



PARLIAMENTARY TRAVELSAFE COMMITTEE

REPORT NO. 51

SEPTEMBER 2008

REPORT ON THE INQUIRY INTO AUTOMATIC NUMBER PLATE RECOGNITION TECHNOLOGY

SUMMARY

This report examines Automatic Number Plate Recognition (ANPR) technology and its potential benefits for road safety in Queensland. Despite growing usage of ANPR in Australia and other jurisdictions, the committee noted there have been very few empirical studies of the road safety benefits of ANPR, and could not justify its implementation in Queensland purely on road safety grounds. However the committee supports the continuing and further use of ANPR for traffic surveillance and policing on operational efficiency grounds.

The report's six recommendations provide for: further research of the road safety benefits of ANPR to identify best practice approaches to its deployment to deter speeding, heavy vehicle offences, unlicensed driving and unregistered vehicle offences; crucial legislative safeguards for how ANPR images may be used and stored to protect the privacy of motorists whose movements are recorded; the resolution of technical problems that prevent ANPR devices reading some number plate designs; better signage on the Brisbane Urban Corridor to alert motorists that their images are being captured and recorded; and for a progress report by ministers for police, transport and main roads within 12 months on the implementation and/or evaluation of ANPR in Queensland.

CONTENTS

| | |
|--|----|
| <i>Context for the inquiry</i> | 2 |
| <i>Inquiry process</i> | 2 |
| <i>Deterring illegal road behaviour</i> | 3 |
| <i>The role of new enforcement technology</i> | 3 |
| <i>What is ANPR?</i> | 4 |
| <i>ANPR and road safety</i> | 4 |
| <i>ANPR in Australia</i> | 5 |
| <i>ANPR in Queensland</i> | 5 |
| <i>The use of ANPR to enforce safety-critical road rules</i> | 7 |
| <i>ANPR and stolen vehicles</i> | 10 |
| <i>The set-up costs for ANPR units</i> | 11 |
| <i>Evaluations of ANPR</i> | 11 |
| <i>Technical considerations</i> | 13 |
| <i>Privacy considerations</i> | 14 |
| <i>Safeguards</i> | 16 |
| <i>Number plate issues</i> | 17 |
| <i>Deployment</i> | 19 |
| <i>Public awareness and education</i> | 20 |
| <i>Conclusions</i> | 20 |
| <i>Recommendations</i> | 21 |
| <i>References</i> | 22 |
| <i>The Travelsafe Committee</i> | 24 |

TERMS OF REFERENCE FOR THE INQUIRY

In October 2007 the committee commenced its inquiry into Automatic Number Plate Recognition (ANPR) technology. During the inquiry the committee examined:

- The efficacy of ANPR technology for road safety applications;
- Potential costs and benefits;
- Whether ANPR-enabled intercept teams should be used for traffic enforcement in Queensland, including examination of existing applications; and
- Other opportunities and considerations for its use by Queensland Government agencies to promote road safety.

RESPONSIBILITY OF MINISTERS

Section 107 of the *Parliament of Queensland Act 2001* requires the responsible minister or ministers to respond to recommendations contained in committee reports within three to six months of the report being tabled.

CONTEXT FOR THE INQUIRY

Over the years, Travelsafe Committees have inquired into a range of driver behaviours that undermine road safety where detection and, ultimately, deterrence is the desired outcome. These have included unlicensed driving and driving of unregistered vehicles, driving while fatigued, driving under the influence of alcohol/drugs and speeding.¹

These committees have also taken a keen interest in new technologies and recommended their application to address road safety issues where there has been a sound justification and rigorous scientific evidence to support their use. These technologies have included speed cameras to boost the efficiency and effectiveness of speed enforcement to reduce the prevalence of speed-related crashes, audio-tactile devices to reduce single-vehicle crashes linked to driver fatigue and alcohol ignition interlocks to reduce drink drive recidivism.² ANPR which uses a combination of photographic, character recognition and database management and searching technologies represents the latest in a line of technologies to be examined on this basis.

ANPR came to the attention of the Travelsafe Committee of the 51st Parliament during an evaluation of its use for traffic policing in 2004 by the Queensland Police Service (QPS).³ The QPS did not continue with ANPR past the evaluation phase, however the technology has since been deployed by the Department of Main Roads (DMR) and Queensland Transport (QT). This has been to monitor the movement of heavy vehicles to ensure compliance with load limits and restrictions on their use on the Brisbane Urban Corridor (BUC).⁴

During their inquiry, the committee examined these applications as well as other traffic-related uses of ANPR in Queensland and other jurisdictions to identify what, if any, contribution they offer for road safety.

INQUIRY PROCESS

The committee commenced their inquiry on 31 October 2007. To raise awareness of ANPR and the issues surrounding its use, the committee published *Issues Paper No. 12: Inquiry into Automatic Number Plate Recognition technology* and distributed copies to key road safety groups, departments and other agencies.

Over the course of the inquiry, the committee:

- Advertised the inquiry and wrote to key stakeholder groups inviting written submissions;
- Met with officers of the DMR to discuss the use of ANPR in Queensland and to view ANPR sites used for monitoring and enforcement on the BUC;
- Met with the NSW Privacy Commissioner and officers from the New South Wales (NSW) Roads and Traffic Authority (RTA) and Police Force;
- Viewed demonstrations of ANPR systems trialled by Queensland and NSW police for detecting unregistered and stolen vehicles; and
- Convened a public hearing at Parliament House on 14 March 2008.

The committee accepted 32 submissions to the inquiry including one confidential submission. The non-confidential submissions are published on the committee's website at <http://www.parliament.qld.gov.au/tsafe>.

During the public hearing on 14 March 2008, the committee heard evidence from:

- Centre for Accident Research and Road Safety – Queensland (CARRS-Q);
- Royal Automobile Club of Queensland (RACQ);
- Queensland Council for Civil Liberties;
- Australian Privacy Foundation (APF);
- The CrimTrac Agency (CrimTrac);
- Queensland Police Service (QPS);
- Queensland Transport (QT); and
- Department of Main Roads (DMR).

At the hearing, the committee also invited members of the public to give oral submissions. The full hearing transcript is published on the committee's website.

On 16 April 2008 Mr Jim Pearce MP resigned as Chair of the Travelsafe Committee due to ill health. The House on this day appointed Mrs Jo-Ann Miller MP to Chair the committee. Mrs Miller subsequently sought and received expert briefings on ANPR including a briefing by NSW Police in Parramatta on 9 July 2008.

The committee's conclusions and recommendations reflect the views expressed in submissions, research literature, hearing and other evidence concerning the use of ANPR in Australian and international jurisdictions.

¹ Travelsafe Committee, 1994; 1997; 1999a; 1999b; 2005; 2006.

² Travelsafe Committee, 1994; 2005; 2006.

³ Queensland Police Service, 2004, p. 44.

⁴ Department of Main Roads, 2007; Queensland Government, *Submission no. 31*, p. 12.

DETERRING ILLEGAL ROAD BEHAVIOUR

Traffic laws and enforcement play an important role in reducing road crashes and injuries.

Road traffic laws defining behaviour held to be unduly risky are one of the main tools available to society to reduce road trauma.⁵ The value of these laws depends on conformance. The level of conformance depends on people's perceptions about the risk of being caught not complying which, in turn, depends on the extent to which the laws are enforced.

Elliot and Broughton (2005) in their review of 66 studies of traffic policing, commissioned by Transport for London, concluded that increased levels of traffic policing lead to fewer crashes and traffic violations.⁶ While they could not pinpoint the exact relationship between levels of policing and accident/casualty rates from the studies they reviewed, they did identify a non-linear relationship where increased enforcement generally results in lower accident/casualty and violation rates once drivers become aware of the increased enforcement.⁷

In other work, the European Transport Safety Council has noted that more effective police enforcement could prevent up to 50 per cent of injury collisions in Europe if road users were completely dissuaded from committing traffic violations.⁸ Researchers in Australia have also noted the merits of intensified enforcement. Homel (1986 and 1988) and Zaal (1994) have suggested that the key feature of successful traffic policing programs is their capacity to increase the population's perceived risk of being apprehended for breaking the road rules.⁹ Zaal (1994) also noted that increasing the overall level of traffic surveillance is the primary means of heightening the driving public's perceived risk of apprehension.

The reduction in the road toll has arguably been the most successful example of public action to minimise a social problem in Australia, and there is solid evidence that general deterrence programs (aimed at potential offenders within the wider community through the threat of sanctions) have played a major role.¹⁰ This is distinct from specific deterrence which is aimed at deterring re-offending through exposure to legal sanctions.¹¹

Other work has noted that the certainty and swiftness of punishment, not the severity, has the strongest effect on behaviour.¹² It also follows that, if offenders evade punishment, they may experience 'punishment avoidance'. The experience of 'punishment avoidance' has a strong effect on re-offending behaviour.¹³

CARRS-Q told the committee that traffic enforcement operations with a high general deterrence effect are:

- Highly visible;
- Unpredictable in timing and location;
- Deployed in a widespread manner to ensure a broad coverage of the road network;
- Difficult for drivers to avoid when encountered; and
- Accompanied with publicity to highlight the risk of apprehension.

THE ROLE OF NEW ENFORCEMENT TECHNOLOGY

As noted by Young and Regan (2007) in their review of intelligent transport systems to support police enforcement of road safety laws, the use of automated enforcement technologies can improve the effectiveness, accuracy and efficiency of police traffic enforcement activities by increasing the actual and perceived chance of traffic violations being detected without increasing the number of police resources required.¹⁴

Automated enforcement also has a number of other benefits over traditional enforcement measures including providing evidence (e.g., photographic) that a violation has been committed and by simplifying the process of producing infringement notices.¹⁵ Police have made good use of new technologies to enhance the effectiveness and efficiency of traffic policing. Enforcement technologies that have played a key role in road safety in Queensland include:

- Red-light cameras introduced in 1990;¹⁶
- Mobile Interactive Data Analysis (MINDA) units introduced in April 1996;¹⁷
- Speed cameras introduced in 1997;
- Mobile radar units introduced in 1985;¹⁸ and

⁵ Elliot & Broughton, 2005, p. 1.

⁶ Elliot & Broughton, 2005 p.15.

⁷ Elliot & Broughton, 2005 p. 5.

⁸ European Transport Safety Council, 1999, p. 5.

⁹ Homel, 1986, p. 77; Zaal, 1994, p. 9.

¹⁰ South, 1998, p. 76.

¹¹ CARRS-Q, *Submission no. 30*, p. 8.

¹² CARRS-Q, *Submission no. 30*, pp. 8-9.

¹³ CARRS-Q, *Submission no. 30*, pp. 8-12.

¹⁴ Falkerson, 2003; PACTS, 2005; Pilkington & Kinra, 2006 in Young & Regan, 2007, p. 42.

¹⁵ Zaal, 1994, p. 9.

¹⁶ Queensland Police Service, 2008

¹⁷ MINDA is a roadside technology developed by QT and the QPS to enable officers to check licence and registration databases and arrest warrants in the field to identify unlicensed drivers and unregistered vehicles in as little as 15 seconds.

- MAVERICK mobile computer terminals for patrol cars introduced in 1998.¹⁹

ANPR is effectively a next generation enforcement technology that can be used to automate existing enforcement processes and to enhance the functionality of other traffic policing technologies like red-light and speed cameras.

WHAT IS ANPR?

ANPR systems, sometimes referred to as Automatic License Plate Recognition, use Optical Character Recognition software to read the numbers and letters from vehicle number plates captured by a camera. ANPR uses software that is similar to that used in document scanners. Once a number plate has been read, the unique grouping of letters and numbers is logged and cross-referenced against computer databases to find an exact match. This database could be a collection of databases including a 'hotlist' of unregistered vehicles, vehicles registered to people with outstanding arrest warrants, vehicles registered to unlicensed drivers or other vehicles of interest.

When combined with a Global Positioning System (GPS), ANPR systems can log the precise location and time for each recognition event. Comparing the logs from this 'point to point' deployment of ANPR devices can help to identify vehicles that may have travelled at illegal speeds or drivers who have not taken required rest breaks between sites.

There are three main types of ANPR units namely fixed, portable and in-vehicle units.²⁰ Figure 1 below is an example of a portable ANPR unit deployed on the BUC. In other configurations, ANPR technology can support the detection of over-loaded heavy vehicles and fatigue (driving) infringements, route management,²¹ border security²² and traffic surveys.²³

Figure 1: A portable ANPR unit



Source: Travelsafe Committee, 2008.

ANPR is commonly used by law enforcement agencies to detect illegal driving and for identifying persons of interest.²⁴ Outside of traffic enforcement, ANPR technology is used for:

- Electronic tolling systems;²⁵
- Counter terrorism;²⁶
- Collecting congestion taxes;²⁷
- Controlling access to restricted areas;²⁸
- Vehicle tracking; and
- To identify vehicles involved in drive-offs from parking and petrol stations without paying.

