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Special Edition
on "Preparing for The National Road Safety Strategic Plan 2011-2020"

Journal of the Australasian College of Road Safety

Formerly RoadWise — Australia's First Road Safety Journal

In this edition —

Contributed articles:

- Road Safety Strategies for a New Decade
  - Views from the ACRS, ACRS Chapters and individuals
  - Views from Road Safety Research and Specialists
  - From the Viewpoint of Enforcement
  - From the Viewpoint of Road Users
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  - Launch of Road Safety Guides a Success for Austroads - by Adrian Paton, Austroads

Peer-reviewed papers

- Driving and licensing experiences of learner drivers in two Australian states prior to major changes in the licensing laws
- The Material Culture of Road Safety: Road Safety as Museum Display?

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Cover photo: The photo collage on the cover aims to remind us that road safety is a multi-faceted problem that requires a combination of complex responses by government, the community and individuals. The major theme of this edition is designing the Australian Road Safety Strategy for the next decade 2011-2020.

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From the President

Dear ACRS Members,

Bill Gates of Microsoft said "We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten".

There is an increasing call for a "Decade of Road Safety" internationally from 2010 to encourage a high level focus on stopping the unnecessary rapid increase in road trauma in developing countries. What then for Australia? Should we have a similar high level focus? Can we estimate the change we can achieve in the next decade?

We have had a National Road Safety Strategy for the decade 2001-2010. There are plans underway to develop our next national road safety strategy. I asked College members, Chapters, research groups, and others if they would contribute their ideas to this Journal on what they thought this next national road safety strategy might contain. We have received many contributions which have many suggestions.. I am encouraged by the enthusiasm and interest shown and I hope you find them all interesting. The positive comments from Minister Albanese in his introduction are valuable. I thank all who have contributed.

These articles are of course not the only solutions, but they come from informed and experienced sources and I hope will be a valuable input to the conversation we need to have with the community in developing our strategy for the next decade. There are some duplicated ideas, some new ideas and some ideas with which we may not all agree.

Road safety improvement will be a complex, multidisciplinary systems task. We shouldn't be afraid to have a strategy with a target that many may see as an impossible rate of reduction in unnecessary road trauma. The College is a great forum to assist in this process - so many different people, with different interests and experiences, but with the same goal: to reduce road trauma.

We can look back over the last decade to see what we can achieve for the next decade and perhaps then take Bill Gates' observations into account. I learnt many years ago that setting tough targets was always a good strategy, but a better one was to have a vision that realised that as you gained more experience along the way you should increase the target and you could achieve more than your original vision.

It is over a decade ago since the concept of a "vision zero" approach was introduced and researchers suggested that a 50% reduction in fatalities was possible in the last 10 years using known measures. We haven't achieved that but we have learned more and must be clearer now about what to do.

With an emphasis now on the Safe Systems Approach, based on the Vision Zero or Towards Zero concepts, is there potential for a new ambition, based on measures known and predicted in 2009? Personally I have been involved in many activities in the last decade that have had a road safety focus. ANCAP, ITS, Think Before You Drive, Safer Roads, AusRAP, iRAP, Keys to Drive and of course in recent times with the College. I think I can say that all these have achieved more than I originally expected, perhaps not without some slippage and frustration.We know what can be done, we have had some good results based on good research, we owe it to the community to work hard together to what is often simply put as "carpe diem" –seize the day!

When you have digested the contributions in this Journal, can I ask you to consider them all with an open mind and see what we can learn together from these suggestions? I know I am looking forward to reading them all carefully to see what I can learn.

Can I ask you to simply send in a note with constructive comments which we as the College may be able to distil into a summary of key concepts to pass on to the Government officials responsible for the development of the strategy. If there is sufficient interest we may be able to manage a workshop or seminar to help in this process? Can I ask readers to complete the Journal Survey included with this edition, your views are very important to us to plan for the future?

Can I also encourage you to consider registering for the ACRS conference in Perth on 5-6 November. This will be opportunity to hear and participate with national and international specialists. WA participants can apply for payment of registration fees from funding provided by the Community Road Safety Grants Program which is funded by the Road Trauma Trust Fund administered by the Road Safety Council – see conference web site for details.
(http://www.acrs.org.au/activitiesevents/2009conference/)."

It is with sadness that I record the passing of Ken Smith after a valiant fight with illness. Ken was the 1999 College Fellow, a past Executive Member and an active and competent road safety professional. His obituary is included in this Journal.

Lauchlan McIntosh AM, FACRS

President

Diary

8-9 October 2009 Victorian Biennial RoadSafe Conference, Rydges Bell City Event Centre, Preston, Victoria. The Conference will feature keynote speakers, presentations from local specialists, a conference dinner and associated expo. Be informed and inspired by a number of high profile local speakers from the road safety industry. For more information visit: www.iceaustralia.com/roadsafe09

5-6 November 2009 ACRS Conference 'Road Safety 2020: smart solutions, sustainability, vision' Perth. WA. Sub themes: advances in technology; research advances and solutions (smart systems); high risk road users; current issues. For further information contact: eo@acrs.org.au.

11-13 November 2009 Australian Road Safety Research, Policing and Education Conference, Sydney. For further information, please visit www.roadsafetyconference2009.com.au

RRSP Profile

This is a feature first introduced in the May 2009 edition, in which we will profile in each Journal an ACRS member, who is on the ACRS Register of Road Safety Professionals. To be on the Register applicants must satisfy some stringent qualification and experience criteria in road safety. (For details, visit www.acrs.org.au/professionalregister). To be an 'RRSP' is an indication that an ACRS member has worked for at least five years at a senior level in their particular field/s of road safety work, has relevant academic qualifications and is acknowledged as being an expert by his or her peers working in that field/s . This edition's focus is on Mr Ray Shuey, APM RRSP, whose special road safety expertise is in Enforcement and Road Safety Education.

Ray Shuey is a trainer and adviser in international road safety providing best practice solutions and road safety strategies to meet jurisdictional needs. He has had 41 years policing experience and is a former Assistant Commissioner in Victoria having held that executive position for fourteen years until July 2003. During his police career, he has had broad experience as a senior executive in strategic traffic enforcement, benchmarking and target road safety profiling complemented by the effective use of technology and intelligence to achieve objectives.

In his current role, he has designed and delivered police training programs in the United Arab Emirates, China, Malaysia and Cambodia as well as providing road safety keynote presentations and facilitated workshops in many other countries. He is a principal author to the World Health Organisations Road Safety Manual for Decision Makers on "Drinking and Driving" and a contributing author to other good practice manuals on "Speed Management" and "Helmets". He has also undertaken risk management reviews for many government organisations with outsourced services recommending practical solutions and proactive risk management controls.

Ray is a Fellow of the Australian Institute of Management, a Fellow of the Institute of Public Administration Australia and an Associate Fellow of the Australasian College of Road Safety. He is a senior associate of the Australian Road Research Board, a member of the International Association of Chiefs of Police and a member of the International Police Association. Ray holds a Bachelor of Arts, a Post Graduate Diploma of Criminology and is currently undertaking his research doctorate PhD in benchmarking traffic law enforcement. He has been awarded the Australian Police Medal for distinguished police service and in July 2004 was presented with an award for outstanding service to road safety in Victoria by the Ministerial Council for Road Safety. Contact email: rayshuey@strategicsafety.com.au

We asked Mr Shuey the following questions:

How long have you been a member of ACRS?

I have been a member of ACRS for five years since May 2004.

What do you value most about your membership of ACRS?

Most importantly I value the networking in the Australasian road safety environment and the opportunity to keep abreast of best practice as well as the dissemination of information through the Journal and seminars.

Tell us about your particular expertise in Road Safety.

My background in road policing, strategic management and risk control strategies has given me the opportunity to undertake some "intelligence led" and "evidence based" law enforcement strategies which have been highly successful. This has been possible in Victoria through the excellent co-operation of the key road safety agencies of VicRoads, Victoria Police and the Transport Accident Commission (TAC) complemented by high quality research generated through Monash University Accident Research Centre (MUARC). Since completing my services with Victoria Police in 2003, I have used my experience to assist developing countries to raise their profile and standards in law enforcement. I have also undertaken research in many countries to assist my studies in "Benchmarking Traffic Law Enforcement" internationally.

What is a typical working day for you?

The variety offered in my daily activities provides many challenges. The diversity includes local, national and overseas engagements in road safety. I enjoy increasing my knowledge of different strategies and tactics for reducing road trauma. Within Australia, I have been involved in projects with AustRoads, VicRoads, Victoria Police and the Department of Justice. Internationally, the focus in China was on enforcement and education strategies for drink driving interventions and speed management, while the emphasis in Vietnam and Cambodia has been on helmet wearing and in Malaysia "strategic enforcement". It has been gratifying to see the resultant increase in helmet wearing in these countries along with the corresponding reduction in costs and road trauma as well as improvements in the other areas of focus. I found it very rewarding working with the police in poverty stricken countries such as Cambodia where the police have limited training, resources and funding and assistance comes through donor organisations such as Handicap International Belgium and the Global Road Safety Partnership. The police working under these conditions are always responsive to and grateful for assistance provided.

Obituary

Kenneth Bruce Smith

Ken Smith, a long-standing and very valued member of the College, died on 12 July 2009, at the age of 64, following a long illness.

Ken touched the lives of all the people with whom he worked. He was a highly competent and dedicated team member, and constructive and incisive in overall approach to researching and developing road safety policies and programs. Ken was above all a kind and courteous person who was naturally helpful to all who came within his ambit of influence. People held him in high regard for his integrity, gentleness and abilities. We also remember his wicked sense of humour, and fondness for fishing and Peugeot cars.

Ken began working with the then Department of Transport in the early 1970s, and in 1973 the Smith family moved to the Department's head office in Canberra, where Ken worked in the Land Transport Policy Division. In the 1980s Ken moved to the Federal Office of Road Safety as a member of the Research Section. This was where Ken found his call in his working life. Here he was engaged in an area in which he believed he could make a worthwhile contribution to society in researching and developing policies that would reduce road deaths and trauma to so many Australians. He became fully committed to the tasks of minimising road trauma and was a great advocate of research-driven, best-practice road safety interventions.

Ken's efforts in this field while working in the Department, and later as a road safety consultant, were highly regarded by all his workmates, research institutes and the road safety community as a whole. Ken was a dedicated and tireless member of the Australasian College of Road Safety. He joined in 1995, was a member of the National Executive for over a decade, and was elected as an Honorary Fellow in 1999.

He was the major contributor to the development of formal College policies, where he researched and personally drafted many of the policy documents as short, sharp documents, which offered facts and reasoned argument on road safety for a diverse audience. He also produced 'Surviving Your Teenager's Learner's Permit', a very successful ACRS guide for parents of learner drivers, which was a pioneer of its type.

He was also a strong supporter of road safety in the Canberra and Queanbeyan area. He was heavily involved in the Queanbeyan Road Safety Group and undertook numerous local projects, in particular on novice drivers, pedestrian safety and drink driving.Ken was totally committed to Muriel and his daughters. They were the pride of his life and over the years he would often bring friends up to date with their progress. No doubt they all will miss him greatly as there was obviously a great bond between him and his family.

Contributors: Robin Anderson, Chris Brooks, Kerry Fitzgerald, Geoff Horne and Keith Wheatley.

Letters to the Editor

What Strategy was that?

In some primitive cultures elders are still looked upon as a fount of some wisdom. Indeed such was the case even in our own society in less complicated times. Alas today, I for one find it far easier to pose questions than to provide answers.

