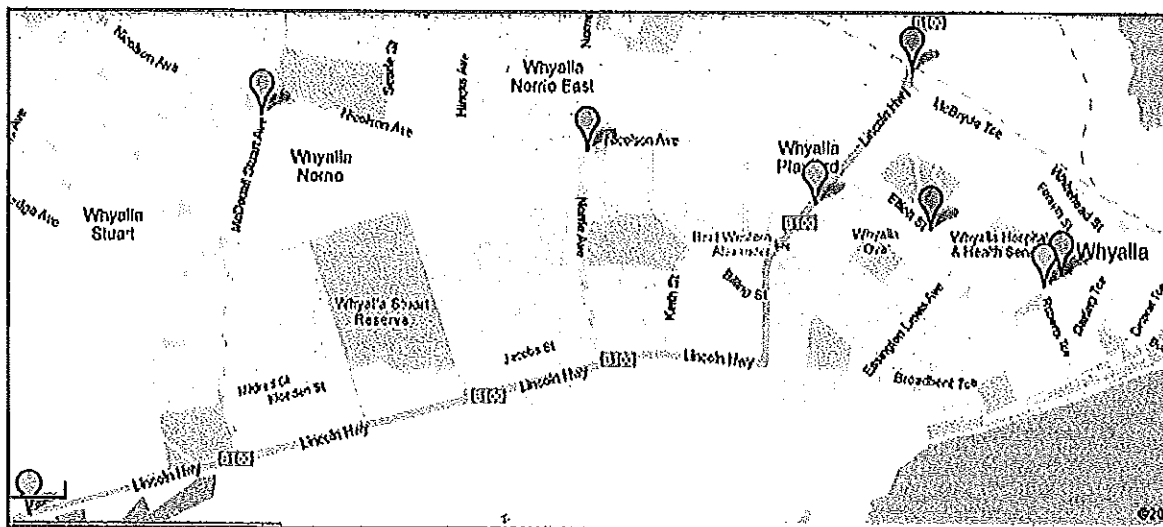


**Locations:**

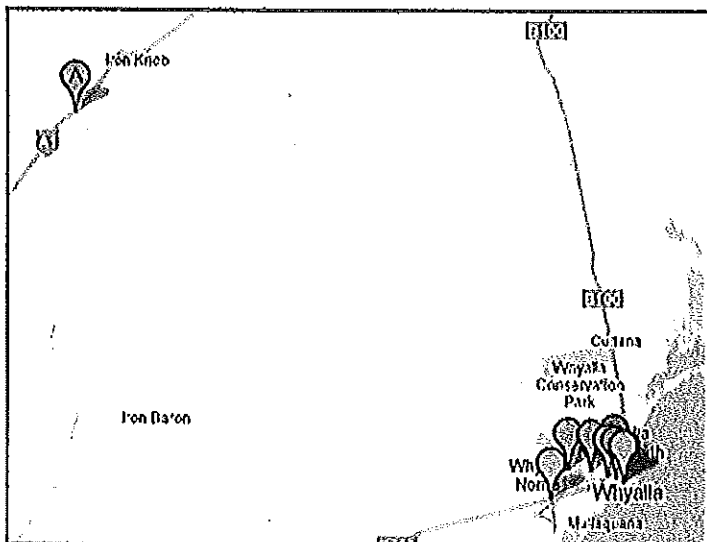
National Highway One (purple)  
Whyalla Road (pink)  
Victoria Parade (yellow)  
Woomera Road (red)

Unable to locate: The Causeway

### Whyalla:



Map 1



Map 2

### Locations:

- Port Augusta Rd (Map 1 – dark purple)
- Lincoln Hwy (Map 1 - yellow)
- Norrie Ave (Map 1 - pink)
- Playford Ave (Map 1 –light orange)
- Elliott St (Map 1 – light purple)
- Farrell St (Map 1 – light yellow)
- Cudmore Tce (Map 1 – light pink)
- McDouall Stuart Ave (Map 1 – dark orange)
- National Hwy One (Map 2 – red)