ANPR AND ROAD SAFETY

Government agencies in many countries are using ANPR technology increasingly for road safety and law enforcement.²⁹ Table 1 below presents a précis of ANPR applications in other countries. In the United Kingdom (UK), ANPR systems have proliferated along with CCTV systems for counter-terrorism, the primary use of the technology. It has been reported that, by 2006, there were 3,000 cameras in operation.³⁰ The traffic policing applications have clearly been a secondary development. It has been claimed that Britain will be the first country in the world where the movements of all vehicles on the road are recorded.³¹

¹⁸ Queensland Police Service, *Personal Communication*, 28 August 2008.

¹⁹ Travelsafe Committee, 1999, pp. 33-34.

²⁰ Queensland Government, *Submission no. 31*, pp. 4-5.

²¹ Queensland Government, *Submission no. 31*, p. 12.

²² CNET Networks Inc, 2005.

²³ Walsh, *Hearing Transcript*, 14 March 2008, p. 29.

²⁴ Home Office, 2002, p. 11; Queensland Government, *Submission no. 31*, p. 11.

²⁵ Parsons Brinckerhoff Australia Pty Ltd, *Submission no. 8*, p. 1.

²⁶ Home Office, 2002, p. 11.

²⁷ Chang, Chen, Chung & Chen, 2004, p. 42.

²⁸ Queensland Government, *Submission no. 31*, p. 4.

²⁹ RACQ, *Submission no. 17*, p. 2.

³⁰ Evans-Pughe, 2006, p. 36.

³¹ Connors, 2006, p.1.

Table 1: Use of ANPR by government agencies in international jurisdictions

| Jurisdiction | Purpose |
|----------------|---|
| Algeria | Used for security at gas pipelines. |
| Austria | Used for toll collection. |
| Bulgaria | Used for border crossings at the Bulgarian/Turkish border under UN peacekeeping jurisdiction. |
| Canada | Used in British Columbia to target traffic violators, prohibited drivers and car thieves. |
| Cyprus | Used at border crossings under UN peacekeeping jurisdiction. |
| Finland | Used at customs checkpoints at the Finnish-Swedish border. |
| France | Used for calculating travel times, identifying stolen or wanted vehicles and vehicles under surveillance, and identifying cars travelling in bus lanes. Also used to automate the distribution of infringement notices for speeding violations. |
| Germany | Used to collect road tolls for heavy vehicles. |
| Ireland | The gardai use mobile ANPR units to detect stolen, untaxed and speeding vehicles. |
| Italy | Use for access control to Rome's historic city centre and for congestion charges in Rome, Genoa, Bologna, Milan and Sorrento. |
| Kosovo | Used to identify suspect vehicles at border checkpoints. |
| Malta | Used for calculating parking charges in the city of Valletta. |
| Mexico | Used to identify vehicles with registered owners who have unpaid fines or arrest warrants. |
| Mozambique | Used at points of entry and exit, including land, sea and airports. |
| New Zealand | A trial to identify vehicles of interest to police in Auckland, Wellington and Christchurch was announced in 2006. The outcomes of the pilot study are expected to determine the future use of ANPR in New Zealand. |
| Norway | A contract was awarded in January 2007 to develop and implement a road toll system using ANPR. |
| Qatar | Used for parking and security at the airport. |
| Romania | Used for traffic control and surveillance on the national highway. |
| Serbia | Is planned for use at customs checkpoints and for road tolls. |
| Sweden | Used for traffic monitoring in Stockholm. |
| Switzerland | Used in Zurich to compare plates with its national database 'RIPOL'. |
| United Kingdom | Extensive use, including congestion monitoring and policing activities. |
| United States | May vary by jurisdiction. |
| Vatican City | Used for security purposes. |

Source: Thales, 2007; Tollroads News, 1997; SPG Media Limited, 2007a; Ministry of Public Safety and Solicitor General, 2007; SPG Media Limited, 2007a; CNET Networks Inc, 2005; Survison, 2007; Carnis, 2007; Institute for Public Policy Research, 2006; The Post, 2006; European Conference of Ministers of Transport, 2004; Crown Agents, 2007; The Malta Independent, 2007; Wheels 24, 2007; Kudumba, 2007; Land Transport NZ, 2006; Dacolian BV, 2007; Ame Info, 2005; Bewator, 2006; Batanovic, Radivojevic & Damjanovic, 2007; SPG Media Limited, 2007b; Privacy International, 2004; Garzia & Sammarco, n.d.

ANPR IN AUSTRALIA

Most Australian jurisdictions have either used or trialled ANPR for traffic policing. In NSW, ANPR has been an integral part of the Safe-T-Cam (STC) traffic monitoring network since 1989. Table 2 presents a breakdown of government ANPR traffic applications in Australian jurisdictions identified by the committee.

The *National Road Safety Action Plan 2005 and 2006* set the development of road safety applications for ANPR as a priority area for action in Australia.³² This action was listed as a licensing and driver management initiative. Several states are involved in a scoping study by CrimTrac to develop a national integration of ANPR technology. This work is due to be completed in late 2008.³³

The Department of Transport, Energy and Infrastructure in South Australia (DTEI) and the NSW RTA have already integrated their STC networks to identify cross-jurisdictional heavy vehicle infringements.³⁴

ANPR IN QUEENSLAND

At least three Queensland government agencies, QPS; QT and DMR have used ANPR: In response to the *National Road Safety Action Plan 2005 and 2006*, the Queensland Government established a steering committee to coordinate the trial and implementation of ANPR technology. The steering committee included representatives from QT, DMR, QPS and the Department of Justice.

QPS

In 2004, QPS conducted a limited trial of ANPR technology for traffic enforcement at selected southeast Queensland sites. Officers used a portable ANPR camera connected to a laptop computer loaded with the QPS 'vehicle of interest' database and the QT 'blacklist' of unregistered vehicles to identify potential vehicle registration and driver licensing offences. Officers deployed the system for 23 traffic surveillance exercises lasting approximately 49 hours in total. During the trial, officers checked the registrations for 23,000 vehicles. From these checks, they issued 326 traffic infringement notices or notices to appear for offences relating to unlicensed driving and the driving of unregistered vehicles. It is this ability of ANPR to dramatically improve the operational efficiency of traffic policing work that is most attractive to police.

³² Australian Transport Council, 2005, p. 39.

³³ CrimTrac, *Submission no. 19*, p. 22.

³⁴ Roads and Traffic Authority, *Submission no. 29*, p. 2.

Table 2: Traffic policing ANPR applications in Australian jurisdictions

| Jurisdiction | Implementation/Unit Type | Targets |
|--------------|--|--|
| ACT | ANPR in use. | Unregistered vehicles and persons of interest. |
| NSW | ANPR in use. RTA established Safe-T-Cam program in 1989, which implemented fixed units on major freight routes. NSW Police implemented ANPR system in 2005. | Unlicensed drivers, unregistered vehicles, heavy vehicle management, stolen vehicles, bus and transit lane enforcement and electronic toll violations. |
| NT | Not using ANPR. | |
| QLD | Trialled by QPS in 2004. ANPR is being used by DMR and has been trialled by QT for heavy vehicle fatigue management. | Heavy vehicle management on select freight corridors in Brisbane and traffic surveys around the Port of Brisbane. |
| SA | Department of Transport, Energy and Infrastructure (DTEI) established fixed ANPR Safe-T-Cam sites. The technology is also under trial for use by SA Police. | Heavy vehicle management, unregistered vehicles, unlicensed drivers, stolen vehicles, and persons with first instance warrants. |
| Tasmania | ANPR has been developed and was implemented for use by Transport Inspectors in August 2004. | Unregistered vehicles and persons of interest. |
| Victoria | No current deployment of ANPR. Trials underway by VicRoads and Victoria Police to explore potential introduction. Working with CrimTrac on ANPR scoping study. | Trialled for detection of stolen vehicles and number plates, unregistered vehicles, unlicensed drivers and outstanding warrants. |
| WA | Tripod camera devices, implemented 2004. Working with CrimTrac on ANPR scoping study. | Traffic enforcement, Counter terrorism, intelligence led policing and general police activities. |

Source: Office of the Northern Territory Information Commissioner, *Personal Communication*, 18 January 2008; Western Australia Police, *Submission no. 5*, pp. 1-2; Victoria Police, *Submission no. 14*, p. 2; Department of Infrastructure, Energy and Resources, *Personal Communication*, 10 January 2008; Roads and Traffic Authority, *Submission no. 29*, pp. 1-2; Queensland Government *Submission no. 31*, p. 4; Roads and Traffic Authority, 2007; Roads and Traffic Authority, *Personal Communication*, 21 February 2008; VicRoads, *Submission no. 25*, p. 1; South Australia Police, *Submission no. 4*, p. 1.

According to the Queensland Government submission, QPS found that the ANPR technology was effective, reliable and easy to deploy.³⁵ However, despite the apparent success of the trial, QPS did not continue or expand the program and ANPR technology and has not been used by police since. QPS told the committee that the implementation of ANPR for traffic enforcement applications in Queensland is now on-hold pending the outcome of CrimTrac's national scoping study, and the support of the Queensland Government.³⁶

QT & DMR

In 2006, QT and DMR trialled portable ANPR units at heavy vehicle fatigue management sites along the Bruce Highway. Officers reported a dramatic increase in the number of offences detected using ANPR compared to traditional policing methods. A large volume of offences, equivalent of two thirds of the yearly average, was detected in only one week using ANPR. The trial confirmed the effectiveness of using portable ANPR units for heavy vehicle fatigue enforcement along major freight routes.

In July 2007, DMR installed fixed ANPR units along the BUC to monitor heavy vehicle movements for route and fatigue offences. Trucks weighing over 4.5 tonnes are not permitted to travel the BUC between Goodna and Wishart via Mt Gravatt-Capalaba, Kessels, Riawena and Granard Roads as well as part of the Ipswich Motorway unless they are travelling to a local destination. Heavy vehicle drivers and corporations responsible for vehicles that contravene the restrictions are issued with infringement notices.

DMR also use ANPR for traffic surveys and aiding mass management schemes at the Port of Brisbane.³⁷

³⁵ Queensland Government, *Submission no. 31*, p. 11.

³⁶ Churchill, *Hearing Transcript*, 14 March 2008, p. 20.

³⁷ Queensland Government, *Submission no. 31*, pp. 4-8.

THE USE OF ANPR TO ENFORCE SAFETY- CRITICAL ROAD RULES

Safety-critical road rules are rules or regulations that, if better enforced, could lead to significant reductions in road trauma.³⁸ The committee has identified four safety-critical rules which, if more intensely enforced using ANPR, could result in significant reductions in road crashes and trauma:

- Speeding;
- Heavy vehicles - mass dimensions and driving hours;
- Unregistered vehicles; and
- Unlicensed driving.

Speeding

Speeding significantly increases both crash risks and the severity of crashes. Drivers who speed have reduced reaction times, decreased vehicle control, an increased stopping distance, and greater impact force.³⁹ In 2007, 95 (or 26.5 per cent) of the 359 fatalities on Queensland roads, resulted from speeding drivers or riders.⁴⁰

ANPR can detect speed violations by calculating the time a vehicle takes to travel between two ANPR units, commonly referred to as 'point-to-point' enforcement.

CARRS-Q argues that, as speeding continues to be prevalent, new countermeasures to detect and deter this behaviour are required. These countermeasures should:

- Be as, or more, efficient in detecting offenders than alternative methods;
- Achieve the same level of general deterrence achieved by highly visible speed radar or camera operations; and
- Be as acceptable to the general community as other methods of speed enforcement.⁴¹

The committee notes that a potential benefit of point-to-point speed detection is that drivers may maintain slower speeds for longer periods.⁴² For example, two point-to-point ANPR units may be placed tens of kilometres apart to detect speeding over that entire distance. Mobile speed cameras, used overtly, have been found to only reduce speeds for a short period once vehicles pass the camera, between 500 metres to 1.5 kilometres.⁴³

Point-to-point enforcement may also be used in areas unsuitable for the safe deployment of speed enforcement, such as at road works.⁴⁴

Heavy vehicles

The potential road safety benefits of ANPR for heavy vehicle enforcement also appear significant.

ANPR has a number of applications specific to the safety of heavy vehicles. The committee notes that crashes involving heavy vehicles continue to pose a significant problem on Queensland roads. As at 16 March 2008, 26 (or 38.8 per cent) of the 67 fatalities on Queensland roads for the year involved heavy vehicles. This was 17 fatalities more than the same time the previous year, where fatalities involving heavy vehicles accounted for nine of the 77 fatalities.⁴⁵ Usually, when fatalities involve heavy vehicles, it is not the heavy vehicle driver who is killed, but occupants of other vehicles.⁴⁶ The number of fatalities is likely to rise if the prediction that heavy vehicle use will double between 2000 and 2020⁴⁷ proves correct.

ANPR-assisted heavy vehicle enforcement includes:

- The enforcement of fatigue regulations and speed limits by calculating the time taken to travel between two distances;⁴⁸
- The detection of vehicles licensed to carry dangerous goods (such as explosives or chemicals) using prohibited routes and tunnels;⁴⁹
- Use in conjunction with Weigh-in-Motion (WIM) technology to identify overweight heavy vehicles in the traffic;⁵⁰ and

Identification of attempts to avoid heavy vehicle checking stations and ANPR sites.⁵¹ The Transport Operations (Road Use Management - Fatigue Management) Regulation 1998 prescribes fatigue offences for drivers of heavy vehicles. Heavy vehicle drivers are required to maintain a log book, not exceed the maximum driving times and ensure that rest times comply with the requirements set out in the regulation.