So, still being of the belief that a national strategy is of some value in the promotion of road safety, and of the view that the question should precede the answer, in management if not in science, here are some questions that occur to me:

- Why has our performance, in terms of fatalities per head of population, fallen so far in recent years against the benchmark of the median of OECD countries?
- How can we sustain an appropriate level of government and corporate interest in road safety in the face of current global and domestic concerns about climate change, financial crises, and security?
- Can we better illustrate what can be achieved in the way of greater efficiency in the use of all national resources by seeking out the synergies and mutual benefits available from better cooperation between agencies.
- Is there enough focus in the current strategy and its action plans on cost-effectiveness? Given the increased attention being demanded by other contemporary issues, should this be elevated to a major tenet of a new Strategy?
- Should we continue to allow planning organizations (especially transport and land use, public and private) to take decisions solely from the perspective of their own "Silo", or should we insist that all externalities be taken into account?
- Is it possible to transform the "Strategy" into a more concise "policy"-type document that expounds the philosophy and principles that should be applied (e.g. cost-effectiveness, best practice, safe systems, cooperation), supported by a "strategic plan" that describes the objectives, countermeasures and targets advocated and mechanisms for implementing them?
- Is endorsement of the Strategy by Transport Ministers sufficient to guarantee support by all jurisdictions, or should it be promoted as a "treaty", with a mechanism for publicly reporting progress?
- Finally, have the "professionals" amongst us done enough to promote the National Strategy – to other stakeholders, or even to our colleagues in the ACRS?

So much for the questions. I now look forward to the answers!

Harry Camkin Class of 1990 Sydney

Education needs to continue to be a focus of the National Road Safety Strategy

Spinal Injuries ASSOCIATION

" I got into the car with a driunk driver on the holidays and I didn't even think about it. Now I realise how stupid that was! Thankyou for opening our eyes a bit more." Year 12 Student

In 2009, 80,000 people around Queensland will have their eyes opened to the importance of road safety after attending a Spinal Education Awareness Team (SEAT) presentation.

SEAT has shared powerful, personal safety messages with students at primary and secondary schools in Queensland since 1987, The award-winning program has a team more than dozen presenters who all have a spinal cord injury.

They are power of the program and instrumental inspiring safety on our roads and beyond-by sharing face-to-face with children, the real-life, no-holds-barred stories of how they were injured and how their lives - and that of their families and friends - will never be the same again.

"It was real! We didn't have a healthy person telling us 'no'. We had a real person who knows what they are talking about." Year 9 Student

Education needs to contine to be a focus of the Australian National Road Safety Strategy. The SEAT program is proud to have educated nearly 1.3 million young people in the past 22 years and see Queensland go from worst state in Australia for spinal cord injuries to the second lowest in the past 10 years. Road trauma continues to be the number one cause of spinal cord injuries.

"A lady called Wendy came to talk to us about safety our spine (sic). Wendy is a quadriplegic because she had a car crash. I never knew that safety was so importnant." Year 5 Student.

Mark Henley
Chief Exective Officer

Quarterly News

Chapter News

Australian Capital Territory and Region

The ACRS was an active participant in the ACT Road Safety Roundtable on 14 May 2009. The Roundtable sought key stakeholders' views on how the ACT could more fully embrace the 'safe system' approach and the 'Vision Zero' philosophy, in the context of developing a new ACT Road Safety Strategy in 2011. It also discussed how the ACT could foster a new community culture for road safety, particularly in regard to speeding and drink driving.

ACRS strongly supported 'safe systems' and 'Vision Zero', and encouraged the use of good data and research to choose best-practice interventions – but also take advantage of the ACT's 'city state' nature to try some unusual innovations.

A step up to the safe system approach will be necessary if we are to reach our targets and commit towards a true Vision Zero goal. While these ideas are familiar to road safety specialists, they need to be explained and discussed by the wider community. Accordingly, the Chapter, with sponsorship from the NRMA-ACT Road Safety Trust, will be holding a high-profile public seminar in late September on 'The safe systems approach and speeding'.

The Chapter also held a Networking Forum with Engineers Australia and AITPM on 18 June. It was well attended, and a useful avenue for exchanging information and ideas. *(Robin Anderson, ACT and Region Chapter Representative on the ACRS Executive Committee))*

Queensland

The Queensland Chapter held its quarterly seminar and Chapter meeting on Tuesday, 2nd June 2009. The seminar "Still asleep at the wheel: a new map of the land of nod" was presented by Dr Simon Smith, Post-Doc Fellow, CARRS-Q. The next Queensland Chapter meeting and seminar is scheduled for Tuesday, 1st September 2009. *(Dr Kerry Armstrong, Queensland Chapter Representative on the ACRS Executive Committee)*

Victoria

The next seminar planned by the Victorian Chapter is titled 'Innovation in Road Safety' and is to be held at QPO (old Kew Post Office) at 4pm on Wednesday 5 August. Guest presenters include Con Stasinos, Road Safety Program Manager and Ross McArthur, Manager Vehicle Safety and Policy from VicRoads, as well as John Thompson, Senior Manager Marketing from the TAC. The seminar will focus on innovative approaches to injury prevention through new communications techniques and channels, road and roadside design and vehicle safety innovation.

A further seminar is planned for late September on the topic of 'Child Safety' in the lead up to new child restraint regulations to be introduced into Victoria in November. In addition to the implications of the new regulations, the impact of adult role modelling on young children's behaviour will also be explored. *(David Healy, ACRS Co-Vice President and Victorian Chapter Representative on the ACRS Executive Committee)*

Western Australia

The ACRS National Conference: The WA Chapter is gearing up for the National Conference in Perth on 5-6 November 2009..*(Paul Roberts, WA ACRS Chapter Chair)*.

Australian News

Churchill Fellowship

Congratulations to Mr Eric Chalmers of Kidsafe (ACT), who has been awarded the 2009 NRMA-ACT. Road Safety Trust Churchill Fellowship. Eric is a member of the ACRS and plans to study road-related child injury prevention programs in New Zealand, USA, U.K., Netherlands, Austria, Germany and India.

South Australia Introduces Alcolocks

From 1 May, serious drink drive offenders are required to have an alcohol interlock fitted to their vehicle at the end of their licence disqualification. A driver will not be able to re-gain a full driver's licence until they have completed the required alcohol interlock time.

A serious drink driving offence is defined as:

- a second or subsequent offence, within a period of 5 years, of driving with a (BAC) at or above 0.08
- driving with a BAC at or above 0.15
- driving under the influence of an intoxicating liquor
- refusing to provide a sample of breath or blood for the purpose of alcohol testing.

The alcohol interlock must be installed for a period of time equal to the disqualification, which will be at least 12 months. An alcohol interlock is required before a driver can drive a nominated vehicle, and they will bear all costs related to the interlock.

An alcohol interlock is a small breath-testing device, about the size of an electric shaver, fitted to a vehicle and connected to the vehicle's ignition circuit. It measures the driver's breath alcohol level when blown into, allowing the driver to drive legally, but preventing the car from starting if alcohol is present. The technology is proven to reduce drink driving by offenders and arrangements have been made to support rehabilitation for those offenders who have alcohol dependency issues.

Failure to comply with any of the alcohol interlock conditions will attract a maximum penalty of $2,500. It is also an offence for a person to assist the holder of an alcohol interlock licence to operate a motor vehicle or interfere with an alcohol interlock in contravention of the conditions. The maximum penalty for this offence is also $2,500. *(Source: SA Dept of Transport, Road Safety: e-Newsletter edition 4)*

Journey Beyond Road Trauma

A company, Online Story Exchange Pty Ltd, has been established to develop a website to help people affected by road trauma. The website, known as Journey Beyond Road Trauma, will provide an online sanctuary where people can tell their story, create compelling tributes, find support and understanding, and ultimately begin to heal. Under the guidance of road safety experts, the community can channel their grief into positive action by collectively campaigning for road safety. The online space can also be used as an educational resource to complement already existing road safety campaigns.

Objectives of the website include 1) creating an online community where those affected by road trauma can find understanding and empathy, a social network of support, a way to connect, a place to remember and tools to be positive and pro-active; 2) delivering road safety education; 3) giving community members tools to conduct their own road safety campaigns; 4) harnessing the power of the personal story; 5) complementing the activities of existing road trauma groups; and 6) creating a 'brand' that is synonymous with efforts to support people affected by road trauma in the same way the 'pink ribbon' now instantly represents support for women living with breast cancer. To find out more, visit www.journeybeyondroadtrauma.org, or to discuss further what this project can offer your organisation, call Kerry Sunderland on 02 6680 4075 or Sandra Cook on 0413 146 013. *(Source: Online Story Exchange Pty Ltd)*

Updated Road Safety Handbook for SA

The Department for Transport, Energy and Infrastructure (DTEI) has recently updated the South Australian Driver's Handbook. The handbook highlights key issues that can lead to road crashes including speeding, drink and drug driving, not wearing seatbelts, fatigue and inattention. It also highlights road rules to ensure drivers understand their obligations when driving on South Australian roads. The handbook provides young drivers with the information they need to safely start

their driving careers. It is also a resource for all drivers on South Australian roads. *(Source: SA Dept of Transport, Road Safety: e-Newsletter edition 4)*

CARRS-Q Spans the Globe

Queensland University of Technology's Centre for Accident Research and Road Safety (CARRS-Q), has announced that its Graduate Certificate in Road Safety course is now available globally, through distance education. The external units are delivered using a combination of electronic media, including CD and DVD materials, and email communication with the CARRS-Q teaching staff. For further information contact CARRS-Q's Education Officer, Ashlea Haddow, by email at a.haddow@qut.edu.au or telephone +61 (0)7 3138 4592. *(Source: CARRS Safety Visions Autumn 2009)*

New Zealand News

Thieves Threaten Road Safety

Reflective road studs fitted with mini solar panels that enable them to display a light at night have been stolen from State Highway 6 near Okaramio within hours of being installed. Apparently the studs were installed on the centre line of a stretch of road where a high number of night-time accidents have occurred. *(Source: The Marlborough Express website www.stuff.co.nz 24-7-09)*

New Ads Target Young Drink Drivers

The new 'in your face' television ads have some blunt words for drink drivers – "If you drink then drive you're a bloody idiot". Despite increased police enforcement, which has resulted in more drink-drivers being caught, drink-driving remains a major cause of road crashes. It is one of the two largest causes of deaths and injuries on New Zealand's roads. Young drivers cause nearly half of all the alcohol-related road crashes and some 1,000 people are killed or injured as a result.

The new ad, 'Trapped', shows young drivers that there is nothing glamorous or fun about drinking, driving and crashing. The ad has been launched by the NZTA and NZ Police. *(Source: NZ Transport Agency's 'Pathways' magazine July 2009)*

Level Crossing Warnings

Between 1998 and 2008 there were 426 collisions between trains and motor vehicles caused by drivers not obeying the signals at level crossings. Many drivers choose not to wait for the barrier arms to lift, or bells to stop, before proceeding onto the tracks. Sometimes drivers manoeuvre between the barrier arms on either side and put their life and the lives of their passengers at risk.

To combat the problem of bad driver behaviour at level crossings, the NZ Transport Agency ran a week-long advertising campaign at the end of July on TV, radio and the print media.

The objective of the campaign was to highlight the potential consequences of choosing not to obey the signals at level crossings. The message aimed to persuade drivers to think twice before choosing to disregard the signals at level crossings. *(Source: NZTA Media Release 24 July 09)*

European News

UK Road Safety Week 2009

Brake, the UK road safety charity, plans to run its Road Safety Week 2009 from 23 to 29 November. This year's theme is: Drink- and drug-drivers. Brake's new Road Safety Week website (www.roadsafetyweek.org) contains information about this theme.

Speed Control Measures Benefit France

Since 2001 (the year prior to president Chirac declaring road safety a national priority), an automated speed control system has been gradually introduced in France. It is the view of the European Transport Safety Council that this system, in combination with the penalty point system, has been largely responsible for the fall in road deaths from 8,250 in 2001 to 4,274 in 2008. *(Source: ETSC Speed Monitor June 09)*

Poland Raises Speed Limits

In spite of evidence for reducing speed limits, the Polish Parliament has recently approved raising speed limits through the country. The changes approved are as follows: Motorways: 140 Km/h (previously 130); Express dual-carriageways: 120 Km/h (previously 110); Express single carriageway roads and dual carriageway roads with at least two lanes on each direction: 110 Km/h (previously 100); and other roads: 90 Km/h (no change). The ETSC has commented: "Clearly this demonstrates that a real road safety culture is still lacking among decision makers. A new automated system of speed cameras is desperately needed and the efforts made in that direction are laudable. However, the message that a stricter enforcement of traffic rules can be balanced out by taking popular measures such as increasing speed limits is set to knock off all efforts made to raise the public awareness of the risk they are exposed to in Poland on a daily basis." The speed increases have been approved in spite of the fact that road crash fatalities have remained virtually unchanged since 2001 (5,437 road deaths in 2008 and 5,534 road deaths in 2001). *(Source: ETSC Speed Monitor June 09)*

London Experiments with Intelligent Speed Assistance (ISA)

Transport for London (TfL) is currently trialing ISA on a bus and also plans to install the system in a taxi and 16 of its own fleet vehicles. The purpose of the trials is to test the practical uses of the technology for several months, after which a report will be prepared for the Mayor of London. Chris Lines, Head of TfL's road safety unit, said: "We know the technology works, and now we want to know how drivers in all types of vehicles respond to it. ISA is intended as a road safety device, but if Londoners embrace this technology we may well see additional benefits including reduced congestion as a result of collisions". For further information see www.tfl.gov.uk/isa.