³⁸ Young & Regan, 2007, p. 4.

³⁹ CARRS-Q, *Submission no. 30*, pp. 14-15.

⁴⁰ Queensland Transport, 2008b.

⁴¹ CARRS-Q, *Submission no. 30*, pp. 14-15.

⁴² Queensland Government, *Submission no. 31*, p. 9.

⁴³ Champness, Sheehan & Folkman, 2005, p. 8.

⁴⁴ Queensland Government, *Submission no. 31*, p. 15.

⁴⁵ Queensland Transport, 2008b.

⁴⁶ Swann, 2002, p. 66.

⁴⁷ State of Queensland, 2007, p. 5.

⁴⁸ RACQ, *Submission no. 17*, p. 2; Queensland Government, *Submission no. 31*, p. 8.

⁴⁹ Queensland Government, *Submission no. 31*, p. 15.

⁵⁰ RACQ, *Submission no. 17*, p. 2.

⁵¹ Roads and Traffic Authority, *Personal Communication*, 21 February 2008.

The dangers of fatigue driving are well established. Research has confirmed the impairing effects of sleeplessness on drivers are in fact similar to the impairing effects of alcohol. Driving after being awake for 17 hours is equivalent to driving with a blood alcohol concentration (BAC) of 0.05 per cent.⁵² In 2005, 10 (or 20.8 per cent) out of the 48 fatalities involving heavy vehicles, involved fatigued heavy vehicle drivers.⁵³ Heavy vehicle drivers may also use stimulants to counter the effects of fatigue, however heavy vehicle drivers who test positive to stimulants have an even greater accident risk similar to having a BAC of 0.10 to 0.15.⁵⁴

As with speeding offences, the point-to-point deployment of ANPR devices can aid the detection of fatigue driving offences by recording vehicle travel times between two locations on the road network. Presently in Queensland fatigue offences are detected either by the examination of log books by police or transport inspectors, or through investigations undertaken by QT which include the examination of phone records, fuel receipts, and other documentation.⁵⁵

In December 2007, a total of 221 fatigue driving offences were identified in Queensland. QT advised the committee that, since demerit points had been introduced for fatigue offences, the number of infringement notices issued had decreased from approximately 300 to 250 a month.⁵⁶

In comparison, the RTA advised the committee that in NSW between 1 January 2004 and 1 October 2007, 30,452 incidents of a heavy vehicle travelling beyond prescribed hours, (an average of 676.7 per month) had been detected using STC, which includes ANPR technology located at 24 sites across the state.⁵⁷

QT and DMR trialled ANPR technology in 2006 for detecting fatigue offences and found 5.8 per cent of heavy vehicles were potentially in breach of fatigue management guidelines.⁵⁸ DMR advised the committee that two of the 60 WiM sites in Queensland incorporate ANPR technology, and that there are plans to expand ANPR to six WiM sites.⁵⁹ ANPR is used by DMR at WiM

sites to audit the Intelligent Access Program⁶⁰ and to monitor road trains to ensure they are using appropriate routes.⁶¹

The RACQ advised the committee that it supports the use of ANPR in combination with WiM sites to help detect overweight heavy vehicles in Queensland roads, as well as compliance with other safety issues, such as fatigue regulations.⁶²

Unregistered vehicles

Unregistered vehicles range from vehicles with outstanding registration fees or pending payments to vehicles that have never been registered for road use. Requirements for the registration of motor vehicles in Queensland are specified in the Transport Operations (Road Use Management – Vehicle Registration) Regulation 1999. These provisions are enforced by QPS and QT. Enforcing officers have discretion to issue a TIN to offenders on the spot or by mail, or to refer offences to the courts.

The driving of unregistered vehicles poses a number of road safety problems including:

- The possibility that such vehicles do not meet relevant safety standards;⁶³
- It may undermine the identification of vehicle owners as a means of managing driver behaviour;⁶⁴
- It reduces the revenue available to government to maintain the road system;⁶⁵
- Government agencies cannot retain current databases on the vehicle's ownership, registration status and vehicle type through the registered vehicles register;⁶⁶ and
- The driving of unregistered vehicles is linked to other behaviours associated with high crash risk, including unlicensed driving.⁶⁷

A key characteristic of the unregistered vehicle problem is that its true extent is unknown. Road-side surveys

⁵² Australian Transport Safety Bureau, 2004, p. 133.

⁵³ Department of the Premier and Cabinet, 2006a.

⁵⁴ Swann, 2002, p. 66.

⁵⁵ Oswin, *Hearing Transcript*, 14 March 2008, pp. 29-30.

⁵⁶ Blahous, *Hearing Transcript*, 14 March 2008, p. 30.

⁵⁷ Roads and Traffic Authority, *Submission no. 29*, p. 2.

⁵⁸ Queensland Government, *Submission no. 31*, p. 8.

⁵⁹ Smith, *Hearing Transcript*, 14 March 2008, pp. 28-29.

⁶⁰ The Intelligent Access Program, or IAP, is a voluntary program that provides heavy vehicles with improved access to the national road network in return for monitoring their compliance with specific access conditions (Transport Certification Australia, 2005).

⁶¹ Smith, *Hearing Transcript*, 14 March 2008, p. 29.

⁶² RACQ, *Submission no. 17*, p. 25.

⁶³ CARRS-Q, *Submission no. 30*, p.14; Queensland Government, *Submission no. 31*, p. 8.

⁶⁴ CARRS-Q, *Submission no. 30*, p. 14.

⁶⁵ CARRS-Q, *Submission no. 30*, p.14; Queensland Government, *Submission no. 31*, p. 8.

⁶⁶ Queensland Government, *Submission no. 31*, p. 8.

⁶⁷ CARRS-Q, *Submission no. 30*, p. 14.

commissioned by QT in 2005 suggest that 1.9 per cent of vehicles on the road network were unregistered, down markedly from 5.2 per cent estimated from a prior survey in 2003.⁶⁸ Using QT's vehicle registration statistics, the survey results suggest that over 70,000 vehicles driving on Queensland roads in 2006 were unregistered.

A further picture of the problem can be gained from crash statistics. During 2006, there were 15 road fatalities in Queensland resulting from crashes involving unregistered vehicles. This represents 4.5 per cent of the Queensland 2006 road toll.⁶⁹

QT suggests the significant fall in the prevalence of unregistered vehicles in its surveys coincides with more intensive enforcement. Table 3 below presents annual statistics for vehicles on register and infringement notices for unregistered vehicles issued by police and QT inspectors from 2002-2006.⁷⁰ While the number of vehicles on register increased by around 20 percent, the number of infringement notices issued grew by 60 percent over the four years.

Table 3: Vehicles registered and infringements for unregistered vehicle offences issued in Queensland 2002 to 2006 by year

| | 2002 | 2003 | 2004 | 2005 | 2006 |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|
| Number of vehicles registered | 3,067,566 | 3,195,635 | 3,356,887 | 3,527,182 | 3,694,129 |
| Number of infringements | 23,006 | 25,962 | 29,710 | 35,393 | 36,906 |
| Per cent of vehicle fleet | 0.75 | 0.81 | 0.88 | 1.0 | 0.99 |

Source: Queensland Government, *Submission no. 31*, p. 7.

ANPR could be used by police to intensify their enforcement of registration laws through specific deterrence aimed at offenders, and through general deterrence. Enforcement of these laws is usually conducted with mobile ANPR units and intercept teams. These arrangements allow intercepting officers to confirm the currency of their unregistered vehicle data, as registration payments may take several days to process.⁷¹

A further potential benefit of increased enforcement of registration laws is that the detection and removal of unregistered vehicles from Queensland's roads reduces the claims against the Nominal Defendants Fund.⁷² The Motor Accident Insurance Commission (MAIC) regulates and manages the Nominal Defendant Fund. Under the

Motor Accident Insurance Act 1994 the Nominal Defendant acts as an insurer where damages are claimed for personal injury arising from the negligent driving of unregistered vehicles which are not insured for third-party injury claims, or unidentified motor vehicles. Funds for the payment of Nominal Defendant claims are derived from a Nominal Defendant levy, which is included in the compulsory third party (CTP) premium paid by motorists as part of vehicle registration. The current Nominal Defendant levy is \$12.85 excluding the \$5 surcharge for the HIH levy.

Between September 1994 when the CTP scheme was established in Queensland and September 2007, unregistered and unidentified claims against the Nominal Defendant totalled approximately \$163.8 million. Claims for crashes caused by unregistered vehicles represent approximately \$64.3 million or 40 per cent of these claims.⁷³

Unlicensed driving

The term 'unlicensed driving' covers a number of behaviours, including driving:

- After loss of licence through a court action;
- While suspended for driving due to an accumulation of demerit points;
- Outside special restrictions placed on a licence, such as work-related licences or the restrictions recently introduced for provisional licence holders under 25 years of age;
- With an expired licence; and
- While never having held a licence or graduated through the licensing system.

Unlicensed drivers are high-risk drivers who pose a significant safety risk on the road. During the ten years from 1995 to 2004, between six and 10 per cent of all drivers and riders involved in fatal crashes in Queensland were unlicensed. Unlicensed drivers were almost three times more likely to be involved in a crash than licensed drivers, and twice as likely to be killed or seriously injured in these crashes.⁷⁴ Crashes with unlicensed drivers tend to be more severe due to links between unlicensed driving and other high-risk behaviours, including drink driving, speeding, failure to wear seat belts and motorcycle use.⁷⁵ In addition to

⁶⁸ Queensland Government, *Submission no. 31*, p. 6.

⁶⁹ Queensland Government, *Submission no. 31*, p. 7.

⁷⁰ Queensland Government, *Submission no. 31*, p. 7.

⁷¹ VicRoads, *Submission no. 25*, p. 2.

⁷² Queensland Government, *Submission no. 31*, p. 3.

⁷³ Queensland Government, *Submission no. 31*, p. 10.

⁷⁴ Watson, *Hearing Transcript*, 14 March 2008, pp. 1-6.

⁷⁵ CARRS-Q, *Submission no. 30*, p. 13; Queensland Government, *Submission no. 31*, p. 11; Watson, *Hearing Transcript*, 14 March 2008, p. 1.

increased crash risks, unlicensed driving undermines the driver licensing system by preventing the allocation of demerit points and reducing the impact of sanctions such as licence loss.⁷⁶

In Queensland, it is likely that many unlicensed drivers go undetected. One Queensland study found that more than a third of unlicensed offenders did not have their licence checked when pulled over by police, and 20 per cent had not had their licence checked on two or more occasions.⁷⁷ This may be, in part, due to the fact that licence carriage is not compulsory in Queensland for open licence holders, who are allowed 48 hours to present their licence to a police station if requested by police. CARRS-Q suggest that this could discourage police officers from checking licences.⁷⁸

The committee has previously recommended that licence carriage be made compulsory for open licence holders who are currently exempt from this requirement.

ANPR can be used by intercept teams to identify vehicles registered to drivers who have been disqualified from driving or are otherwise unlicensed. However, it is problematic. ANPR cannot identify whether the person driving the vehicle is the registered owner.⁷⁹ In Queensland, a driver's licence is not required to register a vehicle. Similarly, ANPR can not identify whether the person driving a registered vehicle is correctly licensed for that class of vehicle. Many of the unlicensed driving offences would not be detected using ANPR. For these reasons, ANPR will be less effective for detecting and deterring unlicensed driving offences than for other safety-critical road rules.

ANPR AND STOLEN VEHICLES

While the 'unlawful use of motor vehicles' or 'stolen vehicles' are not safety-critical road rule issues, as defined earlier, it is evident from experiences in other jurisdictions that ANPR can greatly assist police to identify and apprehend stolen vehicles in passing traffic with greater efficiency than using traditional policing methods.

Stolen vehicles are regularly involved in serious road crashes that add to the Queensland road toll. The National Motor Vehicle Theft Reduction Council

(NMVTRC) advised that 25 people are killed annually in Australia in stolen vehicle related incidents. Usually it is the driver or a passenger in the stolen vehicle who will be killed, however pedestrians and other drivers are often victims.⁸⁰ A recent study of stolen vehicle crashes in South Australia found that stolen vehicles caused 97.1 per cent of crashes they were involved in. Common crash factors were driver inattention, excessive speed and dangerous driving.⁸¹

The number of vehicle thefts has reduced in recent years. In 2001, 127,288 passenger and light commercial vehicles were reported stolen in Australia. This decreased by 49 per cent in 2006, when 64,131 vehicles were reported stolen.⁸² Table 4 below details the number of offences relating to 'unlawful use of a motor vehicle' reported to the QPS during 2005/2006 and 2006/2007, and the number of 'cleared' offences where action was taken or commenced against at least one offender.