Speeding Blitz Nets 600,000 Offenders

The European Union recently ran a major blitz on speeding. Traffic police in 22 nations took part in the week-long operation last April, and booked some 636,038 drivers breaking speed limits. Adam Briggs, deputy chief constable of North Yorkshire, UK, said: "The purpose of this operation was to make Europe's roads safer. It's estimated that complying with speed limits could save nearly 6,000 lives a year." *(Source: ETSC Speed Monitor June 09)*

Level Crossing Awareness Day

Nations across the European Union held a Level Crossing Awareness Day on 25 June. Each year some 600 people are killed at level crossings in Europe, so the aim of the day was to create awareness of the dangers of level crossings, especially to motorists. The issue is basically about obeying the traffic rules for crossings and avoiding wrong behaviour at them. Australian road authorities have shown an interest in the European Awareness Day. Detailed information and education material can be found at www.levelcrossing.net. *(Source: ETSC Safety Monitor July 09)*

North American News

Bad Roads Major Cause of US Road Deaths

A recent study by the Pacific Institute for Research and Development (PIRE) claims that over half of all crash fatalities on the USA's roads were caused by road conditions – a potentially more dangerous factor than drunk driving, speeding or non-use of safety belts. The study concluded that making the roadway environment more protective and forgiving is essential to reducing highway fatalities and costs.

Principal study author Dr. Ted Miller said, "Safer drivers and safer cars remain vitally important, but safer roadways are critical to saving lives, preventing injuries and reducing costs." Titled "On a Crash Course: The Dangers and Health Costs of Deficient Roadways," the study found the $217 billion cost of deficient roadway conditions dwarfs the costs of other safety factors, including: $130 billion for alcohol, $97 billion for speeding, and $60 billion for failing to wear a safety belt. Indeed, the $217 billion figure is more than 3.5 times the money government at all levels is investing annually in roadway capital improvements – $59 billion, according to the Federal Highway Administration.

PIRE conducted the study on behalf of the Transportation Construction Coalition (TCC), which hosts the full report, complete state-by-state data and other research findings at www.transportationconstructioncoalition.org. *(Source: PIRE media release July 2009)*

US Report Seeks New Direction in Transport Policy

The National Transportation Policy Project (NTPP) was launched in February 2008 by the Bipartisan Policy Center in Washington, with the aim of bringing new approaches and fresh thinking to transport issues. Proposals had to be bold enough to be effective, and pragmatic enough to be relevant. The NTPP's membership includes experts and leaders in transportation policy, as well as users of the system whose voices have not typically been heard in previous policy debates. Collectively, Project participants represent a wide range of political, commercial, and stakeholder interests in the USA. Now the NTPP has presented its findings. It has identified five over-arching goals: Economic Growth; National Connectivity; Metropolitan Accessibility; Energy Security and Environmental Protection; and Safety. The Safety Goal is to improve safety by reducing the number of accidents, injuries, and fatalities associated with transportation. The report states:

> *"Already available data and research point to three major opportunities for further reducing highway fatalities. First, more than half (54 percent) of the passenger vehicle occupants killed in highway accidents in 2007 were not wearing seatbelts. Second, almost one-third (32 percent) of fatalities occurred in accidents that involved alcohol-impaired driving (defined as a blood alcohol concentration of 0.08 grams per decilitre or greater). Third, almost two-thirds (63 percent) of motorcyclists killed in states without universal helmet laws were not wearing a helmet—compared to only 14 percent of motorcyclists killed in states with helmet laws."*
>
> *On the question of collecting meaningful statistics of fatal and other crashes, the report states the following: "We recommend two metrics for evaluating safety impacts in the context of transportation policies and programs: number of fatalities and injuries per capita and number of fatalities and injuries per 100 million VMT [vehicle miles travelled]. The former is important as it provides a clear understanding of the scale of the problem and can be used across all modes. The latter is important as it relates fatalities to the exposure to risk and focuses directly on the mode of travel with the greatest number of overall fatalities—the automobile. It is essential to use both of these metrics because they evaluate two different things – overall transportation safety and automotive safety." (Sources: The NTPP report and William B. Cassidy Jun 9, 2009 The US Journal of Commerce Online)*

Danger Days for US Teen Drivers

End of school and graduation activities appear to be a significant factor in crashes involving teenage drivers. National Highway Traffic Safety Administration data collected between 1996 and 2006 show that the top three deadliest days for drivers aged 15 – 20 are June 14, July 3, and August 8, with an above average number of deaths in the months May to August. An estimated 6,000 teens die every year in the United States from car crashes, according to the Department of Public Safety. *(Source: Bridget Ortigo, news-journal.com June 2009)*

Asia News

Vulnerable Road Users in China

Some 80 people met in Beijing on May 26 to hear a report on the Global Road Safety Initiative (GRSI) Beijing Vulnerable Road User Safety Project and to attend the launch of the Chinese version of the good practice manual of Design & Operational Guide on Vulnerable Road User Safety at Junctions. The manual aims to provide a design and operational guide for reducing conflicts and improving the safety situation of vulnerable road users at urban junctions whilst taking account of traffic efficiency. The guide introduces the relevant road and facilities design, as well as management countermeasures.

The event was jointly hosted by the Global Road Safety Partnership (GRSP), Beijing Transportation Research Centre (BTRC) and Beijing University of Technology (BJUT) who are the key Chinese partners of the project. Participants included the relevant stakeholders and media.

Ann Yuan, GRSP Country Manager for China gave a brief presentation to give participants a better understanding on the background, activities and outcome of the project. The importance of the GRSP and of using low-engineering-cost countermeasures was emphasized throughout the meeting. *(Source: GRSP media release July 2009)*

International News

WHO Road Safety Report Published

The World Health Organisation launched its 'Global status report on road safety' on 15 June in New York. The report

states that approximately 1.3 million people die each year on the world's roads, and between 20 and 50 million sustain non-fatal injuries. The report on road safety is the first broad assessment of the road safety situation in 178 countries, using data drawn from a standardized survey. The WHO believes that the results show that road trauma is a major public health problem, particularly for low-income and middle-income countries. Pedestrians, cyclists and motorcyclists make up almost half of those killed on the roads, highlighting the need for these road users to be given more attention in road safety programs. The report suggests that although many countries have road safety laws, they are not comprehensive and enforcement is weak. (WHO Media release June 2009)

Global Road Safety Partnership Marks 10 Years

Road safety specialists, public health officials, civil society groups and business leaders from around the world met in Geneva, Switzerland in June to mark the 10th Anniversary of the Global Road Safety Partnership (GRSP), the first worldwide coalition of business, civil society and government formed to prevent road crashes and injury in low- and middle-income countries. More than 80 people from 15 countries gathered at the Geneva headquarters of the International Federation of Red Cross and Red Crescent Societies, which helped form GRSP in 1999 and has hosted the partnership since its inception. The gathering noted numerous road-safety achievements during GRSP's first decade and called for increased global action and commitment to prevent road crashes, which kill more than 1.2 million people each year.

"We believe mobility is a key to generating wealth - a key to economic growth and prosperity for billions of people," said Patrick Lepercq, the corporate vice president of public affairs for Michelin and Chairman of GRSP. "However, we also see that mobility has created a global crisis with huge economic costs estimated at 65 billion dollars per year in the low- and middle-income countries where mobility is growing fastest. We believe that it is fundamentally wrong that this mobility should result in death and injury."

Contributed Articles

Please note that our November 2009 Journal will have a major focus on motorcycle safety. If you would like to write a 'Letter to the Editor' or submit an article, please send it as a MS Word document to journaleditor@acrs.org.au by 1st October

Road Safety Strategies for a New Decade

A message from the Hon Anthony Albanese MP
Minister for Infrastructure, Transport, Regional Development and Local Government

Towards a new National Road Safety Strategy

Australia's first National Road Safety Strategy was established by federal, state and territory Transport Ministers in 1992. Among its objectives was a reduction in the annual road fatality rate from 12 to 10 deaths per 100,000 people by the year 2001. This proved to be an unduly modest ambition, as the target was actually reached in 1997.

A second National Road Safety Strategy, covering the 10-year period 2001 to 2010, was approved by the Australian Transport Council (ATC) in late 2000. This time the goal was more challenging: to achieve a 40 per cent reduction in the national fatality rate, to 5.6 deaths per 100,000 people, by the end of the decade.

As most readers of this journal will know, national progress over recent years has been much slower than originally projected. Yet very real gains in road safety have been made – and many lives have been saved – since the adoption of the current national strategy. Australia's road fatality rate at the end of 2008 was down to 6.9 deaths per 100,000 people, equivalent to an overall reduction of 25 per cent since the strategy commenced.

There is now widespread international recognition that a country's road safety performance is best served through the creation and implementation of a robust national strategy. This view was reinforced late last year in the landmark OECD report Towards Zero: Ambitious Road Safety Targets and the Safe System Approach.

> *The basic role of a national strategy is to marshal support for ambitious road safety goals and to lay out a high-level course of action to achieve those goals.*

The basic role of a national strategy is to marshal support for ambitious road safety goals and to lay out a high-level course of action to achieve those goals. In Australia's federal system, where government responsibilities for road safety are shared among many jurisdictions, the National Road Safety Strategy also provides an avenue for collective commitment to major initiatives or reforms. Furthermore, it lends support to the road safety efforts of individual jurisdictions; and over time can add value to those efforts by promoting information exchange and helping to define 'best practice'.

The ATC has now initiated the development of a new National Road Safety Strategy with a 10-year horizon to 2020. The strategy will need to be ready for Ministers to approve before the end of next year, so that it can come into effect on 1 January 2011.

The Department of Infrastructure, Transport, Regional Development and Local Government is working with state and territory road transport agencies to oversee the preparation of the strategy, including arrangements for consultation with road safety stakeholder groups and the wider community. It has also commissioned the Monash University Accident Research Centre to carry out an analytical study that will underpin the content of the strategy and inform the adoption of road trauma reduction targets.

Further information about the strategy development process will be released as this work progresses. In the meantime, I would welcome the views of College members about the key directions and priorities for Australian road safety over the coming decade.

The College invited a wide range of road safety stakeholders to give their views on what the National Road Safety Strategy 2011-2020 should look like. The following pages present their responses.

Views from the ACRS, ACRS Chapters and Individuals

Let's grab this Leadership Opportunity!

By Ian Johnston AM, Adjunct Professor, Monash University Accident Research Centre

Australia has come a long way since the peak road crash death rates of the late 1960s and early 1970s. The gains in safety have outstripped the increases in road use to such an extent that the absolute numbers of deaths and severe injuries have also fallen dramatically. In 2008 the number of deaths was less than half what it was in 1970, almost 40 years ago!

There are many reasons for these gains. One fundamental reason is that as the number of vehicles and road users climbed inexorably so the road, traffic management and licensing systems evolved to better match the demand. Similarly, once vehicle safety design took hold in the late 1960s, progressively safer vehicles have been produced; initially increasingly more crashworthy and more recently through excellent crash prevention initiatives such as ESC. And we have certainly led the motorised world in the use of legislation and innovative enforcement to manage the highest risk behaviours – seat belt laws, helmet wearing laws, random breath testing, speed cameras, etc.