Table 4: Number of offences relating to the unlawful use of a motor vehicle reported to the QPS and the number of cleared offences, 2006/2007 and 2005/2006

| Offences relating to the unlawful use of a motor vehicle | 2005/2006 | 2006/2007 | Percentage change (%) |
|--|-----------|-----------|-----------------------|
| Number reported | 11,886 | 11,239 | -5.4 |
| Number reported per 100,000 population | 294 | 272 | -7.5 |
| Reported and cleared in period | 3,339 | 3,156 | -5.5 |
| Cleared in period, reported previously | 652 | 728 | 11.7 |

Source: Adapted from Queensland Police Service, 2007a, pp. 4-5.

It is difficult to quantify a road safety benefit from having fewer stolen vehicles on the road. The benefits of increased arrest and recovery rates are administrative benefits for the QPS and financial benefits for insurers and owners, not road safety benefits *per se*. A further complication is the practice of plate cloning or substitution.

The NMVTRC advised that in many cases stolen vehicles are only driven by the offender for a short period of time, number plates may be swapped, and intercepting stolen vehicles may involve dangerous situations for police officers and other road users.⁸³

⁷⁶ CARRS-Q, *Submission no. 30*, p. 13; Queensland Government, *Submission no. 31*, p. 11; Watson, *Hearing Transcript*, 14 March 2008, p. 1.

⁷⁷ Watson, *Hearing Transcript*, 14 March 2008, p. 5.

⁷⁸ CARRS-Q, *Submission no. 30*, pp. 12-13; Watson, *Hearing Transcript*, 14 March 2008, pp. 2-3.

⁷⁹ CARRS-Q, *Submission no. 30*, pp. 12-13; Queensland Government, *Submission no. 31*, p.12; Rodionoff, *Submission no. 7*, p. 1.

⁸⁰ National Motor Vehicle Theft Reduction Council, *Submission no. 6*, p. 2.

⁸¹ Australasian College of Road Safety, 2008, p. 44.

⁸² National Motor Vehicle Theft Reduction Council, *Submission no. 6*, p. 2.

⁸³ National Motor Vehicle Theft Reduction Council, *Submission no. 6*, p. 3.

THE SET-UP COSTS FOR ANPR UNITS

The committee sought to estimate the likely costs to deploy ANPR units.

The costs of using ANPR are variable depending on the type of unit, the enforcement method used (e.g. using intercept teams or issuing infringement notices by mail), the type of offences targeted and whether data concerning vehicles passing ANPR units is retained. In general, the costs will include:

- Procurement, installation and maintenance of ANPR units and associated infrastructure, such as overhead gantries for fixed cameras;⁸⁴
- Software and data management costs;⁸⁵
- Training;⁸⁶
- Personnel and staff costs;⁸⁷
- Administration costs;⁸⁸
- Costs associated with the transportation and storage of vehicles that are seized by police officers using ANPR.⁸⁹ For example, the cost of towing and storage of a vehicle for three months can be up to \$2,000 although these costs may be recovered from the registered owner.⁹⁰ Offences for which vehicles may be seized include unlicensed driving and driving unregistered vehicles;⁹¹
- The impact on the criminal justice system and other government agencies;⁹² and
- The cost of quality management systems.⁹³

Further costs would be incurred where ANPR is combined with existing hardware such as speed and red light cameras⁹⁴ in order to automate the infringement notice process.

⁸⁴ CrimTrac, *Submission no. 19*, p. 33; Queensland Government, *Submission no. 31*, p. 3; RACQ, *Submission no. 17*, p. 18; Victoria Police, *Submission no. 14*, p. 3.

⁸⁵ CrimTrac, *Submission no. 19*, p. 33; Queensland Government, *Submission no. 31*, p. 3; RACQ, *Submission no. 17*, p. 18.

⁸⁶ CrimTrac, *Submission no. 19*, p. 33; Victoria Police, *Submission no. 14*, p. 3.

⁸⁷ CrimTrac, *Submission no. 19*, p. 33; RACQ, *Submission no. 17*, p. 18.

⁸⁸ RACQ, *Submission no. 17*, p. 18.

⁸⁹ RACQ, *Submission no. 17*, p. 18.

⁹⁰ Heger, 2008.

⁹¹ Queensland Police Service, 2007b.

⁹² Lincoln, *Submission no. 22*, p. 1.

⁹³ Roads and Traffic Authority, *Personal Communication*, 21 February 2008.

⁹⁴ CrimTrac, *Submission no. 19*, p. 33; Victoria Police, *Submission no. 14*, p. 3.

The ANPR system used by NSW Police cost \$1.6 million to implement.⁹⁵ This amount includes the cost of portable ANPR units to detect unregistered and stolen vehicles. Table 5 below taken from the Queensland Government submission provides approximate costs for a single fixed ANPR installation.

Table 5: Initial and recurrent costs for a fixed ANPR installation

| Initial costs | \$ |
|---|--------------------------|
| ANPR Equipment | |
| Fixed ANPR camera per lane of detection (including installation) | \$40,000 |
| Supporting Infrastructure | |
| Over lane gantry (30m span suitable for four lanes) | \$700,000 |
| Pole installation (suitable for one lane only) | \$100,000 |
| Back Office System Development | |
| Processing (depending on system size – does not include adjudication systems) | \$500,000 to \$1,500,000 |
| Hardware | \$100,000 |
| Recurrent costs | \$ |
| ANPR Equipment | |
| Routine Camera Maintenance (per camera station) | \$5,000 |
| Power and Communications (per station) | \$2,000 |
| Supporting Infrastructure | |
| Inspections (per station for gantry installation) | \$4,000 |
| (per station for pole mounted installations) | \$1,000 |
| Processing and data management (per annum) | \$25,000 |

Source: Queensland Government, *Submission no. 31*, p. 21.

The Queensland Government advised that mobile ANPR cameras cost \$30,000.⁹⁶ No costings were provided for in-vehicle ANPR technology.

EVALUATIONS OF ANPR

Through its literature reviews for this inquiry, the committee sought to identify past evaluations of ANPR applications for road safety that could inform its consideration of the likely benefits and costs if used in Queensland.

The committee identified two evaluations that looked at wider road safety implications. These were by the PA Consulting Group in 2007 for the UK Home Office and Carnis (2007) prepared for the French Government. Neither evaluation is comprehensive.

UK Home Office

The UK Home Office commissioned the PA Consulting Group to evaluate the significant development of ANPR technology used by UK police to target vehicles of interest. The evaluation published by the UK Home Office in 2007 found that increased use of ANPR during 2006/07 substantially increased the performance of police. Dedicated ANPR intercept teams arrested 20,592

⁹⁵ Roads and Traffic Authority, *Submission no. 29*, p. 1.

⁹⁶ Queensland Government, *Submission no. 31*, p. 21.

individuals with the majority of arrests for drug offences, disqualified driving and vehicle crime. The number of recovered stolen vehicles identified by ANPR increased by 58 percent compared to 2005/06. The study recognised road safety and other benefits associated with ANPR such as increased public confidence.⁹⁷ However, these apparent benefits were not quantified.

Carnis, 2007

Carnis (2007) examines the use of ANPR in France for speed enforcement. Carnis found a significant drop in the French road toll occurred when ANPR was used.⁹⁸ However, the evaluation noted that the introduction of ANPR coincided with a radical overhaul of traffic enforcement practices that led to a five-fold increase in infringement notices issued. The extent of the road toll reduction attributed to ANPR was not separately identified.

Despite what appears to be promising efficiency gains from the use of ANPR-assisted enforcement compared to traditional enforcement approaches, the committee and others have noted a lack of rigorous evaluations in Australia or overseas demonstrating the effectiveness of ANPR technology in reducing road crash rates.⁹⁹ In the absence of solid evidence of its benefits, it seems that agencies have implemented the technology based on operational imperatives and the need for action, without first establishing its cost and benefits, or identifying best practice approaches to its use.

The importance of evaluation

Council et al. (1980), a widely recognised road safety research manual prepared for the United States (US) Department of Transportation, discusses the value of effectiveness evaluations in road safety (known as highway safety in the US). It offers the following rationales for doing proper evaluations:

First, because only limited financial resources are available for highway safety programs, it is tritely but truthfully a matter of life and death that these monies be directed towards the programs that have the most direct impact in reducing highway death and injury.

Second, the success of a program is not "self-evident," even to individuals with an inordinate amount of common sense.

Third, we need evaluation because in real life we rarely see a simple cause and effect relationship operating in a vacuum. Usually, many factors that can influence accidents are operating simultaneously – changes in traffic volume,

population size, etc. Furthermore, countermeasure programs themselves are in effect concurrent and can augment or obscure each other's effects. In such a situation, only a formal evaluation that rigorously follows prescribed rules can provide information about the effectiveness of the particular program under examination.

To sum up, highway safety programs are too important – too many lives depend on their outcome – to allow guesswork to guide program decisions. Because of the complicated mix of factors influencing the setting in which any highway safety program operates, it is imperative that formal evaluation procedures be used to measure actual program results. Nothing could be more "ivory tower" (than) to by-pass evaluation on the grounds of theory, hope, or optimism.¹⁰⁰

The Queensland Government, the RTA and CARRS-Q acknowledge that further research should be conducted on the road safety benefit of ANPR.¹⁰¹ The committee agrees.

CARRS-Q also specified that research should:

- Identify a 'best practice' approach to the implementation of ANPR; and
- Trial ANPR with a focus on its capacity to act as a general deterrent to illegal driving, as well as a means of detecting offenders.¹⁰²

The Queensland Government submitted that, prior to any wide-scale deployment of ANPR, the costs and benefits would need to be fully investigated.¹⁰³ The committee concludes that this research would be a practical and prudent measure for all agencies using or considering ANPR.

As noted above, there are already moves afoot to implement a national ANPR network in Australia. The committee notes that this network will fulfil policing objectives that are outside of road safety. CrimTrac's scoping study will also include a cost benefit analysis.¹⁰⁴ CrimTrac's funding model would involve contributions from the Commonwealth and state/territory governments.¹⁰⁵ CrimTrac also advise that a single, national ANPR database would provide a greater cost benefit to law enforcement agencies.¹⁰⁶

⁹⁷ Home Office, 2007, pp. 7-50.

⁹⁸ Carnis, 2007, p. 3.

⁹⁹ CARRS-Q, *Submission no. 30*, p. 19; Queensland Government, *Submission no. 31*, p. 3; Roads and Traffic Authority, *Submission no. 29*, p. 3.

¹⁰⁰ Council, Reinfurt, Campbell, Roediger, Carroll, Dutt, and Dunham, 1980, pp. 27-8.

¹⁰¹ CARRS-Q, *Submission no. 30*, p. 21; Queensland Government, *Submission no. 31*, p. 6; Roads and Traffic Authority, *Submission no. 29*, p. 3.

¹⁰² CARRS-Q, *Submission no. 30*, p. 20.

¹⁰³ Queensland Government, *Submission no. 31*, p. 10.

¹⁰⁴ CrimTrac, *Submission no. 19*, p. 4.

¹⁰⁵ CrimTrac, *Submission no. 19*, p. 10.

¹⁰⁶ CrimTrac, *Submission no. 19*, p. 33.

The APF advised the committee that the costs of ANPR could include non-quantifiable disbenefits such as function creep, abuse of data and the impact on those who have been intercepted due to inaccuracies.¹⁰⁷ These issues are discussed later in the report.

TECHNICAL CONSIDERATIONS

Notwithstanding the case for further research to identify how best to use ANPR, the committee examined the technical, privacy and other implications of its use and the need for safeguards.

System security and data management

The issue of system security and data management is relevant to the computer databases and 'hotlists' that may be used to identify number plates of interest to authorities, as well as the images and data that is produced by ANPR units. This data may be cross-matched against data from other ANPR units to identify speeding and fatigue driving infringements, or retained for other law enforcement purposes.

Information generated from ANPR units may be attractive to a number of government agencies as well as commercial interests and individuals. While noting that data security cannot be absolute,¹⁰⁸ if ANPR data is to be retained, a number of security systems should be put in place. These include:

- Access to data should be restricted to authorised users;¹⁰⁹
- Data should be retained for as little time as possible, to minimise the possibility of a security breach;¹¹⁰
- Data should be transferred securely;¹¹¹ and
- Data should be stored with high security encryption and digital signatures.¹¹²

The Queensland Government advised the committee that:

*Data security and privacy are also concerns that need addressing. The BUC project utilises high security encryption and digital signatures to ensure that the data is not tampered with. In addition, access to the images is restricted to the point that only QPS can view the images.*¹¹³

¹⁰⁷ Clarke, *Hearing Transcript*, 14 March 2008, p. 15.

¹⁰⁸ Clarke, *Hearing Transcript*, 14 March 2008, p. 11.

¹⁰⁹ CrimTrac, *Submission no. 19*, p. 26.

¹¹⁰ Victorian Privacy Commissioner, *Submission no. 26*, pp. 3-4.

¹¹¹ Queensland Government, *Submission no. 31*, p. 13.

¹¹² Queensland Government, *Submission no. 31*, p. 13.

¹¹³ Queensland Government, *Submission no. 31*, p. 13.

CrimTrac also submitted that security systems should be audited to ensure that they are adhered to.¹¹⁴

Accuracy

Submitters advised the committee that high error rates were possible with ANPR:

- In certain environmental conditions including lighting, weather, the surroundings and the density of traffic;¹¹⁵
- Due to the duplication of number plate character sets across jurisdictions and the inability to correctly read the state or territory identifier on the number plate;¹¹⁶
- When databases were inaccurate or out-of-date;¹¹⁷ and
- Due to number plate issues such as the reflectivity of the surface, dirt, damage, unusual scripts or active attempts to prevent accurate capture.¹¹⁸

The consequences of inaccurate number plate readings depend on whether vehicles are immediately intercepted, or whether infringement notices are sent by mail to vehicle owners who have allegedly committed an offence.

For offences that are identified using ANPR units and enforced by the issuance of infringement notices, inaccurate ANPR units may result in an expensive manual adjudication process.¹¹⁹ The CSIRO advised in their submission that the accuracy of new generations of ANPR technology is improving rapidly.¹²⁰ The correct positioning and regular maintenance of ANPR units can also improve accuracy rates.¹²¹ The Queensland Government advised the committee that, with the fixed ANPR units currently used, accuracy rates of better than 95 per cent are possible, while the mobile units have an accuracy rate of 80 to 95 per cent.¹²²

¹¹⁴ CrimTrac, *Submission no. 19*, p. 19.

¹¹⁵ Australian Privacy Foundation, *Submission no. 20*, p. 3; National Motor Vehicle Theft Reduction Council, *Submission no. 6*, p. 4; Office of the Privacy Commissioner, *Submission no. 28*, p. 7.

¹¹⁶ Cousin, *Submission no. 18*, p. 1; National Motor Vehicle Theft Reduction Council, *Submission no. 6*, p. 4.

¹¹⁷ Australian Privacy Foundation, *Submission no. 20*, p. 3; Lincoln, *Submission no. 22*, p. 1; Office of the Privacy Commissioner, *Submission no. 28*, p. 7; RACQ, *Submission no. 17*, pp. 15-16.

¹¹⁸ Australian Privacy Foundation, *Submission no. 20*, p. 3.

¹¹⁹ CARRS-Q, *Submission no. 30*, p. 3.

¹²⁰ CSIRO, *Submission no. 16*, p. 5.

¹²¹ CARRS-Q, *Submission no. 30*, p. 2; Queensland Government, *Submission no. 31*, p. 5.

¹²² Queensland Government, *Submission no. 31*, p. 5.

PRIVACY CONSIDERATIONS

A number of privacy issues surrounding ANPR were raised during the inquiry, particularly if data relating to vehicles that pass ANPR units were to be routinely retained.

In Queensland, state government agencies are not bound by statutory privacy protections. Rather, they are subject to an administrative privacy regime. The following Information Privacy Principles (IPPs) are specified in the *Information Standard No. 42: Information Privacy* (IS42):

1. Manner and purpose of collection of personal information;
2. Solicitation of personal information from individual concerned;
3. Solicitation of personal information generally;
4. Storage and security of personal information;
5. Information relating to records kept by record-keeper;
6. Access to records containing personal information;
7. Alteration of records containing personal information;
8. Record-keeper to check accuracy, etc., of personal information before use;
9. Personal information to be used only for relevant purposes;
10. Limits on use of personal information; and
11. Limits on disclosure of personal information.¹²³

As number plates are considered to be personal information, as defined by IS42,¹²⁴ the use of ANPR by the Queensland Government is subject to the above principles. However, law enforcement agencies are exempt from IPPs numbers (2), (3), (9), (10) and (11) for all functions except administrative functions.¹²⁵

The committee notes that the IS42 does not provide any form of redress for individuals whose privacy is breached, though there are complaint and oversight avenues.¹²⁶

¹²³ Queensland Government Chief Information Office, 2001, p. 7.

¹²⁴ Cope, *Hearing Transcript*, 14 March 2008, p. 13; Minister for Finance, SA, *Submission no. 32*, pp. 1-2; Office of the Privacy Commissioner, *Submission no. 28*, p. 4; Queensland Government, *Submission no. 31*, p. 19.

¹²⁵ Queensland Government Chief Information Office, 2001, p. 4; Queensland Government, *Submission no. 31*, p. 18.

¹²⁶ Office of the Privacy Commissioner, *Submission no. 28*, p. 2.

Data retention

Privacy concerns related to the retention of data include:

- The amount of information which can be collected about people and their movements;¹²⁷
- The recording and retention of data relating to people who have not been identified as having done something illegal;¹²⁸
- The use of ANPR for previously unintended purposes, referred to as “function creep”;¹²⁹
- The ability for people to verify the correctness of information held on the databases;¹³⁰
- How individuals are advised that their personal information is being collected, the purposes for which it will be used or disclosed, what rights they have in relation to seeing that information, and the complaints mechanism available to them if something does go wrong;¹³¹
- Security risks relating to the collection and storage of large quantities of data;¹³²
- The detriment caused to individuals when errors are made such as mistaken identity, false matching, inaccurate or out-of-date information and breaches of security;¹³³
- Philosophical issues about the collection and use of information and how that relates to the sort of society we are content to live in;¹³⁴ and
- The adequacy of existing legislation/policy frameworks to deal with the fundamental privacy implications relating to the use of ANPR units.¹³⁵

The committee noted that most privacy concerns are allayed if data relating to vehicles not found to be of

¹²⁷ Office of the Privacy Commissioner, *Submission no. 28*, pp. 5-6; Queensland Council for Civil Liberties, *Submission no. 24*, p. 1; RACO, *Submission no. 17*, p. 21; Rodionoff, *Submission no. 7*, p. 1.

¹²⁸ CARRS-Q, *Submission no. 30*, p. 3; Office of the Privacy Commissioner, *Submission no. 28*, p. 5; Queensland Council for Civil Liberties, *Submission no. 24*, p. 2; RACO, *Submission no. 17*, p. 3.

¹²⁹ Australian Privacy Foundation, *Submission no. 20*, p. 2; Blacklock, *Submission no. 27*, pp. 1-2; CARRS-Q, *Submission no. 30*, p. 7; Office of the Privacy Commissioner, *Submission no. 28*, p. 7; Queensland Council for Civil Liberties, *Submission no. 24*, pp. 2-3; RACO, *Submission no. 17*, p. 21; Victorian Privacy Commissioner, *Submission no. 26*, p. 2; Yates, *Submission no. 13*, p. 2.

¹³⁰ Ingerson, *Submission no. 15*, p. 1.

¹³¹ Victorian Privacy Commissioner, *Submission no. 26*, p. 3.

¹³² Minister for Finance, SA, *Submission no. 32*, p. 2.

¹³³ Home Affairs Committee, 2007; Victorian Privacy Commissioner, *Submission no. 26*, p. 4.

¹³⁴ Home Affairs Committee, 2007.

¹³⁵ Queensland Council for Civil Liberties, *Submission no. 24*, p. 1.

interest is not retained, or is automatically deleted.¹³⁶ The DMR has informed the committee that infringement data collected by ANPR units on the BUC is retained by the QPS Traffic Camera Office for a period of 10 years, whilst other data is automatically discarded by the system.¹³⁷

QPS in their evidence indicated that retaining data would have a policing benefit, but not without considering the privacy and security issues.¹³⁸

Function creep

The possibility of function creep arising from the retention of data was a particular concern for submitters to the inquiry. There is a genuine concern that data could be used for purposes that have not been subject to scrutiny or oversight.¹³⁹ This data could also be valuable to federal and state law enforcement, welfare and tax agencies, as well as private organisations and individuals.¹⁴⁰ The value and possible uses of the data could be increased by combining it with other data sets.¹⁴¹ To ensure public support for programs reliant on ANPR, the committee considers that the potential for function creep needs to be properly addressed.

In their submission, the Office of the Privacy Commissioner stated that additional uses for ANPR data that are considered, deliberate, appropriate, scrutinised and consistent with community standards would not constitute function creep.¹⁴² To reduce the possibility of function creep, the Office of the Privacy Commissioner recommended to the committee that:

The collection and retention of personal information should be limited to that which is necessary to achieve clearly articulated purposes. For example, the circumstances or offences where information is collected should be prescribed so that information is only collected or retained for that purpose, with personal information about other individuals either not being collected, or deleted as soon as possible; and

The potential uses of information collected using ANPR should be clearly articulated in enabling legislation. Should additional compelling public interests be served in the future

*by new applications of ANPR, these should only be pursued after public consultation and the scrutiny of parliament. Such an approach reduces the risk of incremental and unplanned expansion in the use of ANPR, instead requiring a careful and transparent deliberative process.*¹⁴³

The Queensland Government advised that personal information collected with ANPR for road safety purposes and then used for additional or unrelated purposes, including broader law enforcement activities, was unlikely to comply with IS42. The Government agreed with the Office of the Privacy Commissioner's suggestion that issues relating to privacy should be safeguarded by incorporating a legislative framework.¹⁴⁴

If ANPR is deployed in Queensland for road safety purposes and the Office of the Privacy Commissioner's recommendations were implemented, data concerning all vehicles should not be collected, or should be deleted as soon as practicable without being retained, as the data is unnecessary for that purpose. However, if the purpose of the data collection were to change, for example, if the Queensland Government were to participate in CrimTrac's proposed national ANPR approach, which may include collecting information from all fixed, mobile or in-car ANPR units for interrogation by Australian law enforcement agencies,¹⁴⁵ the change of purpose would first need to be scrutinised by the Parliament.

Data mining

ANPR data could potentially be retained and later 'mined' or sifted. This could, for example, be to identify patterns of illegal vehicle use by offenders.

Police in Britain can only access retained data if they suspect a person has committed an offence. Data is discarded after five years unless the information pertains to major crime. The data is initially available to officers for three months. Following this period, access is restricted and its use is authorised by a Superintendent.¹⁴⁶

The committee concludes that equivalent safeguards for retained data should be provided in Queensland as a minimum.

¹³⁶ Australian Privacy Foundation, *Submission no. 20*, p. 4; Office of the Privacy Commissioner, *Submission no. 28*, p. 6; RACQ, *Submission no. 17*, p. 21.

¹³⁷ Department of Main Roads, *Personal Communication*, 28 March 2008.

¹³⁸ Nolan, *Hearing Transcript*, 14 March 2008, p. 24.

¹³⁹ Victorian Privacy Commissioner, *Submission no. 26*, p. 3; Yates, *Submission no. 13*, p. 2.

¹⁴⁰ Australian Privacy Foundation, *Submission no. 20*, p. 20; Victorian Privacy Commissioner, *Submission no. 26*, p. 2.

¹⁴¹ Office of the Privacy Commissioner, *Submission no. 28*, p. 6; Victorian Privacy Commissioner, *Submission no. 26*, p. 2.

¹⁴² Office of the Privacy Commissioner, *Submission no. 28*, p. 7.

¹⁴³ Office of the Privacy Commissioner, *Submission no. 28*, p. 8.

¹⁴⁴ Queensland Government, *Submission no. 31*, p. 20.

¹⁴⁵ CrimTrac, *Submission no. 19*, p. 26.

¹⁴⁶ CARRS-Q, *Submission no. 30*, p. 4-19.

Human rights

The APF submitted to the committee that due to the alleged 'chilling effect' on legitimate behaviour, ANPR represents a direct breach of human rights, particularly the right to liberty of movement enshrined in the International Covenant of Civil and Political Rights (ICCPR) Article 12.1. The ICCPR, which was ratified by Australia on 13 November 1980,¹⁴⁷ states:

1. *Everyone lawfully within the territory of a State shall, within that territory, have the right to liberty of movement and freedom to choose his residence.*
2. ...
3. *The above-mentioned rights shall not be subject to any restrictions except those which are provided by law, are necessary to protect national security, **public order** (ordre public), **public health** or morals or the rights and freedoms of others, and are consistent with the other rights recognised in the present Covenant.¹⁴⁸ (emphasis added).*

The committee notes that, if indeed ANPR does chill legitimate behaviour, the use of ANPR may be justified for its use to protect the public order and public health, by way of reduced road crashes. The Queensland Parliament's Scrutiny of Legislation Committee (SLC) is required, in accordance with section 103(a) of the *Parliament of Queensland Act 2001*, to consider the application of fundamental legislative principles to Bills. These principles include whether the legislation has sufficient regard to the rights and liberties of individuals.¹⁴⁹ Therefore, the committee anticipates that this issue would be considered by the SLC should the use of ANPR be incorporated into legislation.

Privacy Impact Assessments

The Office of the Privacy Commissioner describes Privacy Impact Assessments (PIAs) as:

...an assessment tool that describes in detail the personal information flows in a project, and analyses the possible privacy impacts of the project. A PIA may do this by helping an agency to identify when the collection of particular information is unnecessary for a given project, or where accountability or oversight processes may reduce privacy risks. The elements that make up a PIA (including identification, analysis and management of privacy risks) help agencies to drive good privacy practice and underpin good public policy. The over-arching benefit of a PIA is that it will identify and analyse privacy impacts during a project's design phase, which in turn assists agencies to determine the appropriate management of any negative privacy impacts.¹⁵⁰

The Queensland Government's submission indicated that QT was in the process of drafting a PIA for the use of ANPR.¹⁵¹ QT provided the committee with a copy of the draft PIA which relates to the use of ANPR to enforce the BUC heavy vehicle restrictions.¹⁵² CrimTrac advised that a PIA will be included in the scoping study delivered to the Ministerial Council for Police and Emergency Management – Police in late 2008.¹⁵³

SAFEGUARDS

The committee recognises that if ANPR is to be introduced in Queensland, it should be accompanied by a robust system of safeguards to protect the privacy of individuals whose picture or travel details may be recorded by an ANPR device. These safeguards would be crucial in Queensland in the absence of state privacy legislation or an independent statutory office charged with advocating for, and protecting privacy.