> *We have abandoned the "blame the victim" mindset…*

Importantly, however, we have come to think differently about road safety. We have abandoned the "blame the victim" mindset which led us to an initial over-reliance on legislation, regulation, enforcement and public education to control what was perceived to be widespread wanton, or at least negligent, misbehaviour. At least conceptually, if not yet operationally, we have come to embrace the Safe System philosophy through which we accept that people are human and will make mistakes and that system designers and operators must accept front-line accountability for producing a road transport system in which no-one behaving legally will be killed or seriously injured.

> *Road safety strategic planning is less than 20 years old and we are still learning how to do it properly.*

Equally importantly we began to plan our interventions in a scientific, evidence-driven way and to understand the significance of effective implementation. Road safety strategic planning is less than 20 years old and we are still learning how to do it properly. The best practice planning model involves explicit identification of the relatively small number of critical problems, the comprehensive identification of all known, effective interventions for each problem and the modelling of the likely outcomes from a range of packages of those identified interventions which are politically feasible, with the modelling taking into account a range of potential resource levels.

Having a strategy and an action plan is one thing, achieving implementation is quite another. The keys to success can be summed up in the four Cs:

- Constituency – unless the public demands action, appropriate resource will not be applied. In Victoria, for example, each of the new programs introduced in 1970, in the period around the mid 1970s, in the mid 1980s and in the early 2000s followed public "outrage" at apparent, dramatic increases in death totals
- Commitment – without political will from the top, success must be limited. The outstanding demonstration is in France which went from laggard to best practice within three years after the President personally intervened
- Cooperation – road safety is institutionally very complex with the actions of numerous agencies impacting upon progress. Without meaningful cooperation integrated packages of measures cannot be successfully applied.
- Coordination – the necessary bedfellow of cooperation, coordination is vital to integration and synergy across institutional efforts.

It is instructive that the latest work out of Europe on how to measure road safety progress recommends three indices – one based on upon policy performance (eg the quality of the strategic and operational planning and the political will); one based upon implementation performance (eg process indicators like resource applied); and one based on more conventional safety outcome measures (eg deaths and injuries) with the three linked causally in a chain from policy to outcome.

And this is where we must focus in developing Australia's next national road safety strategy and action plans. While

acknowledging the importance of past national strategies we must now:

- Develop a best practice approach to formulating the strategy rather than what appears in the past to have been a compromise document that caters for policy and cultural differences between jurisdictions. In short, the national strategy should be a model that puts the light on the hill. It should follow the example of the recently announced WA strategy which put an evidence-driven set of options – based upon resource assumptions - out for public debate, irrespective of supposed community and political reaction. Bureaucrats should not attempt to act as community or political filters. Each jurisdiction will continue to develop its own strategy and the concept of a national model is the most appropriate.
- Stop assuming that a "one size fits all" strategy is necessary. Australia is not homogeneous in its safety issues – metropolitan, regional and remote area safety problems differ and we need a strategy for each. Action plans will then logically follow the range of strategies.
- Increase the focus on the true nature of the problems, particularly crash types such as single vehicle run off road and intersection collision, rather than placing our total dependence upon the conventional approach of seeking to change macro-behaviours such as drink/drug driving, speeding, fatigue, etc.

Place a special focus on what the Commonwealth can do in an action plan of its own. Recognise that much of the system design and operational performance accountability lies with individual jurisdictions and recognise that there is much the Commonwealth can do by way of its leadership position. Some examples include specifying safety features in its public service vehicle purchasing policy; modelling safe driving policies and practices as part of its "corporate" leadership and encouraging major national corporations to do likewise; develop appropriate and transparent performance monitoring processes; help develop a stronger public constituency for road safety, particularly in regional and remote areas; promote the development and implementation of innovative safety projects that would hasten the adoption of a Safe System approach in practice. With the right mind-set many more initiatives can be conceived during the planning process.

A Role for the College (ACRS) in a Decade of Road Safety

The following is an edited section of a proposal being considered by the ACRS prepared by Greg Smith ACRS College member.

The College was established in 1988 as an association for people and organisations working in road safety. The College values experience as much as academic qualifications in its members, who come from a wide range of disciplines. These include traffic engineers, epidemiologists, road trauma specialists, researchers, driver trainers, enforcement agencies, policy makers, transport manufacturing industries, motoring associations, insurance companies and many others who have a stake in road safety.

The College aims to foster communication, cooperation and support among workers in road safety; to disseminate information on road safety and traffic education; to encourage community groups to work for the reduction of the road trauma; to encourage the professional assessment, evaluation and monitoring of road safety programs and to promote those most effective in reducing road trauma.

The College has a range of activities; national conferences and seminars, visiting lecturer programs, regional chapter programs such as local seminars, forums and guest lecturers, makes submissions to governments on road safety issues and promotes best practice in all facets of road safety.

The College can have a key national role in developing and extending the capacity of its members in delivering a national road safety strategy. A strategy developed with the support and commitment of the College members will build long term

competence to assist the community in the understanding of a safe system approach.

As the safe system develops and efforts are increasingly made to turn theory into practice, and as international and national issues play out, the role of the College will potentially become more important in providing the opportunities for those involved in road safety to share knowledge and experiences.

Trying to find the best information can be challenging and time-consuming. To address this issue, the College is considering the development of an online road safety portal that would become a first port-of-call for good road safety practice in Australia.

The College is well positioned to lead such an initiative. The College exists to improve road safety and link through one association all individuals and organisations in Australasia who work in or are interested in road safety, in order to facilitate the efficient interchange of ideas and a united approach in promoting and implementing improved road safety practice.

A portal could be structured around the 'safe systems' framework, and classify information into subject categories that are meaningful to those people seeking it. Because people can think about information in different ways, some subjects would be likely to appear in multiple places within the site, providing multiple pathways to the information that is sought.

A national portal would potentially serve a broad range of people, including:road safety practioners, researchers, college members, government and road authority staff, media and students. Statistics on usage of the ACRS website indicate that people based both within Australia and outside Australia make use of the site.

A national portal could harness international interest in Australian road safety practice and help in education in the developing world to reduce road trauma.

The College can be a unique contributor to the new NRSS through this project.

We Need the Safe System Approach

By David Healy, for the Victorian Chapter

Undoubtedly, the new strategy will be founded on "Safe System" principles - an approach that recognises that we as humans make mistakes, that we have limited biomechanical tolerances above which death or serious injury can occur and that the design of the traffic system is fundamental to significantly reducing levels of serious trauma.

> *Undoubtedly, the new strategy will be founded on "Safe System" principles*

Against this background, I provide a few suggestions below for consideration in helping to build an effective long-term strategy.

A Vision and Target-setting

- paint a long-term vision and place 2020 as an important staging post
- identify those initiatives that will be key in bridging the gap between current practice and "Safe System" application
- define a stretch target for the 2020 strategy end-point that is derived from a "bottom up" build of safety outcomes linked to those key initiatives.

The above process then sets the strategy against the background of a longer term goal and provides some reassurance that the 2020 target is in fact achievable. The challenge then will be to garner the necessary resources and apply them in cost-efficient ways to the most significant safety problems.

Marketing the "Safe System"

Market the "Safe System" concept to help build a mutual understanding of the respective roles of the system builders and system users; it is likely that the principles underpinning this approach are little understood by many stakeholders and the broader community.

Improved community understanding and acceptance can help smooth the introduction of key measures and access to support resources. The Australasian College of Road Safety understands this need and intends to deliver a series of seminars on the "Safe System" approach.

> *A successful strategy will rely on complementary roles being adopted by national, state and territory jurisdictions.*

The National Role

A successful strategy will rely on complementary roles being adopted by national, state and territory jurisdictions. At the national level, there are key opportunities to leverage change that include:

- tying major road infrastructure funds for States and Territories to the incorporation of safety measures such as central and side energy-absorbing barrier systems on major route constructions to ensure a high standard of safety performance
- lobbying aggressively at international forums to bring forward Global Technical Rules that compel signatory countries to introduce early the most promising safety technologies that can be justified in terms of safety outcomes against cost (predictive and automatic braking systems are two technologies that show special promise)
- continuing to develop and promote "best practice" guidelines that reflect "Safe System" principles in key areas including road infrastructure and speed management

- developing policies and supporting communications infrastructure in collaboration with the states that help to speed up introduction of the best, new intelligent safety technologies across jurisdictions (Intelligent Speed Assist is one such technology)

State and Territory Roles

The national strategy also needs to reflect the practical steps that each jurisdiction should take in the key areas of vehicle safety, road and roadside safety and speed management. States and Territories will need to consider the following:

- actively promoting purchase of safer vehicles by consumers, public and private fleets and demonstrating and evaluating the best, emerging technologies
- retrofitting safety to the existing road network while building in "Safe System" thinking to standards, new road constructions and maintenance procedures (RTA NSW is making significant strides in this last area)
- promoting the conduct of local demonstration projects that reflect a speed management regime consistent with "Safe System" thinking while drawing upon the best practice guidelines that are currently under development nationally.

Views from Road Safety Research and Specialists

Opportunities for Enhancing the Australian National Road Safety Strategy

By Prof Barry Watson, Director and Dr Mark King, Lecturer, Centre for Accident Research & Road Safety – Qld (CARRS-Q), Queensland University of Technology * b.watson@qut.edu.au*

Introduction

With the current National Road Safety Strategy [1] coming to the end of its term, it is timely to consider ways in which the next iteration of this strategy can be enhanced. Strategic planning should be a cyclic process in which learning and adaptation are just as important as planning and implementation. It will always be the case that some actions are not as effective as expected, or that barriers to effective implementation will emerge. Rather than being setbacks, these are opportunities for learning about the validity of our assumptions. They are also opportunities for us to adapt to meet unanticipated or emerging challenges. One of the positive aspects of the implementation of the first and second National Road Safety Strategies has been the willingness of road safety agencies to critically assess progress and to identify where and how actions would be better focused. This has been reflected in the evolving nature of the periodic National Road Safety Action Plans.

As the decade of the current Strategy reaches an end, there is a need to take this process further, and undertake a thorough critical evaluation of the Strategy development and implementation. While not an attempt to be exhaustive, the following article will identify some key priorities for consideration as part of this process.

The role of strategies and the need for a guiding vision

Inevitably, the success of road safety strategies tends to be judged by the number of actions implemented and/or the extent to which crash reduction targets are achieved. However, it is important that such strategies do not merely become a collection of actions and targets. Johnston [2] has argued that to be effective road safety strategies need to address the often competing demands of the transport system. For example, the ongoing need for enhanced mobility, social justice and environmental sustainability may give rise to potential actions which can have a negative impact on road safety, such as calls for higher speed limits or fewer restrictions on road users. Hence, a road safety strategy needs to clearly identify the safety goals of the transport system relative to other outcomes, in order to promote coherent and consistent decision-making.

Johnston [2] argues that to do this, road safety strategies require a guiding vision which among other things:

- identifies what the 'core' safety goals are for the future;
- acknowledges the potential trade-offs that may need to be made between the competing demands of the transport system;
- provides a foundation for the guiding principles and objectives within the strategy; and
- identifies areas of accountability (particularly at the system-wide level).

Over recent years, a number of potential guiding visions have emerged from other countries including Sweden's Vision Zero [3, 4] and the Dutch Sustainable Road Safety [5]. Similarly, the concept of danger reduction has been promoted by some as a vision for enhancing the safety and legitimacy of non-motorised

road users [6]. It is beyond the scope of this paper to critique these different guiding visions. However, a key common feature appears to be the way in which these guiding visions encapsulate and communicate the core safety goals of the system, even if they are aspirational in nature [7], and the need for system-wide action to achieve these goals.

> *...a more explicit guiding vision is arguably required in the next National Road Safety Strategy.*

While the current National Road Safety Strategy does not explicitly state a guiding vision, it does include the following statement: ". . all safety measures that can be justified in terms of overall community benefits should be implemented" [1, p.3]. However, the strategy does not specify how these community benefits should be measured or assessed against the other goals of the transport system. This lack of a clear guiding vision was somewhat addressed by the adoption of the Safety Systems Framework in the National Road Safety Action Plan 2005 – 2006 [8]. This framework has placed a greater emphasis on the need for governments to strive for an overall safe road transport system and given greater focus to the need to better manage system-wide vehicle speeds. However, a more explicit guiding vision is arguably required in the next National Road Safety Strategy.