Legislative provisions

The committee received a number of submissions suggesting that ANPR should be introduced with a legislative scheme to protect the privacy of individuals.¹⁵⁴ The Victorian Privacy Commissioner recommended that such legislation:

- Identifies specific, limited purposes for which the data collected can be used and disclosed;
- Identifies specific, limited agencies and organisations to whom disclosures can be made;
- Imposes strict limits on the period for which data can be retained;
- Imposes severe penalties for misuse; and
- Establishes a regulatory system, incorporating a complaints scheme by which individuals affected can seek redress.¹⁵⁵

Administration

The committee notes that a number of day-to-day administrative operations can be implemented to manage the use of ANPR. QT's ANPR PIA outlines the following measures to enforce legislative sanctions for privacy breaches:

¹⁴⁷ Office of the High Commissioner for Human Rights, 2002.

¹⁴⁸ International Covenant of Civil and Political Rights.

¹⁴⁹ Section 4(2)(a) of the *Legislative Standards Act 1992*.

¹⁵⁰ Office of the Privacy Commissioner, *Submission no. 28*, p. 5.

¹⁵¹ Queensland Government, *Submission no. 31*, p. 16.

¹⁵² Queensland Transport, n.d., p. 1.

¹⁵³ CrimTrac, *Submission no. 19*, p. 4.

¹⁵⁴ Office of the Privacy Commissioner, *Submission no. 28*, p. 10; Queensland Transport, *Submission no. 31*, p. 20; Victorian Privacy Commissioner, *Submission no. 26*, p. 1.

¹⁵⁵ Victorian Privacy Commissioner, *Submission no. 26*, p. 4.

- Data collection, handling, disclosure and disposal procedures for personal information collected by ANPR;
- A formal review mechanism for the ANPR privacy management plan;
- Training of internal staff on the amendments to the *Transport Operations (Road Use Management) Act 1995*; and
- Consultations with the Queensland Ombudsman and the Office of the Federal Privacy Commissioner.¹⁵⁶

In their submission, CrimTrac assured the committee that a national ANPR system would include appropriate security architecture to protect data from misuse.¹⁵⁷

In NSW, the data is securely transmitted from the RTA and downloaded by authorised officers onto the ANPR system controller and field unit. The field unit is password-protected and time-blocked to ensure operations are conducted within specified timeframes.¹⁵⁸ After every session, the data captured by the system is cleansed and only the registration details of vehicles of interest are retained. Photographs of vehicle occupants are not captured.¹⁵⁹ The committee supports these arrangements as a model for ANPR administration in Queensland.

Oversight and complaint avenues

Accountable officers of Queensland Government agencies are responsible for ensuring that operations are IS42 compliant. Breaches of IS42 may result in a breach of the *Public Service Act 1996* or the *Public Sector Ethics Act 1994* for which penalties are detailed.

Complaints can be made in writing to QT where information collected is not dealt with in accordance with an IPP. The Director-General of QT is responsible for internal review processes within the department. The committee has been advised that a complaint will be adjudicated within 60 days. In its ANPR PIA, QT has advised that additional measures will be used to investigate privacy breaches.¹⁶⁰

The Queensland Ombudsman provides a further avenue for complaint and appeal. Under the *Ombudsman Act 2001*, the Ombudsman has the power to:

- Investigate administrative actions of agencies;

- Consider the administrative practices and procedures of an agency whose actions are being investigated and to make recommendations to the agency; and
- Consider the administrative practices and procedures of agencies generally and to make recommendations or provide information or other help to agencies for the improvement of the practices and procedures.¹⁶¹

The Crime and Misconduct Commission (CMC) which deals with issues of misconduct within the Queensland public sector could also play a role. The CMC monitors how agencies deal with complaints and in serious cases conducts independent investigations.¹⁶²

In summary, the committee is satisfied that, with appropriate safeguards to manage and protect individual's privacy, ANPR can be effectively implemented for use in Queensland.

NUMBER PLATE ISSUES

The following section discusses a range of number plate design and placement issues that affect the efficacy of ANPR.

Frontal number plates for motorcycles

Motorcycles, in accordance with the *Transport Operations (Road Use Management – Vehicle Registration) Regulation 1999* do not have front number plates because of safety issues that could arise during a crash.¹⁶³ A number of submitters to the inquiry noted that the full benefits of ANPR technology may be compromised by the lack of front number plates for motorcycles.¹⁶⁴ The Australian Transport Council included the implementation of frontal identification systems for motorcycles in the *National Road Safety Action Plan 2005 and 2006*.¹⁶⁵

The committee is aware of two alternatives that have been examined. QT trialled radio frequency identification devices for motorcycles. These devices were found to be unsuitable. QT indicated that they will continue to monitor alternative technologies.¹⁶⁶ VicRoads investigated the use of self-adhesive front registration number decals.¹⁶⁷ The committee sought but was unable

¹⁵⁶ Queensland Transport, n.d., p. 15.

¹⁵⁷ CrimTrac, *Submission no. 19*, p. 19.

¹⁵⁸ Privacy NSW, *Personal Communication*, 9 February 2008.

¹⁵⁹ NSW Police Force, *Personal Communication*, 21 February 2008.

¹⁶⁰ Queensland Transport, n.d., p. 14.

¹⁶¹ Department of Justice and Attorney-General, *Personal Communication*, 28 March 2008.

¹⁶² *Crime and Misconduct Commission*, 2007.

¹⁶³ Oswin, *Hearing Transcript*, 14 March 2008, p. 28.

¹⁶⁴ Blacklock, *Submission no. 27*, p. 1; RACQ, *Submission no. 17*, p. 3; Schmidtchen, *Submission no. 1*, p. 1; VicRoads, *Submission no. 25*, p. 2.

¹⁶⁵ Australian Transport Council, 2005, p. 27.

¹⁶⁶ Oswin, *Hearing Transcript*, 14 March 2008, p. 28.

¹⁶⁷ VicRoads, 2007.

to obtain the results of the evaluation of the trial due in early 2008.¹⁶⁸ Hon Tim Pallas MP, Victorian Minister for Roads and Ports subsequently informed the committee that no decision has been made to re-introduce front number plates on motorcycles, and the most appropriate means of identifying motorcycles is still under consideration by the Standing Committee on Transport.¹⁶⁹

Type and placement of number plates

Number plate issues are not limited to motorcycles. Issues relating to number plates continue to limit the overall performance of ANPR technology.¹⁷⁰ These issues include:

- Inconsistencies in reflectivity of plates due to age and design;¹⁷¹
- The reflectivity characteristics of plates in the infra red spectrum required for all vehicle detections;
- The enforcement of rules regarding obscuration of plates;¹⁷²
- The issue of plates with identical numbers and letters by registration authorities in different states;¹⁷³
- The ability of ANPR software engines to deal with the wide variety of plates shapes and sizes between states;¹⁷⁴ and
- Whether the ANPR software can be configured to capture off-centre licence plates, such as vehicles with spare tyres or towbars mounted on the rear.¹⁷⁵

The Queensland Government advised the committee that the ANPR systems currently in use detect reflective and non-reflective plates,¹⁷⁶ however some personalised plates cannot be successfully read.¹⁷⁷

Stolen and cloned plates

In the UK, the frequency of number plate thefts has increased from three in every 10,000 motor vehicles in 2002/2003 to ten in every 10,000 vehicles in 2004/2005. This increase has been attributed at least partially to the use of ANPR with offenders seeking to evade traffic fines

and avoid being detected moving stolen vehicles. It is also possible that the use of ANPR may motivate false reporting of number plate theft to evade fines and congestion charges.¹⁷⁸ Tamper-proof plates could assist in reducing the theft of number plates.¹⁷⁹

In 2006, Victoria Police, in conjunction with Neighbourhood Watch, launched *Operation Safe Plate*. This initiative involved fitting one-way screws to approximately 10,000 vehicles in two high-risk areas.¹⁸⁰ An evaluation to determine the effectiveness of this countermeasure has not as yet been published. The committee has been informed of developments of ANPR technology that includes matching vehicle badges, which confirm a vehicle's make and model, with registration data to identify stolen number plates.¹⁸¹ However, this technology is unlikely to detect incidences of 'cloned' plates,¹⁸² or the use of number plates from another vehicle of the same model and colour. Reports from the UK indicate that cloned plates are also being utilised to avoid detection.¹⁸³

Other ANPR avoidance techniques

A number of other techniques to avoid ANPR units have been attempted in Australia and overseas.¹⁸⁴ NSW Police told the committee that attempts to disguise number plates, such as reflective covers, did not work as the infra-red cameras were still capable of reading the number plates.¹⁸⁵ The cameras are also capable of reading plates when headlights are turned off at night.¹⁸⁶ The committee notes that vehicle owners are required under R 24(1) of the Transport Operations (Road Use Management – Vehicle Registration) Regulation 1999 to ensure that number plates are legible and do not have covers that would prevent the successful operation of a photographic detection device. A maximum penalty of 40 penalty units applies.

The Queensland Government submission raised concerns about heavy vehicles using alternative routes to avoid ANPR sites and the detection of fatigue offences. This could lead to an increase in heavy vehicle traffic along routes that are unable to safely manage the

¹⁶⁸ VicRoads, *Submission no. 25*, p. 2.

¹⁶⁹ Hon Tim Pallas MP, *Personal Communication*, 24 July 2008.

¹⁷⁰ Cousin, *Submission no. 18*, p. 1; CSIRO, *Submission no. 16*, p. 5; Parsons Brinkerhoff Australia Pty Ltd, *Submission no. 8*, p. 2.

¹⁷¹ Roads and Traffic Authority, *Submission no. 29*, p. 2.

¹⁷² Roads and Traffic Authority, *Submission no. 29*, p. 1.

¹⁷³ Cousin, *Submission no. 18*, p. 1; Roads and Traffic Authority, *Submission no. 29*, p. 1.

¹⁷⁴ Roads and Traffic Authority, *Submission no. 29*, p. 1.

¹⁷⁵ CARRS-Q, *Submission no. 30*, p. 6.

¹⁷⁶ Queensland Government, *Submission no. 31*, p. 5.

¹⁷⁷ Nolan, *Hearing Transcript*, 14 March 2008, p. 23.

¹⁷⁸ Webb & Raykos, 2006, pp. 3-4.

¹⁷⁹ Webb & Raykos, 2006, p. 39.

¹⁸⁰ Victoria Police, 2006.

¹⁸¹ National Motor Vehicle Theft Reduction Council, *Submission no. 6*, p. 5.

¹⁸² 'Cloning' involves the copying of the identity of a similar vehicle already on the road using false number plates.

¹⁸³ RACQ, *Submission no. 17*, p. 12.

¹⁸⁴ CSIRO, *Submission no. 16*, p. 5.

¹⁸⁵ NSW Police Force, *Personal Communication*, 21 February 2008.

¹⁸⁶ Smith, *Hearing Transcript*, 14 March 2008, p. 28.

increased load.¹⁸⁷ The RTA advised that to deter this avoidance technique in NSW, sites are selected that minimise alternative routes within comfortable travel times. The RTA advised the committee that, as a result, roadside rest areas have been utilised more frequently.¹⁸⁸ ANPR units may also be placed on alternative routes to identify vehicles avoiding detection.¹⁸⁹

DEPLOYMENT

Submitters differed in their opinion as to whether ANPR units should be used in urban or highway areas.¹⁹⁰ The committee, during their visit to NSW, noted that the NSW Police Force rotate their ANPR units between highway patrol offices throughout the state, including offices in urban and rural areas.¹⁹¹ CARRS-Q agree that deployment should be randomised so that it enhances the perception that 'enforcement can be encountered anywhere and at anytime on the road network'.¹⁹²

Submitters also argued that, in order to target a number of illegal and unsafe road behaviours at one time, ANPR units should be deployed in conjunction with mobile speed cameras¹⁹³ and with random breath testing (RBT) and drug testing operations.¹⁹⁴ In order to increase the general deterrence effect, ANPR units should be deployed overtly. In line with deterrence theory, overt deployment of enforcement tools is likely to increase the perceived likelihood of detection if an offence is committed.¹⁹⁵

Fixed cameras tend to be used for point-to-point speed enforcement, while portable units are often used with intercept teams to identify and intercept vehicles of interest. Similarly, in-vehicle units may be used to identify vehicles of interest. Submitters raised concerns about the use of fixed ANPR cameras, with some advocating instead for vehicle mounted and mobile ANPR units with intercept teams.¹⁹⁶ Reasons offered for not supporting fixed ANPR cameras included:

- The amount of monitoring required (and appropriate action based on) the data recorded by the cameras;¹⁹⁷
- The expense involved in setting them up;¹⁹⁸
- The inability to check the owner's address for vehicles that are flagged as unregistered;
- The inability to check immediately that the driver of the vehicle is the registered owner;¹⁹⁹ and
- Privacy and integrity problems relating to the retention of data.²⁰⁰

The benefits of ANPR used with intercept teams included:

- Many of the potential privacy problems are overcome since intercept operations only involve the 'live' checking of existing databases, without the need for recording details of all passing vehicles;
- The experience of being pulled over by the police would generally represent a more salutary experience than receiving a fine in the mail, and this may enhance the specific deterrent impact of the operations;
- Some of the opportunities for punishment avoidance would be minimised since the police would be able to check the licence and address details of the drivers they pull over and issue the relevant fine on the spot; and
- The process of intercepting potential offenders may provide an opportunity to identify other traffic offences, such as failure to wear a seat belt.²⁰¹

However, CARRS-Q cautioned the need to allocate sufficient resources to ANPR operations to ensure efficient operation, while not detracting from other successful policing strategies such as RBT and speed cameras.²⁰² ANPR can be integrated with existing road cameras, such as digital red light or speed cameras to improve the speed and efficiency of the infringement notice process.²⁰³ However, this is not yet possible in Queensland, due to the use of wet film cameras. The committee was advised that future cameras deployed in Queensland may be digital.²⁰⁴ This would enable the technologies to be integrated.