Target setting

The process for setting targets is always fraught, as there is a tension between taking account of what we can control versus what we cannot, and whether to set 'comfortable' versus ambitious targets. More particularly, a number of developments over recent years have highlighted the challenges involved in setting ambitious targets.

Firstly, the slowing rate of road fatality reductions in Australia has made it unlikely that the 5.6 deaths per 100,000 population target specified in the current strategy will be achieved. As acknowledged in the National Road Safety Action Plan 2009 and 2010: "The average reduction achieved since the commencement of the NRSS has been 3.5 per cent per year. These figures suggest that reaching the target now presents a formidable challenge" [9, p.13].

Secondly, it is inevitable that some jurisdictions or regions may face particular road safety challenges which will make it difficult to achieve ambitious targets in a uniform way. A good example of this relates to the major increase in motorcycle use that has occurred in Queensland over recent years, which has placed pressure on the state's road toll and seen the proportion of fatalities represented by this road user group rise from around 10% in 2000 to over 20% in recent years.

Finally, it has been known for a long time that fluctuations in the economic cycle affect road safety by influencing levels of demand for travel (both work-related and recreational) and other activities which influence road safety, such as alcohol consumption. While it is possible to predict that swings in the cycle will occur, their amplitude and timing are not known with precision, and hence cannot easily be accommodated in the target-setting process. Also, it is difficult to predict how governments will respond to economic downturns and how effective their actions will be. Indeed, recent experience suggests that economic stimulus packages may mitigate the impact of downturns on travel demand and hence safety outcomes.

Together, these three factors may serve to discourage some decision-makers from setting ambitious targets in the future. This would be unfortunate, since a recent review of international best practice suggests that a results focus is critical to effective road safety programs and that this "requires setting targets and identifying the institutional means and interventions to achieve them" [7, p. 13]. More specifically, this review suggests that robust interim targets are necessary to complement more ambitious long term goals.

The need to widen the scope of data sources and related targets

As acknowledged in the current Strategy, it would be desirable to have a target for road injuries, as well as fatalities. Indeed, it is unclear whether significant progress has been made towards reducing road injuries over the last decade.

> *If it is not possible to set an injury target for the next Strategy, then at the least an action should be included which ensures that it will become possible during the life of the Strategy.*

One important barrier to target setting in this area is the reliance of transport agencies on police data rather than health data; another barrier is the difficulty of linking data and underreporting in both systems. If it is not possible to set an injury target for the next Strategy, then at the least an action should be included which ensures that it will become possible during the life of the Strategy.

The use of data sources other than police reported crashes has a wider relevance. If we solely rely on data derived from crashes reported to police, we are systematically devaluing some road users, and arguably selling short the notion of a Safe System. This omission is clearest where pedestrians are concerned, as the only reportable crashes are those which result in collisions with a vehicle. From a transport planning perspective, walking trips are a part of the overall transport system, both in their own right and because they provide connectivity between other modes of transport. The infrastructure for walking is provided and maintained by the same agencies that provide and maintain

infrastructure for motorised vehicles and cyclists, yet the trips and falls which results from poorly maintained or absent pedestrian infrastructure are

> *...the benefits of reducing driving by "unfit" older people may be reduced or even overtaken by the costs of falls due to increased pedestrian activity.*

not included in our approach to road safety. This is especially important as the population ages; greater numbers of older drivers will give up driving (voluntarily or involuntarily) and walk to public transport stops. The greater fragility of older people makes them vulnerable to falls – a hip fracture can be fatal – so that the benefits of reducing driving by "unfit" older people may be reduced or even overtaken by the costs of falls due to increased pedestrian activity [10]. Similar arguments apply to other crashes currently ruled out by the requirement for police reportability, e.g. at locations which do not meet the classification of a "road".

Should such a step be taken (widening the scope of road use), it begs the question as to how the setting of targets would be affected. It is suggested that the fatality target could continue to use the police-reported data, while acknowledging that a Safe System has other indicators of safety which can be addressed.

Links to other Strategies

Inevitably, road safety competes for public and media attention with other health, social and environmental issues of concern. In this regard, it is important that road safety doesn't become too insular and fail to capitalise on other 'moods for change' within the community. For example, environmental concerns associated with climate change provide an opportunity for road safety agencies to promote the benefits of lower vehicle speeds, which will not only enhance safety but reduce vehicle emissions. While this is somewhat of a simplistic example, it illustrates the synergistic effects that could be achieved by linking road safety improvements to other contemporary issues of concern. Hence, it is essential that the next National Road Safety Strategy is not a stand-alone document, which only has relevance to those in the field. Rather, wherever possible it needs to acknowledge and address the goals inherent in other transport, health and environmental strategies.

Conclusion

Over the last two decades, Australia has experienced major improvements in road safety. The first and second National Road Safety Strategies have arguably played a key role in achieving these improvements, by harnessing and directing our efforts at both the national and state level. However, road safety improvements appear to be plateauing and a concerted effort is required to make further gains. There is no simple solution to this problem. It requires a coordinated and integrated approach, involving the adoption of a long-term ambitious goal for road safety, the development of ambitious but robust interim targets, and an increased investment in road safety improvements. The next National Road Safety Strategy represents the ideal vehicle by which to articulate, communicate and plan these improvements.

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A New Strategy is an Opportunity for Leadership

By Professor Mary Lydon, Director, Centre for Automotive Safety Research University of Adelaide

Introduction

The development of a new national road safety strategy provides an opportunity to change our approach to road transport, which in Australia claims the lives of over 1500 people and seriously injures 30,000 more each year. If these losses occurred in another transport mode or as a result of natural disaster a public outcry and demand for government action would follow, but in the case of road transport there is still an underlying belief that road trauma is an acceptable cost of mobility (or our desired life style) and moreover is the fault of the victims and so not the concern of society.

> *Community acceptance of road crashes is a major barrier to further improvements in road safety.*

The Role of Community Acceptance

Community acceptance of road crashes is a major barrier to further improvements in road safety. Effective safety countermeasures will require drivers to relinquish some control of the driving task and will involve choosing safety over mobility, so accepting increased travel times or reduced access. These types of measures cannot be implemented unless the community accepts that they are both necessary and desirable and that the price we pay for our current freedom and convenience is too high.

The Safe System Approach

The safe system is now part of road safety language but is not yet part of general community thinking and certainly has not been embraced by the popular media. We have a long way to go before the community will demand a system that is safe for people behaving in a normal human way. We need to build a system that controls risk using technology, legislation or enforcement, which does not require individuals to make complex decisions and which protects people when system failures occur. We no longer blame the worker when an injury occurs in a workplace but ensure that procedures are safe and hazards removed, but we still call drivers "idiots" rather than question why, in the 21st century, we have a system that allows and encourages people to take unacceptable risks whilst using, arguably, our most important public infrastructure.

> *The most effective and immediately affordable road safety measure would be a general reduction of speed*

Speed

The most effective and immediately affordable road safety measure would be a general reduction of speed on our roads. In the short term this could be achieved by lower speed limits and increased enforcement. In the medium term we can implement technological solutions based on the road and the vehicle. In the longer term we need to genuinely review our vehicle fleet and agree that we do not need vehicles that can travel comfortably at over twice the legal speed limit.

In the current climate it is difficult to even start this journey to slower speeds. The media promotes the view that speed enforcement is only revenue raising and the community finds it hard to accept that small reductions in speed are important. As road safety professionals, we have failed to convince people of the message in spite of clear research evidence. The new strategy should provide a flagship to promote this message in new and accessible ways.

Trauma

Improvements to infrastructure provide major potential for reduced trauma, although often at significant costs. These improvements can result from major projects such as freeways or grade separated intersections, safety programs such as shoulder sealing and barriers or minor works at problem sites. New countermeasures are being developed as are ways to ensure best value is obtained from any safety investment. But major infrastructure investments are still overwhelmingly aimed at improved mobility, rather than safety. Certainly many projects improve both safety and mobility, but a national strategy is an opportunity to change the balance in decision making to give the protection of life and health a higher priority than faster travel.

> *...major infrastructure investments are still overwhelmingly aimed at improved mobility, rather than safety*

The introduction of safer vehicles is already having an impact on road trauma and this will increase as safer vehicles make up higher proportions of the fleet. The new strategy has an important obligation to accelerate the introduction of safety features in the Australian vehicle market and ensure that vehicle purchasers are aware of safety features and options when making their vehicle choice. An emphasis on encouraging the safest stock of vehicles will pay dividends for many years beyond the life of the Strategy. In the next decade many new vehicle features will be developed and introduced. These are likely to integrate pre-crash and crash phases, coordinating data about vehicle,

occupants and the road to minimise the consequences of a given crash situation. The strategy, therefore, needs to be about having a system that brings the safest vehicles to Australia, rather than trying to define desirable safety features.

> *...the freight task is predicted to continue to increase and a long-term strategy is required to deal with the increasing numbers and size of heavy vehicles.*

The new strategy will also need to develop particular programs for specific user groups of concern. Younger drivers and drivers with alcohol or drug dependencies have been shown to be at higher risk. There is concern that as the population ages, the risk associated with older drivers will increase. Motorcycles have been shown to be a high-risk form of transport and the numbers of bicyclists and pedestrians injured are expected to increase with increased promotion of these modes. Finally, the freight task is predicted to continue to increase and a long-term strategy is required to deal with the increasing numbers and size of heavy vehicles.

Better Data

A national strategy should also seek to improve our knowledge of the causes, consequences and costs of road trauma in order to better inform our decision-making. Ongoing investment in improved data and research is vital to allow us to develop and evaluate new countermeasures, and predict what future problems are likely to occur.

The strategy will be a mixture of philosophies and specific actions but its most important challenge is to persuade the community that the current situation is not acceptable and that, as a community, we are willing to make the sacrifices required to build a safe and forgiving road transport system.

Putting the 'System' into Safe System Frameworks

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Introduction

Over the past two decades, the 'systems' approach to safety has been applied, with significant safety gains, in most complex safety critical domains (eg Rasmussen and Reason [1,2]). Under this philosophy, safety is treated as an emergent property of the overall system, as opposed to solely the responsibility of human operators at the 'sharp end' of system operation. As evidenced by recent road safety strategies, such as the Australian National Road Safety Strategy 2001-2010 [3], this approach is now gaining credence in the road transport domain [4, 5].

The Australian National Road Safety Strategy 2011-2020, currently in development, is to be underpinned by a similar philosophy incorporating a shared responsibility for safety, an appreciation of the limits of human performance and tolerance, and a forgiving road transport system. The implementation and effectiveness of such an approach is contingent upon various key elements, one of which being the acquisition of appropriate evidence to support systems-based strategy development. This article provides a short commentary on some of the mechanisms required for supporting the systems approach philosophy in a road safety context.

The systems approach to safety

Considerable evidence for a systems approach to safety has been gathered in most safety critical domains. Such an approach is based on the notion that human performance is a function of many system-wide interacting factors. Safety is no longer solely the responsibility of front line operators; rather, the responsibility is shared between actors across all levels of the complex sociotechnical system (e.g. Regulators, policy makers, designers, line managers, manufacturers, supervisors, and front line operators).

In the context of human error and accident causation, for example, it is now accepted that human errors are a consequence of 'systems' failure, rather than only aberrant psychological factors within individuals; human error is thus no longer always seen as the primary cause of accidents, rather it is treated as a consequence of latent failures residing within the wider system (e.g. Reason [2]). In a road safety context, elements of the system beyond road users, such as vehicle design and condition, road design and condition, road policies, and so on, will all shape driver behaviour on the road.

Putting the 'system' into the National Road Safety Strategy

Following on from recent systems-based safety philosophies - such as Sweden's Vision Zero and The Netherlands' Sustainable Safety approach, the National Road Safety Strategy 2011-2020, currently in development, will use the safe systems framework as its basis. Bridging the gap, in terms of how to translate the principles of a safe system into real-world practice, remains a challenge. The key to successful implementation of such an approach lies in the consideration of human performance in the context of the wider system in which it takes place, and the

acquisition of appropriate evidence to support systems-based strategy development.