¹⁸⁷ Queensland Government, *Submission no. 31*, p. 8.

¹⁸⁸ Roads and Traffic Authority, *Personal Communication*, 21 February 2008.

¹⁸⁹ Queensland Government, *Submission no. 31*, p. 8.

¹⁹⁰ Calvert, *Submission no. 12*, p. 4; Idston, *Submission no. 2*, p. 1.

¹⁹¹ NSW Police Force, *Personal Communication*, 21 February 2008.

¹⁹² CARRS-Q, *Submission no. 30*, p. 17.

¹⁹³ Idston, *Submission no. 2*, p. 1.

¹⁹⁴ Browne, *Submission no. 3*, p. 2.

¹⁹⁵ CARRS-Q, *Submission no. 30*, p. 17.

¹⁹⁶ RACQ, *Submission no. 17*, pp. 19-20; Rodionoff, *Submission no. 7*, p. 1.

¹⁹⁷ CARRS-Q, *Submission no. 30*, p. 16; RACQ, *Submission no. 17*, p. 3.

¹⁹⁸ RACQ, *Submission no. 17*, p. 3.

¹⁹⁹ CARRS-Q, *Submission no. 30*, p. 16.

²⁰⁰ CARRS-Q, *Submission no. 30*, p. 16; RACQ, *Submission no. 17*, p. 3.

²⁰¹ CARRS-Q, *Submission no. 30*, p. 16.

²⁰² CARRS-Q, *Submission no. 30*, p. 17.

²⁰³ Queensland Government, *Submission no. 31*, p. 16.

²⁰⁴ Churchill, *Hearing Transcript*, 14 March 2008, p. 23.

PUBLIC AWARENESS AND EDUCATION

A number of submitters noted that public information and education should accompany any roll-out of ANPR in Queensland.²⁰⁵ CARRS-Q advised that publicity campaigns should complement enforcement campaigns to highlight the risk of apprehension²⁰⁶ and explain the rationale for the enforcement.²⁰⁷ As mentioned previously, one of the premises of deterrence theory is that deterrence occurs when potential offenders perceive the likelihood of detection is high.²⁰⁸ The UK's Office of Surveillance Commissioners argues that ANPR could be considered covert surveillance, even when overtly displayed, if the occupants of vehicles are unaware of the capabilities of the technology.²⁰⁹ DMR currently signs ANPR sites within the BUC. An example of the signage used in Queensland, as at 15 February 2008, is provided at Figure 2 below.

Figure 2: Signage used on the Brisbane Urban Corridor



Source: Travelsafe Committee, 2008.

QT's PIA states that signs inform motorists prior to the collection point that images will be taken and recorded and convey the purpose of the collection²¹⁰ and that these signs will display a Queensland Government, Main Roads logo to indicate which agency should be contacted for access to the data and/or queries.²¹¹ The committee notes, however, that signage does not include the department's logo, nor inform motorists that data such as the registration number, date, time, location and images are collected for all vehicles that pass the ANPR units.

CONCLUSIONS

The role of traffic policing to enforce road laws remains one of the main tools to reduce road trauma. The primary means of heightening the driving public's perceived risk of apprehension is to increase the level of surveillance. Police are increasingly turning to automated enforcement technology like Automatic Number Plate Recognition (ANPR) to intensify traffic surveillance in an efficient manner.

ANPR is being utilised for policing and traffic functions by international and Australian governments, apparently on operational efficiency grounds. Despite the growing usage, there are very few evaluations of its road safety impacts. The committee has cited two evaluations, neither of which could justify the implementation of ANPR-assisted enforcement on road safety grounds. Further research is required to confirm the efficacy of ANPR in road safety applications and to identify what is good or best practice. This is imperative given the set up and on-going costs to government.

Based on the operational benefits of ANPR, the committee concludes that Queensland departments, including the Queensland Police Service, should continue to trial and use ANPR to monitor traffic and supplement safety-critical enforcements including speeding, the enforcement of heavy vehicle loading, driving hours and route offences and the interception of unregistered vehicles and unlicensed drivers on the road where it is cost-effective to do so, and where it does not draw funds from other proven road safety countermeasures. The committee is encouraged by the potential for point-to-point deployments of ANPR to provide general deterrence for speeding and heavy vehicle fatigue offences.

The committee also notes the indirect contribution that ANPR could make to road safety and the potential savings to the Nominal Defendant Fund that could be achieved by assisting police to detect and deter the use of stolen vehicles on the road.

The committee has used the inquiry to identify technical, privacy and other safeguards that should be implemented to protect the interests of motorists whose vehicle movements are captured and recorded by ANPR systems. This includes security, data management and privacy safeguards, data retention limits and controls to counter the risk of function creep and data mining. The committee has recommended that these safeguards are enshrined in legislation and include a complaint handling procedure.

²⁰⁵ CARRS-Q, *Submission no. 30*, p. 11; Idston, *Submission no. 2*, p. 1; Yates, *Submission no. 13*, p. 8.

²⁰⁶ CARRS-Q, *Submission no. 30*, p. 11.

²⁰⁷ CARRS-Q, *Submission no. 30*, p. 17.

²⁰⁸ CARRS-Q, *Submission no. 30*, p. 10.

²⁰⁹ Office of Surveillance Commissioners, 2006, p. 18.

²¹⁰ Queensland Transport, n.d., p. 6.

²¹¹ Queensland Transport, n.d., p. 9.

Technical problems due to the design of number plates that are incompatible with ANPR cameras continue to plague enforcement agencies. It is imperative that registration authorities adopt and enforce standards for number plates, particularly personalised plates, which are compatible with ANPR technology. It is also imperative that problems with motorcycle number plates are promptly resolved to ensure motorcycles involved in illegal road use are identified by surveillance and enforcement cameras like other vehicles.

Public support for ANPR is critical to its effectiveness as a road safety tool. Motorists need to be informed if and when they are under surveillance by ANPR systems. The signage used in connection with the Brisbane urban Corridor does not include elements as specified in the Privacy Impact Assessment prepared by Queensland Transport and should be rectified. The signage should inform all motorists that their images are being captured, not just truck drivers.

RECOMMENDATIONS

The committee makes the following recommendations:

RECOMMENDATION 1.

That Queensland Transport undertakes research into the road safety benefits of Automatic Number Plate Recognition technology. This research should seek to identify best practice approaches to implementing and deploying the technology to detect and deter speeding offences, heavy vehicle offences, the driving of unregistered vehicles and unlicensed driving.

Ministerial Responsibility: Minister for Transport

RECOMMENDATION 2.

That the Department of Main Roads, Queensland Transport and the Queensland Police Service continue to trial the deployment of ANPR technology for traffic enforcement work and to evaluate the road safety impacts and operational effectiveness of the technology.

*Ministerial Responsibility: Minister for Transport,
Minister for Police, Minister for Main Roads*

RECOMMENDATION 3.

That safeguards and controls governing the use of Automatic Number Plate Recognition technology be clearly articulated in enabling legislation. This legislation shall prescribe that:

- Access to data collected by ANPR devices is restricted to authorised agencies and users;
- The collection and retention of personal information is limited to that which is necessary to achieve clearly articulated purposes;

- Data relating to vehicles not found to be committing an offence shall be cleansed nightly from devices to minimise the possibility of security breaches;
- Data shall be transported securely between devices and repositories and stored with high-security encryption and digital signatures;
- Security systems shall be subject to regular audits to ensure they are adhered to;
- Should additional and compelling public interests be served in the future by new applications of ANPR, these should only be pursued after public consultation and scrutiny by Parliament;
- The misuse of ANPR data attracts severe penalties; and
- Affected individuals have access to a complaints scheme to seek redress if their rights are abused.

*Ministerial Responsibility: Minister for Transport,
Minister for Police, Minister for Main Roads*

RECOMMENDATION 4.

That Queensland Transport ensure that all vehicles registered in Queensland are fitted with number plates of a standard and design that can be accurately and reliably read by ANPR technology.

Ministerial Responsibility: Minister for Transport

RECOMMENDATION 5.

That the Department of Main Roads amend signage in connection with ANPR cameras on the Brisbane Urban Corridor so that all motorists are made aware that their images may be captured and recorded.

Ministerial Responsibility: Minister for Main Roads

RECOMMENDATION 6.

That the responsible ministers provide a progress report on the implementation and/or the evaluation of ANPR in Queensland to Parliament within 12 months.

*Ministerial Responsibility: Minister for Transport,
Minister for Police, Minister for Main Roads*