> *All aspects of supporting and evaluating road user performance should be underpinned by systems thinking.*

All aspects of supporting and evaluating road user performance should be underpinned by systems thinking. The concept of error tolerance and management, for example, assumes that errors and the circumstances in which they are occurring are known. This is not currently the case, and the development of this knowledge presents numerous data challenges; for example, new standardised systems-based approaches are required for accident and incident data collection, storage, and analysis.

Data collection systems underpinned by systems theory, and associated databases that are structured to produce data focussing on the overall system, as opposed to just individual road users, are required. Systems-based accident analysis methods, the type of which are well developed and applied in other safety critical domains (e.g. Rasmussen, [1]; Wiegmann & Shappell [6]) are also required for analysing, and learning from, road traffic accidents and incidents. In particular, the shared responsibility for safety element requires that such approaches focus on the higher government, local government and line management failures, as well as individual road users and equipment failures. The development and application of systems-based data collection, storage, and analysis methods in support of the National strategy is likely to provide appropriate evidence to support the design of appropriate systems-based strategies.

Summary

Adopting a systems approach to safety management in the road transport domain is undoubtedly the most appropriate path to take for the next Australian National Road Safety Strategy, and such an approach is heavily supported by evidence from other complex safety critical domains. The effective implementation of such an approach is, however, contingent upon the development and application of systems-based data collection, storage, and analysis systems, and the design, development and implementation of infrastructure, policies, and technologies underpinned by systems-based methods and models of human performance.

We have seen clearly in other settings how such approaches have shaped research and policy directions with good effect. With the adoption of a systems approach to road safety in Australia, there is great potential to significantly enhance the safety and performance of our road transport system; however, a failure to fully embrace systems thinking, in terms of theoretically underpinned methods and models of human performance, and the collection and analysis of appropriate systems-based data, is likely to restrict this potential significantly.

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What Direction is Needed to Reduce Road Trauma in Australia?

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Introduction

Over the past 10 years road deaths in Australia have declined from 9.4 deaths per 100,000 population in 1998 to 6.8 deaths per 100,000 population in 2008; a decline of 28% [1]. Much of this decline can be attributed to the ongoing road safety strategies that are being delivered across local, state (including territory) and federal government jurisdictions. The focus of these strategies has been guided, in part, by the National Road Safety Strategy 2001-2010 [2] which included an array of measures aimed at reducing the number of road fatalities to 5.6 deaths per 100,000 population by 2010. The strategic objectives outlined in the strategy ranged from an ongoing focus to improve road user behaviour and the safety of our roads and vehicles to the adoption of new technologies to reduce human error and enhancements to the trauma, medical and retrieval services that ultimately respond to the failures by the users of the road transport system.

> *…there has been a paradigm shift to one that embraces the safe systems approach to road safety…*

Despite the fact that we may not reach the national strategy's target of 5.6 road fatalities per 100,000 population, a decline of 40% for the 10-year period, much has been achieved over the 10-year period. Importantly, during this period there has been a paradigm shift to one that embraces the safe systems approach to road safety in which safer speeds, safer roads, safer vehicles and safer road users are targeted in order to make the road transport system capable of accommodating human error. To date, three Australian states have actively pursued this approach in their strategies namely, Western Australia, Victoria and New South Wales, as have the National Road Safety Action Plans which, from 2005, explicitly highlight the safe system approach as the "…framework for road safety intervention" [3](page i). It is paramount that this approach continues to act as the framework for the succeeding national road safety strategy.

Assuming the proposed 2011-2020 national road safety strategy adopts the safe systems approach as its framework, I will highlight three key elements that require emphasis either in the development or in the delivery of the national road safety strategy. The first relates to the indices used to measure the achievable targets over the next 10 years namely, to not focus entirely on reductions in mortality as the only measureable target. The second, relates to the key determinant of road trauma and how best to manage this namely, speed and finally, that the development of the national strategy must be underpinned by an evidence-base and importantly, that the strategy is periodically assessed (and amended if necessary) depending on the available evidence.

Measuring declines in road trauma

As alluded to, the current road safety strategy set a target to reduce road fatalities by 40% and this was the sole target despite the fact that serious injury (defined as those requiring hospitalisation) accounts for 16 times more Australians and costs 3.5 times more than road crashes resulting in death.[2] Importantly, if we continue to advocate a safe system approach to road safety we must acknowledge that the guiding principle of this framework is not only that fatalities will not occur but that serious injuries will be reduced. It is imperative therefore, that the 2011-2020 national road safety strategy sets measurable targets that include both reductions in fatalities and serious injury.

> *It is imperative …that the … strategy sets measurable targets that include both reductions in fatalities and serious injury.*

In relation to serious injury, it is important to define this well – as this can vary considerably between jurisdictions. Importantly, the definition needs to be based on anatomical or physiological damage following a road crash rather than use of a service (which tends to be influenced by the supply and access to the service) [4] As well, the probability of a serious road injury being identified from various data source needs to be independent of social, economic and demographic factors and therefore, linking multiple existing data sources such as, police, hospital discharge and third party insurers data would ensure the measure of serious injury, upon which the success (or otherwise) of the strategy will be measured, is representative of the entire population. A number of states have already begun this and these methods need to be extended across the country.

A key determinant of road trauma

Much is known about the effects of speed and the body's tolerance (or lack thereof) to withstand the kinetic energy [5]. We also know that the probability of crashing and the severity of injury, in the event of a crash, increase exponentially with increased travel speeds [6, 7]. As a consequence, there are an array of strategies to manage speed and the associated sequelae in the event of a crash. The most effective of these involves integrating safe travel speeds across the road network and thereby ensuring there is no conflict between the prevailing posted speed limit and the protection afforded by the motor vehicle, and the road infrastructure [8].

> *…what is needed …is to ensure there are comprehensive speed management practices being implemented and … rapid adoption across the … motor vehicle fleet of 'five-star' crashworthy vehicles.*

However, providing a road infrastructure that can deliver this requires considerable cost and despite the increased funding to road infrastructure in the recent budget [9], it will require ongoing expenditure over the life of the proposed national road safety strategy 2011-2020 to confidently deliver a safe system

across the network over the next decade. Clearly, what is needed now (and in fact across the next 10-years) is to ensure there are comprehensive speed management practices being implemented and that there is rapid adoption across the Australian motor vehicle fleet of 'five-star' crashworthy vehicles.

> *...there is a likelihood that speed limits across much of the network will need to be reduced*

There is still considerable opportunity for tangible reductions in speed-related road trauma if a comprehensive and a consistent adoption across all states and territories of effective speed management schemes were implemented. The most obvious means to achieve this is to ensure that speed limits reflect the level of safety afforded by the road network. To achieve this, there is a likelihood that speed limits across much of the network will need to be reduced. There is also a need to harmonise speed limits across the states and territories; this is particularly the case for open-road speed limits.

> *...speed enforcement practices will need to be enhanced in order to achieve any proposed reductions in fatalities and serious injury*

To support changes to posted speed limits, speed enforcement practices will need to be enhanced in order to achieve any proposed reductions in fatalities and serious injury. There is a wealth of evidence that advocates the use of mobile and fixed cameras for the prevention of road crashes [10, 11] and yet in a number of jurisdictions throughout Australia, there is some reticence to increase the use of cameras (particularly red-light and the covert use of cameras) despite the cost-effectiveness of the approach [12]. In order to achieve the declines in fatalities and serious injury which one proposes will be the continued focus of the national road safety strategy, a commitment to more rigorous speed enforcement practices such that covert and overt/anytime, anywhere enforcement with increased penalties will need to be adopted across all jurisdictions. Importantly, if revenue from cameras and other speed enforcement practices can be hypothecated to support the implementation of national and state/territory road safety strategies and not be transferred to general revenue (as is the case in a number of jurisdictions), it will also contribute to changing the public's perception of speed management as safety (and not revenue) driven.

> *As part of speed management practices, a greater emphasis also needs to be placed on engineering solutions.*

As part of speed management practices, a greater emphasis also needs to be placed on engineering solutions. There is much evidence that both 'vertical deflections' (e.g. speed humps) and 'horizontal features' such as mini-roundabouts or the narrowing of streets for speed management are highly successful in reducing speeds and hence, the likelihood of crashing. Recent research [13] suggests an 8% reduction in crashes per 2km/hr reduction in speed as a consequence of 'horizontal features'. The same engineering solutions have also been shown to be highly effective in reducing pedestrian injury [14]; a road user group where there has only been marginal (3%) decline in fatalities over the past 6 years [1].

The role of research evidence

Set against the background of a federal government focused on evidence-based policy [15], there is no doubt that the national road safety strategy 2011-2020 will need to be based entirely on a robust evidence-based process. However, this is likely to be a challenge as there is a vast body of road safety literature and much of varying quality. One approach for selecting the evidence however, could be based on the hierarchy of the research methods. This approach is described well in both the Cochrane Collaboration (www.cochrane.org) and the Campbell Collaboration (www.campbellcollaboration.org) and both collaborations provide useful synthesis of research findings pertinent to road safety.

There will be aspects within the strategy in which there is insufficient evidence to guide the strategy (or its implementation) and it will be imperative that the strategy supports research specifically targeted to these 'gaps' in our knowledge. A prime example of this is the role of driver distraction in road trauma. Current estimates suggest driver distraction contributes to between 13% and 30% of crashes [16]. Aside from the research highlighting the risk associated with handheld and hands-free mobile phone use and road crashes [17], we know very little about other (and newly emerging) in-vehicle technologies. Given the increased prevalence of such technologies across the vehicle fleet, there is significant concern that if the technologies are poorly designed and or used inappropriately, they have the potential to compromise safety.

Conclusion

Important to all road safety strategies is a vision, explicit targets, a series of action plans, ongoing evaluation, the importance of research (including the statistical modelling of trends in relation to the targets), institutional responsibility and importantly, funding to support the delivery of the strategy. I have emphasised just three of these components namely the targets, the need to enhance, implement and evaluate particularly in relation to speed management practices and finally the role of research.

We are entering a challenging time in road safety as it will become increasingly more difficult to achieve the reductions in

fatalities and serious injury without significant investment in the road network. Having said this, there are opportunities to improve our current practice and to support research that targets the gaps in our road safety understanding whether that be identifying contributory factors for road crashes or how best to implement road safety interventions.

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Trauma and Safety – The Road Trauma Advisory Work of the Royal Australasian College of Surgeons

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Abstract

This paper provides a history of the work of the Royal Australasian College of Surgeons (RACS) in promoting major advances in road safety and best practice road trauma care since 1965.

The Royal Australasian College of Surgeons presents views as to the future of road safety and collaboration with governments and bodies such as the Australasian College of Road Safety.

Introduction

The prevention of injury is the focus of road safety. Injured people are the focus of trauma management, which itself is largely directed to prevention of secondary additional effects from injury. The Royal Australasian College of Surgeons (RACS) has been at the forefront of road safety and trauma management systems for over four decades. The College is well positioned to make major contributions to development of the interfaces which lead to road safety in both Australia and New Zealand.

Photo: Canberra Times

This article covers the history of the involvement of RACS in road trauma prevention through research and advocacy and how RACS can contribute in the future. We would wish to contribute the experience of surgeons to such a strategy in New Zealand as well as in Australia.

Every day in Australia, approximately 5 people die and 60 are seriously injured on our roads [1,2]. The cause of road trauma is complex and multi-factorial. Alcohol and other drugs, fatigue, speed and driver distraction, along with road conditions and environment are all significant contributors to the Australasian road toll. Improvements to licensing laws, vehicle standards and enforcement initiatives will contribute to reduced death and serious injury on our roads. Policies to make all forms of transport safer combine to help the reduction of injuries. In particular, we still see the need to enhance polices to protect our most vulnerable of road users – pedestrians, cyclists, motorcyclists and children in cars.

The College also recognises that safety for the patient means not only primary prevention but also harm minimisation by effective early and definitive response. The RACS advocates that treatment be seen as being part of preventative medicine. We recommend best trauma care and primary prevention be regarded as two essential elements of a holistic road safety system.

History of RACS involvement

In 1954, road deaths exceeded the mortality rate of all infectious diseases for the first time [3]. Led by E.S.R ('Bill') Hughes followed by the indefatigable Mr Gordon Trinca AO, FRACS (recently deceased) the College determined something had to be done. In May 1965, the College appointed a committee on trauma to study the subject of traffic accident injuries including:

(i) the causes and types of injury sustained,

(ii) the possibility of more effective organization of trauma services for the better management of patients,

(iii) the degree of adequacy of training programmes for the education of surgeons regarding the management of trauma [4,5]

The College recognized that road trauma was a serious public health problem reaching epidemic proportions. It saw that it could be influential in this area with policy makers and legislators. Its earlier endeavours between 1965 and 1995 were recorded by Trinca [5]. The College was a major compelling advocate that lead to governments mandating seat-belt wearing, drink driving countermeasures and helmets for cyclists. A history of the response of RACS to the epidemic of road trauma has been recently documented [6]. The College position on road trauma has evolved and been renewed based on evidence and clinical experience. The College recognises the value of collaborative endeavour to reduce road trauma and seeks to work with and provide support to other stakeholders.

Trauma Management and Safety Systems

The College of Surgeons has promoted strong systems for early and definitive management of trauma, developing the first Early Management of Severe Trauma (EMST) course in 1988. EMST is now compulsory for all surgical trainees and is also undertaken by other medical practitioners [5]. The College was instrumental in the development of the Definitive Surgical Trauma Care course which is now available around the world. Over the last two decades, Trauma Surgery has emerged as a surgical "specialty" and centres of excellence have developed in Europe and the USA with Australasia making good progress. College Fellows report significantly better outcomes for trauma patients with the development of trauma systems – a system of improving care for the injured from roadside to rehabilitation. College Fellows developed a multi-disciplinary inter-collegiate process known as Trauma Verification to assist hospitals achieve quality outcomes in their care for the injured patient. State trauma data and registries incorporating both injury and road death data are vitally important for both systemic and hospital level quality development.

RACS therefore recommends that the future National Road Safety Strategy takes a systems approach. A systems approach encompasses world's best practice trauma treatment for patients, trauma education for surgical and medical trainees, detailed integrated data registries, free exchange of data between states and territories, involvement of the community and the importance of a single comprehensive national trauma system.

In the next decade, we support strengthening the systems approach to road safety and linking the interface between safer systems. Multi-disciplinary involvement of health and safety professionals in an integrated manner is needed.

Future Road Safety issues

Many Fellows of the College of Surgeons see the effects of road safety issues on a regular basis and in the case of trauma surgeons, almost daily. Their experiences, backed by scientific research based on data from well-planned registries, are constantly used to help governments and other stakeholders achieve change.

The College position on road safety issues reflects current evidence-based opinion regarding safety concerns and is in constant development. The College encourages further research into the development and evaluation of road trauma (and other trauma) countermeasures, education of medical personnel as well as road users and extensive data collection which with appropriate analysis will provide the recommendations that will see a significant decrease in the road toll and serious injury rate [7]. A précis of the College position in key areas is provided below. The College commends these positions for consideration for the National Road Safety Strategy:

Safer Road Users

Alcohol and other Drugs

The College supports the continuation of current drink driving laws relating to both fully licensed and learner/probationary license holders now in force in most jurisdictions. It also recommends that consideration be given to the wider problem of alcohol misuse in the community and involvement of alcohol in violence and assaults. Strategies to reduce the problem of alcohol abuse and/or misuse throughout the community should be carefully considered. Strategies which have been shown to have promise are regulating the physical availability of alcohol, effective alcohol taxation and pricing policies, early treatment and intervention programs particularly in the primary health care setting, proactive policing of licensed venues, restriction of alcohol advertising and for alcohol abuse to seen as a medical problem as well as a legal problem.

Licensing

The College continues to support World's best practice Graduated Driver Licensing programs for younger drivers which reflect ability and emerging brain maturation evidence including the recommendation for a national licensing age of 18 years as in Victoria. For older drivers the College would like to see emphasis placed on policies which strike a balance between the rights of our senior community for mobility and independence and their responsibilities as safe drivers. It therefore advocates for further research and development into effective methods of identifying hazardous drivers before they crash perhaps by validating a simple test for cognitive and motor skills in relation to the ability to drive. A graded licensing system for older drivers might be considered.

Vulnerable Road Users

The College recognises that Motorcyclists and Pedal Cyclists are legitimate road users increasing in number and significance in recent years. It would therefore like to see emphasis placed on safe infrastructure, adequate separation from large motor vehicles, particularly in the case of pedal cyclists and pedestrians, effective licensing programs for motorcyclists, strategies to improve rider behaviour and best practice standards for protective clothing and helmets. Due consideration should also be given to the predicted increase in older pedestrians, pedestrians in general as an increasing road user group due to environmental issues and the significant involvement of alcohol intoxication in pedestrian deaths.

Fatigue & Distraction

Research on fatigue and distraction as a cause of road crashes is recommended. The College recommends that careful consideration be given to mobile phone use whilst driving. Legislation governing heavy vehicle and commercial drivers should also be considered.

The best foundation for all the recommended strategies is that all road users take responsibility for their safety and that of other road users. Active encouragement of this is recommended.

Safer Speeds

The College holds that intensification of enforcement programs will lead to safer roads. Initiatives that lead to a higher perceived risk of detection and prosecution of drivers and riders who exceed posted limits are encouraged. Concurrent with this the continued reduction of speed limits on both urban non-arterial roads and regional/ small towns is recommended. Particular priority should be given to the fixing of speed limits in shopping centres, schools and precincts of high risk to pedestrians, cyclists and other active transportation modes. Consideration should also be given to interventions that encourage injury prevention speeds or a 'healthy' speed rather than merely a 'safe speed'. The healthy speed notion may become more compelling with greater take up of walking and cycling flowing from traffic congestion, fuel prices, environmental, lifestyle and health concerns [8].

Safer Vehicles

Support for mandating vehicle safety features such as (and not limited to) front, side and curtain airbags, anti-lock braking systems, electronic stability control, aggressive seat belt reminder systems and pedestrian-friendly frontal protection systems that have been shown to improve driver, occupant and pedestrian safety in all new cars is recommended. Continued development of child restraint laws in all jurisdictions is advocated within the College position.

Safer Roads

The RACS position is still under development but the emerging consensus is that safer road infrastructure significantly contributes to reducing trauma. The College is likely to recommend that particular attention is paid to rural road infrastructure. Highlighting the need for attention are areas with road fatality rates more than twice those of metropolitan areas [9]

Indigenous Rural Trauma

The College has been particularly concerned with the unequal health outcomes of the indigenous, especially in rural and remote areas. A symposium in Melbourne at the College in 2007 concentrated on injury in indigenous populations [10].

Transport related fatal injury is 2-3 times more likely compared to non-indigenous Australians and indigenous people are more likely to be killed as passengers [11].

The College is keen to foster comprehensive strategies which indigenous communities themselves will adopt and accept. A satisfactory trauma and safety system for all communities in rural and remote environments is a great challenge.

In association with the Neurosurgical Society of Australasia, guidelines for the care of head and spinal injuries in rural and remote settings have been promulgated widely [12]. Better care of the injured and better safety tend go together. There is much still to be done.

Road Trauma and Safety in the next decade

The College of Surgeons like the ACRS has much to contribute to the renewed National Road Safety Strategy for the next decade and has expressed its commitment to working with the National Road Safety Council when it is established. The RACS will support collaborative endeavours which will lead to practical improved outcomes.

We especially encourage high profile leadership in the community and working with government, industry, the community and the media to promote road safety efforts.

Our position statements identify the principal key areas to be addressed through both project development and effective measures.

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From the Viewpoint of Enforcement

Road Policing for the future - Accepting the challenge

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Introduction

The 21st century brings with it a more affluent and mobile society, more safety features on new vehicles and an array of new technology coupled with a safer road environment. For the safety and protection of the motoring public, we go to inordinate lengths to ensure that intelligent vehicle applications in the car, the design of roadway and the general environment is 'forgiving' of driving errors. In this context, there can be an expectation for technology to be the road safety saviour for careless and inconsiderate drivers. The reality check for road

policing strategists is the element of human behaviour, generously termed 'human error'. Community self-regulation is our unrealistic and unachievable expectation to date. We are thankful for a high level of road safety compliance which enables law enforcement efforts to be concentrated on idiots, hoons, opportunists and risk takers who are driven by a selfish compulsion to speed, to ignore laws regarding driver distractions or to drive following substance abuse.

> *Road policing of the future demands more coordinated strategies…*

Road policing of the future demands more coordinated strategies, more accurate and sophisticated law enforcement equipment, more 'on-road' driver education and, more importantly, a higher level of community engagement to foster the necessary driver responsibility and self-regulation.

The causes and complexity of road trauma means there is no 'silver bullet' in the form of a technological solution to counteract bad driver/rider behaviour.

Historic perspective

It is beneficial to review the past and identify what has worked best in traffic policing enforcement. The fundamental role has been to reduce the incidence, severity and cost to the community of road crashes. In practical terms the road policing aim is to reduce antisocial behaviour on our roads by

deterring or apprehending offenders. A further aim should be to prevent re-offending.

Simple philosophies of general and specific deterrence for drivers/riders provide the traditional foundation for road safety enforcement. Strategies have included regular road patrols to identify and intercept offenders, usually for speeding or other moving vehicle violations, coupled with the occasional "blitz" targeting high risk locations and high risk activities. Road patrols only achieved a limited coverage and blitzes were labour intensive, short lived, unsustainable and sometimes with dubious long term outcomes. The 'intelligence' aspect usually relied on outdated crash statistics coupled with the intuition and experience of the traffic officers.

A change in thinking from the "speed trap" mentality or the mobile officer hidden in the bushes only to emerge to chase a speeding motorist, slowly evolved into a more meaningful

"active and visible police presence". Here the police officer would position a police vehicle in view of all drivers travelling in both directions but still capable of checking speeds before the motorist was aware of the officer's presence. Thousands now observe the 'enforcement presence' rather than just a few as in earlier instances. Team policing became very effective with a combination of three marked vehicles and a covert unit saturating a location to provide heightened effectiveness. The team worked across different divisions with reciprocal resourcing arrangements and provided an impression of multiple police units in all locations.

Research, technology and legislation changed the focus and impact on alcohol and drug impaired drivers. Police observations of seriously impaired driving coupled with cumbersome and time-consuming impairment tests were replaced with high profile random roadside breath and drug testing. The strategic direction for enforcement for alcohol impairment which developed in the 1990's has now become the guiding principles for general road policing namely:

- Highly visible enforcement
- Repeated as often as possible (sustained enforcement)
- Strictly enforced to ensure credibility (fair and consistent)
- Well publicised and combined with education.

All factors are considered vital to success.

> *The critical component of traffic policing is the perception of being apprehended…*

The critical component of traffic policing is the perception of being apprehended/intercepted by police if an offence is committed. This has led to the adoption of public police statements promoting the "Anywhere-Anytime" concept. The public must believe if they commit an offence such as speeding or driving whilst impaired, then there is a high probability that they will be caught and prosecuted. Therefore, committing an offence is not worth the risk.

Strategic, operational and action plans were regularly developed with defined targets and set performance measures providing a monitoring capability for continuous improvement in strategies and a focus on road trauma reduction.

Enforcement and Education

Research over the past three decades has demonstrated that maximum road safety outcomes are achieved by the direct link between education and enforcement yet frequently both enforcers and educators have ignored this correlation.

The policing role is viewed by many, including some police officers, as purely an enforcement responsibility to:

- Issue infringements for specific road trauma related offences
- Target categories of high risk road users
- Target vulnerable road users and those over-represented in the fatality and injury statistics
- Patrol black-spots and black-lengths
- Target high risk times, dates (weekends, festivities)
- Undertake blitzes or location lockdowns (saturation policing for a specific purpose)

However, the provision of education, road safety awareness and road safety messages is fundamental to support any and all enforcement strategies. Police should be constantly seeking media coverage including before, during and after any policing activities. Media promotions, warnings and awareness campaigns multiply the enforcement effectiveness. It also demonstrates that the police are being fair and open in their quest to reduce road trauma and that penalties are not 'revenue raising'. Further, police take an active role in education in many subtle ways:

- Example setting in their manner of driving, adherence to the speed limit when not on urgent police duties and their general interaction with the community on all road safety matters.
- Issuing warnings about inappropriate driving behaviours
- Providing compliments when good driving is observed

Some still argue that the police are not trained or equipped to provide education to the community. However, the very nature of their specialist work, coupled with their training and 'real life' experiences attending and investigating crashes provide ample credentials to 'educate' the public on driver safety either individually or collectively.