Jo-Ann Miller MP

Chair

REFERENCES

- Ame Info. (2005). *Qatar Government to search for contractors and consultants at Gulf Traffic*. Accessed 10 December 2007 from <http://www.ameinfo.com/60857.html>
- Australasian College of Road Safety. (2008). *Road Crashes Involving Stolen Motor Vehicles in South Australia*, 19 (2), pp. 38-46.
- Australian Transport Council. (2005). *National Road Safety Action Plan 2005 and 2006*. Canberra: Australian Transport Safety Bureau.
- Australian Transport Safety Bureau. (2004). *Road Safety in Australia: A Publication Commemorating World Health Day 2004*. Canberra: Australian Transport Safety Bureau.
- Batanovic, V., Radiojevic, G., & Damjanovic, Z. (2007). Electronic tolling on board units as electronic custom seals. Presented at the 2007 European Transport Conference, The Netherlands, October 2007.
- Bewator. (2006). *Alcatel chose Bewator for providing the video surveillance solution for the integrated monitoring system on the Romanian national highway DN1*. Accessed 10 December 2007 from http://www.bewator.com/int/news/index.xml/news-archive-bewator/solaris_dome_cameras_to_r/index.xml
- Bredhauer, S. (2000). *Response by the Minister for Transport and Minister for Main Roads to the Queensland Parliamentary Travelsafe Committee Report No. 27: Unlicensed, Unregistered and on the Road*. Brisbane: Minister for Transport and Minister for Main Roads.
- Bureau of Transport Economics. (2000). *Report 102: Road Crash Costs in Australia*. Canberra: Bureau of Transport Economics.
- Carnis, L. (2007). The automated speed enforcement programme in France. Presented at the *Australasian Road Safety Research, Policing and Education Conference*, Melbourne, Victoria.
- Champness, P., Sheehan, M., & Folkman, L-M. (2005). Time and distance halo effects of an overtly deployed mobile speed camera. Presented at the *Australasian Road Safety Research, Policing and Education Conference*, Wellington, New Zealand.
- Chang, S., Chen, L., Chung, Y., & Chen, S. (2004). *Automatic License Plate Recognition, Transactions on Intelligence Transportation Systems*, 5 (1), pp. 42-53.
- CNET Networks, Inc. (2005). *Finnish Customs captures license plate data*. Accessed 5 December 2007 from http://findarticles.com/p/articles/mi_hb4997/is_200511/ai_n1819776_1
- Connors, S. (2006). *Britain will be the first country to monitor every car journey*. Accessed 14 April 2008 from <http://www.independent.co.uk>
- Council, F., Reinfurt, D., Campbell, B., Roediger, F., Carroll, L., Dutt, A., & Dunham J. (1980). *Accident Research Manual*, Federal Highway Administration, Washington.
- Crime and Misconduct Commission. (2007). *Misconduct*. Accessed 4 April 2008 from <http://www.cmc.qld.gov.au/asp/index.asp?pgid=10658>
- Crown Agents. (2007). *Computerisation of Customs in Kosovo*. Accessed 7 December 2007 from <http://www.crownagents.com/projects.asp?step=2&contentID=968§orID=6&serviceID=0®ionID=1>
- Dacolian, BV. (2007). *National ETC system in Norway*. Accessed 10 December 2007 from <http://numberplaterecognition.com/en/news/item/50/>
- Department of Main Roads. (2007). *Brisbane Urban Corridor – Truck Restrictions*. Accessed 14 April 2008 from <http://www.mainroads.qld.gov.au/web/publicCR.nsf/0/5C404C5B729CE8024A257379001CF86B?OpenDocument>
- Department of the Premier and Cabinet. (2006a). *Old Progresses Country's Toughest Young Driver Laws*. Accessed 19 March 2008 from <http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=49099>
- Department of the Premier and Cabinet. (2006b). *Queensland's Wake Up Call: Over 300 Lives Lost on our Roads*. Accessed 3 December 2007 from <http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=49291>
- Department of the Premier and Cabinet. (2007a). *Queensland Parliament Passes New Blueprint for Road Safety*. Accessed 3 December 2007 from <http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=50472>
- Department of the Premier and Cabinet. (2007b). *Fixed Speed Cameras to be Rolled Out Next Month: Spence*. Accessed 3 December 2007 from <http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=55203>
- Department of the Premier and Cabinet. (2007c). *Queensland road toll could be the highest in a decade*. Accessed 10 January 2008 from <http://statements.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=55497>
- Department of the Premier and Cabinet. (2007d). *Premier launches Christmas Road Safety Campaign*. Accessed 10 January 2008 from <http://statements.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=55582>
- Department of the Premier and Cabinet. (2007e). *Slow down: fixed cameras start tomorrow*. Accessed 10 January 2008 from <http://statements.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=55661>
- Elliott, M. A., & Broughton, J. (2005). *How methods and levels of policing affect road casualty rates* (TRL Report 637). Wokingham: Transport Research Laboratory.
- Evans-Pughe, C. (2006). GB Road Watch. *Engineering & Technology*, 36, pp. 36-39.
- European Conference of Ministers of Transport. (2004). *Report on Charges for the Use of Infrastructure*. Accessed 7 December 2007 from <http://www.cemt.org/online/council/2004/CM200419e.pdf>
- European Transport Safety Council (1999). *Police enforcement strategies to reduce traffic casualties in Europe*. European Transport Safety Council: Brussels.
- Garzia, F., & Sammarco, E. (n.d.). *The Integrated Security System of the Vatican Security State*. Accessed 14 December 2007 from http://www.isticom.it/documenti/evidenza/03_Fabio_Garzia_Enzo_Sammarco.pdf
- Heger, U. (2008). Foolish drivers stripped of cars. *The Courier-Mail*, January 25, 3.
- Home Affairs Committee. (2007). *Corrected Transcript of Oral Evidence: A Surveillance Society? 1 May 2007*. Accessed 20 March 2008 from <http://www.publications.parliament.uk/pa/cm200607/cmselect/cmhaf/fc508-ic50802.htm>
- Home Office. (2007). *Police Standards Unit: Evaluation of Automatic Number Plate Recognition 2006/2007*. London, United Kingdom: PA Consulting Group.
- Hommel, R. (1986). *Policing the drinking driver: Random breath testing and the process of deterrence*. Canberra: Federal Office of Road Safety.
- Hommel, R. (1988). *Policing and punishing the drinking driver: A study of general and specific deterrence* (Research in Criminology), New York, Springer-Verlag.
- Institute for Public Policy Research. (2006). *Germany delivers the goods*. Accessed 5 December 2007 from <http://www.ippr.org/articles/index.asp?id=1884>
- Johnson, V. (1996). *Response by the Minister for Transport and Main Roads to the Parliamentary Select Committee on Travelsafe Report No. 16: Driver Training and Licensing*. Brisbane: Minister for Transport and Main Roads.
- Kudumba. (2007). *Our Services*. Accessed 7 December 2007 from <http://www.kudumba.com/Services.htm>
- Land Transport NZ. (2006). *National Land Transport Programme*. Wellington, New Zealand: Land Transport NZ.

- Lucas, P. (2007). *Whole-of-Government response to the recommendations of the Parliamentary Select Committee on Travelsafe Report No. 46: Getting Tough on Drink Drivers*. Brisbane: Minister for Transport and Main Roads.
- Mickel, J. (2007). *Whole-of-Government response to the recommendations of the Parliamentary Select Committee on Travelsafe Report No. 47: Report on the inquiry into Q-RIDE*. Brisbane: Minister for Transport, Trade, Employment and Industrial Relations.
- Office of Surveillance Commissioners. (2006). *Annual Report of the Chief Surveillance Commissioner to the Prime Ministers and to Scottish Ministers for 2005-2006*. London, United Kingdom: The Stationery Office.
- Office of the High Commissioner for Human Rights. (2002). *United Nations Treaty Collection (As of 5 February 2002): Declarations and Reservations*. Accessed 25 January 2008 from http://www.unhchr.ch/html/menu3/b/treaty5_asp.htm
- Parliamentary Advisory Council for Transport Safety. (2005). *Policing Road Risk: New Technologies, Road Traffic Enforcement and Road Safety*. Accessed 29 May 2008 from <http://www.ihie.org.uk/gateway/uploads/PolicingRoadRiskPaper.pdf>
- Privacy International. (2004). *PHR2004 - The Swiss Confederation (Switzerland)*. Accessed 14 December 2007 from <http://www.privacyinternational.org/article.shtml?cmd%5B347%5D=x-347-83795>
- Queensland Government Chief Information Office. (2001). *Information Standard No. 42: Information Privacy*. Brisbane: Queensland Government.
- Queensland Police Service. (2008). *Information on Infringement Notices Issued for Camera Detected Offences*. Accessed 16 June 2008 from http://www.police.qld.gov.au/programs/road_Safety/infringement.htm
- Queensland Police Service. (2007a). *Annual Statistical Review 2006-07*. Brisbane: Queensland Government.
- Queensland Police Service. (2007b). *Vehicle Impoundment Trial*. Accessed 25 March 2008 from <http://www.police.qld.gov.au/News+and+Alerts/campaigns/newVehImpoundLaws.htm>
- Queensland Transport. (2007). *Road Safety*. Accessed 3 December 2007 from <http://www.transport.qld.gov.au/Home/Safety/Road/>
- Queensland Transport. (2008a). *New Queensland driver licence*. Accessed 17 March 2008 from http://www.transport.qld.gov.au/Home/Licensing/Driver_licence/New_qld_driver_licence/
- Queensland Transport. (2008b). *Comparative Queensland Road Toll: As at midnight Sunday, 16 March 2008*. Accessed 18 March 2008 from <http://www.transport.qld.gov.au/Home/Safety/Road/Statistics/>
- Queensland Transport. (n.d.). *ANPR: Privacy Impact Assessment*. Brisbane: Queensland Government.
- Queensland Transport. (2008). *2007 Queensland Road Toll in review*. Accessed 19 March 2008 from http://www.transport.qld.gov.au/resources/file/eb7618087645ef2/Pdf_2007_queensland_road_toll_in_review.pdf
- Roads Traffic Authority. (2007). *Safe-T-Cam*. Accessed 2 April 2008 from <http://www.rta.nsw.gov.au/heavyvehicles/safety/speeding/safetcam/index.html>
- SPG Media Limited. (2007a). *CitySync - Automatic Number Plate Recognition Technologies*. Accessed 4 December 2007 from http://www.roadtraffic-technology.com/contractors/access_control/citysync/
- SPG Media Limited. (2007b). *Derwent - Traffic Cameras with Automatic Number Plate Recognition (ANPR) Technology*. Accessed 14 December 2007 from http://www.roadtraffic-technology.com/contractors/access_control/derwent/
- Ministry of Public Safety and Solicitor General. (2007). *2007/08-2009/10 Service Plan*. Accessed 4 December 2007 from <http://www.bcbudget.gov.bc.ca/2007/sp/pssg/default.aspx?hash=3>
- State of Queensland. (2007). *Explanatory Notes: Transport Legislation Amendment Bill 2007*. Brisbane: Queensland.
- Survivision. (2007). *A selection of projects implemented with Survivision technology*. Accessed 5 December 2007 from <http://www.survivision.fr/references/index.php?setLang=EN>
- Swann, P. (2002). The major issues of drugs, alcohol and fatigue in heavy vehicle safety. Presented at the *National Heavy Vehicle Safety Seminar*, Melbourne, Victoria.
- Thales. (2007). *Homeland Security for Sites, Infrastructures and Populations*. Accessed 3 December 2007 from <http://www.thalesonline.com/security-services/Press-Room/Focus-search-all/Focus-search-result/Focus-Article.html?link=13244312-1000-2a32-0b05-6a225c0f2a51::central&locale=EN-gb&Title=Homeland+Security+for+Sites%2C+Infrastructures+and+Populations&dis=1>
- The Malta Independent. (2007). *New Valletta parking system starts today*. Accessed 7 December 2007 from <http://www.independent.com.mt/news2.asp?artid=50302>
- The Post. (2006). *High Tech: the invisible witness*. Accessed 5 December 2007 from <http://archives.tcm.ie/businesspost/2007/07/22/story25302.asp>
- Tollroads News. (1997). *E-Toll in Oz: Melbourne City Link won by Combitech*. Accessed 4 December 2007 from <http://www.tollroadsnews.com/node/2012>
- Transport Certification Australia. (2005). *About the Intelligent Access Program*. Accessed 18 March 2008 from http://www.tca.gov.au/Content_Common/pg-The-Intelligent-Access-Program.seo
- Travelsafe Committee. (1994). *Report No. 15: Speed Cameras: Should they be used in Queensland*. Brisbane: Legislative Assembly of Queensland.
- Travelsafe Committee. (1997). *Report No. 19: Queensland's Road Toll: Drink Driving (Part 1)*. Brisbane: Legislative Assembly of Queensland.
- Travelsafe Committee. (1999a). *Report No. 27: Unlicensed, Unregistered and on the Road*. Brisbane: Legislative Assembly of Queensland.
- Travelsafe Committee. (1999b). *Report No. 29: Drug Driving in Queensland*. Brisbane: Legislative Assembly of Queensland.
- Travelsafe Committee. (2005). *Report No. 43: Driving on empty: Fatigue Driving in Queensland*. Brisbane: Legislative Assembly of Queensland.
- Travelsafe Committee. (2006). *Report No. 46: Getting Tough on Drink Drivers*. Brisbane: Legislative Assembly of Queensland.
- VicRoads. (2007). *Current Initiatives for Motorcyclists*. Accessed 20 November 2007 from <http://www.vicroads.vic.gov.au/Home/Motorcycles/RoadSafety/CurrentInitiativesForMotorcyclists.htm#Top>
- Victoria Police. (2006). *Media Release: Operation Safe Plate launched*. Accessed 17 December 2007 from http://www.police.vic.gov.au/content.asp?Document_ID=8275
- Webb, B., & Raykos, B. (2006). *Theft of Vehicle Number Plates: A Problem Analysis*. United Kingdom: UCL Jill Dando Institute of Crime Science.
- Wheels 24. (2007). *SA traffic cops super gizmo*. Accessed 7 December 2007 from http://www.wheels24.co.za/Wheels24/News/General_News/0_1369-1372-2094_2227869_00.html
- Young, K., & Regan, M. (2007). *Intelligent Transport Systems to Support Police Enforcement of Road Safety Laws*. Canberra: Federal Office of Road Safety.
- Zaal, D. (1994). *Traffic Law Enforcement: A Review of the Literature*. Canberra: Federal Office of Road Safety.

THE TRAVELSAFE COMMITTEE

The Travelsafe Committee is a select committee of the 52nd Parliament. The committee is required to monitor, investigate and report on all aspects of road safety and public transport in Queensland, particularly:

- Issues affecting road safety including the causes of crashes and measures aimed at reducing death, injuries and economic costs to the community;
- The safety of passenger transport services, and measures aimed at reducing the incidence of related deaths and injuries; and
- Measures for the enhancement of public transport in Queensland and reducing dependence on private motor vehicles as the predominant mode of transport.

COMMITTEE MEMBERS

| | |
|--|------------------------|
| Mrs Jo-Ann Miller MP (Chair) (from 16 April 2008) | Member for Bundamba |
| Mr Jim Pearce MP (Chair) (until 16 April 2008) | Member for Fitzroy |
| Mr Chris Foley MP (Deputy Chair) | Member for Maryborough |
| Dr Bruce Flegg MP (from 26 August 2008) | Member for Moggill |
| Mr Glen Elmes MP (until 26 August 2008) | Member for Noosa |
| Ms Lillian van Litsenburg MP | Member for Redcliffe |
| Mr Ted Malone MP | Member for Mirani |
| Mr P Purcell MP (until 26 February 2008) | Member for Bulimba |
| Mr P Reeves MP (from 26 February 2008) | Member for Mansfield |
| Mrs Desley Scott MP | Member for Woodridge |

COMMITTEE SECRETARIAT

| | |
|---------------------|--|
| Mr Rob Hansen | Research Director |
| Ms Heather Crighton | A/Research Director (until 29 February 2008) |
| Ms Alice Hutchings | A/Senior Research Officer (until 27 March 2008) |
| Ms Erin Pasley | A/Executive Assistant A/Senior Research Officer (from 31 March 2008) |

CONTACT DETAILS

| | |
|--------|---|
| Phone: | 07 3406 7908 |
| Fax: | 07 3406 7070 |
| Email: | tsafe@parliament.qld.gov.au |
| Web: | http://www.parliament.qld.gov.au |