Education and road safety awareness by road policing practitioners has both community acceptance and integrity and should be more forcefully developed by police over the next few years. This does not diminish the responsibility and focus of professional educators, media and advertising specialists to provide local state-wide or national educational or awareness campaigns.

> *Road safety is a community responsibility requiring multi-agency involvement and commitment*

Partnerships

Road safety is a community responsibility requiring multi-agency involvement and commitment towards saving lives. It requires more than token acceptance of this moral obligation. As the car has become part of the fabric of our society so should road safety. The road safety message needs to be generated through a multitude of community avenues and partners. Police can and do provide strong leadership at all levels to engage or strengthen local, state and national partners to actively support enforcement, education and road safety awareness strategies.

Driver/rider attitudes and behaviours

"Despite front page stories with pictures of mangled cars and grieving families, some motorists continue to believe it won't happen to them"[1]

The key component in reducing road trauma is to impact upon the road safety attitude of drivers and to instil in them the basic responsibility and moral obligation of their 'duty of care' to themselves and other road users.

The difficulty in educating motorists is compounded by their personal experiences. Over time they may have driven thousands of kilometres without a crash or near miss even though they have a propensity to speed, may not always wear their seat belt or may drink and drive on occasions. They still view themselves as a safe driver or low risk driver.

Many do not accept, understand or believe the risk factors and dangers involved in their illegal behaviours. E.g.

- They do not realise how long it takes to stop in an emergency (hence a casual attitude to speeding)
- They do not realise the damage which can occur to a human body in a crash
- They continue in the belief that a crash won't/can't happen to them
- They always have an excuse and self-justify their careless and dangerous driving actions/behaviours
- They work around police enforcement (attempting to evade, elude or pre-empt enforcement activity)

> *Driver distractions are an emerging critical issue for road safety…*

Driver distractions are an emerging critical issue for road safety professionals. The driver is being inundated with gadgets for amusement, communication or office productivity. All these are able to be used while the vehicle is in motion but all are potentially a high risk distraction, diverting the driver from applying full concentration to driving including observation skills and compliance with the road laws. Poor driver attitude condones and even seeks out the use of these products in the full knowledge they will be used while the vehicle is in motion. The expansion of driver distractions is further complicated by the difficulty of traffic officers to effectively police these behaviours. This presents a current and future challenge for law enforcement.

Successful road policing promotes two elements which impact on driver attitude namely;

- Certainty of Detection – if you take a risk and commit an offence then you will be caught
- Certainty of Prosecution – if you are caught, the evidence obtained will ensure a successful prosecution

While road safety education, awareness and warnings are the ideal to ensure community self-regulation with everyone adopting good driving habits, the reality is that enforcement strategies are essential for those who do not comply and continue with risk taking behaviours.

Current trends in Road Policing

The defining characteristics of international good practice in effective traffic law enforcement now means that all road policing strategies must be intelligence-led and outcome-focused. This approach works well where it has been implemented.

"Policing has changed not just through technology but by the way we go about our everyday business. Everything we do now is evidence-based and intelligence-led. Directing our resources to the areas of greatest need and highest priority can have the most significant impact in the shortest period of time. That is why our road safety operations now target certain areas and operate at specific times. We are much better informed about where the problems are and how to address them. The results speak for themselves. We had the lowest road toll on record last year, but the success is not in creating of a record, it is in the saving of 29 lives compared to the year before and preventing many thousands of serious injuries" [2]

Intelligence-led means using accurate and detailed crash data which has been analysed and interpreted. This provides the evidence base for enforcement.

Strategically and operationally, police need to:

- Identify what is happening, when, how often and where (situational analysis)
- Formulate a strategy
- Take action to correct the problem
- Monitor and evaluate the results
- Evaluate ongoing trends in statistics as a result of the corrective action
- Repeat the process to support continuous improvement

This "systems approach" from a policing perspective requires the utmost integrity in law enforcement crash investigation methods, the recording processes, the foundation data-bases and the retrieval process to drive strategic enforcement and therefore reduce road trauma. This approach provides intelligent feedback not only to traffic police but also road safety authorities, engineers, researchers, education providers, politicians, government executives, insurers, the media and others with an interest in reducing road trauma. It provides the foundations to influence the culture of safer driving/riding by providing both a general and specific deterrence to adverse road user behaviours.

Outcome-focused means all traffic policing activity must target real crash causes to reduce road trauma in an effective, efficient and professional manner. This focus aids in building enforcement capability for cyclic and continuous improvement and importantly supports the strategic effect of traffic law enforcement in changing road user behaviour.

The Evidence Base

The foundation 'evidence' is essential to ensure integrity of any enforcement program. It also provides a base for education and social marketing strategies as well as police training.

To achieve this integrity, strict performance standards and quality controls must be applied at all levels of crash investigation and data collection. This includes:

- Thorough investigation into all collisions to identify 'real' causation factors i.e. not just categorised as 'inappropriate speed' or 'speeding' without proper analysis. A core factor may be the collision speed but the driver attitude to speed and lack of preventative controls that enabled the offence to take place is also a strong contributing factor and should be recorded
- In support of the first point, all fatal crashes should be investigated with the same respect and thoroughness as a homicide investigation. If this single aspect were to be addressed, then the return value to the 'body of knowledge' on road crashes would be enormous. The untimely loss of a life deserves such resource and professional investigative commitment
- The data/statistics from crashes must be collated, retrievable and interpreted for all police traffic operations so that the analysed data actually 'drives' road policing strategies.
- Operational command and police operatives must have real-time access to trend analysis and crash profiling. This ensures that they can be efficient and effective in targeted enforcement as well as routine policing and patrols.
- Crash data must also be collated together with traffic infringements, speed survey analyses and information from police enforcement activity to provide 'intermediate' road trauma predictors. These intermediate predictors are currently lacking in most policing jurisdictions.

Intelligent Transport Systems

In July 2008, the author attended the Intelligent Transport Systems Asia-Pacific Forum and Exhibition [3]. Key trends and future directions identified for traffic law enforcement were:

- Public Private Partnerships (in a variety of structures) provide a practical and realistic avenue for governments to progress with new initiatives
- The wireless world is taking over with data and image transfer
- The public sector collects a huge amount of valuable data without effective utilization
- The integration of vehicles and the infrastructure
- The intelligent use of data – improve decision making of authorities (timely/accurate) and the users
- The prospective direction is for e-payments and e-enforcement

The focus of "e-enforcement" was on:

- Speed violation enforcement systems
- Detection accuracy for speed measurement
- Infringement processing systems
- Summons auto mailing systems(delivery to the offender through the internet)
- Summons collection and tracking systems
- Vehicle and occupancy counts (for bus lane and priority lane travel)
- Digital watermarking (for digital traffic camera photographs and digital evidence)
- Automated Number Plate Recognition

It is relevant to be aware of what technology can offer the future. However, most examples provide enhancements on current applications, capability and strategies.

A visit to the Intelligent Transport System Centre in Singapore provided a practical demonstration of its Expressway Monitoring and Advisory System which comprised:

(a) A detection camera system that collects real-time traffic data

(b) A surveillance camera system that provides visual verification of incidents.

An observation in the control room where the cameras were operating under digital video streaming for a range of purposes was made – e.g. vehicles stopping in a clearway, no parking areas or illegally unloading were identified through Automated Number Plate Recognition systems; the image separated from the mainstream; time and date stamped and the owner issued with an infringement – **from the control room.** If additional police intervention were required to remove the vehicle, that would be activated as well.

Moving from technology to Hi-tech

"The use of new and improved technologies will no doubt continue to have a major impact on improving road safety not just now but well into the future. Quite simply put, the use of technology provides police with additional tools and a wider arsenal to target those people who continue to flout the road laws and put others at risk" [4]

Technology to support police enforcement has traditionally been applied to speed measurement or breath-testing. Amphometers, digi-tectors, radar and laser guns have been the basic tools for mobile and static speed enforcement.

Now the explosion into hi-tech provides better means of identifying offenders, providing the evidence required and more efficient means of processing offenders. Such examples include:

- **Automated number plate recognition** (ANPR) providing data image capture through optical character recognition from a still or video camera, identification of the number plate, linkage to the registration data base and owner identification. This is done at point of image capture. Many United Kingdom police services operate with these units from mobile police video, closed circuit television footage and static road units. The vehicle registration can be instantaneously checked through sixty data bases and enforcement action triggered as required. Australia's recent trials and operational policing use with these systems has proved highly successful
- **Police 'in-car' video systems** provide real time evidence of driver behaviour with the evidence being able to be viewed by the offending driver following interception as well as being available for presentation in court should the matter be disputed.
- **Police 'in-car' computer systems** enabling real-time automated access to a range of police and government data bases for dealing with both traffic and criminal activities.

- **Camera based vehicle detection systems.** Combining Automated Number Plate Recognition and in-car systems means moving or stationary offender violations can be automatically processed without the need to intercept the driver. E.g. the sophistication of the equipment ensures that the speed of the police vehicle and the offending vehicle is calculated, the exact location of the incident is identified through Global Positioning Satellite and the whole incident and scientific data is video recorded as evidence. The information is then transferred to a data processing centre and infringements issued to the offending driver.
- **Satellite technology** for speed monitoring and enforcement. These systems have been on trial for the past seven years. The accuracy and reliability will prove to be of high value to on-road policing capability in the future.
- **Hand-held electronic offence ticketing devices** reduce the officer's time by automatically scanning the driving licence and issuing an electronic infringement with the flow-on time savings. These are available for mobile or foot patrol officers
- **More sophisticated hand held laser speed measurement devices** capable of accurately determining speed at a greater distance
- **Warnings**. With the new technology comes the ability to provide the offending drivers with documented warnings for minor offences and to record these warnings officially within the system.

Automated Traffic Management Systems

Conventional speed and red light cameras have been an integral part of most modern enforcement systems. Digital technology is becoming even more sophisticated with the development of:

- Time over extended distance speed measurements (taking speed measurements at two camera sites, calculating the time between sites and determining the average speed. The distance can vary from a few hundred metres to many kilometres).
- Distributed networks where a combination of speed cameras with number plate recognition software are interlinked to provide average speeds for an offending driver in various locations throughout the network (providing evidence of habitual speeding)
- Digital video surveillance and wireless transfer capability for a range of moving violations and enforcement activities

- Centralised control of traffic management systems and remote access to enforcement equipment
- The combined red-light speed enforcement cameras
- Double line cameras for identifying vehicles crossing the lines
- On-road education and warnings can be provided to motorists who approach school crossings, railway crossings and dangerous locations. Over-speed approach can trigger the illumination of electronic studs or other lighting signals. Failure to immediately comply can trigger a secondary device (photographic still or video evidence) resulting in a prosecution.

The 'black box' as a monitor

Traffic Police should take full advantage of the technology behind the black box and other vehicle safety features and use it as a tool in their endeavours to reduce road trauma. While the 'black box' is available to police in some circumstances now, its broader application has the potential to drive the community towards self-regulation. Within the transport industry, police have the capability to tap into the engine management system to monitor hours of driving and speed compliance.

A range of vehicle applications being introduced to standard vehicles includes adaptive speed controls, over-speed warnings, distance warning systems, seat-belt warning systems and interlocks as well as alcohol interlock devices. Without invoking the 'big brother' concept, if drivers infringe upon the rights and privileges of others by dangerous driving behaviours, then access to this technology should be part of any investigation process.

Public Private Partnerships

Over the past ten years governments have increasingly engaged in public/private partnerships for the benefit of road safety. This includes speed, red light and bus lane camera and infringement operations; still and video camera surveillance and prosecution; intelligent processing systems; data collection and other forms of gathering evidence. Different models exist internationally with varying accountability, responsibility and revenue sharing arrangements.

Whatever model is adopted, we should not stray from first principles to reduce crashes and ensure discipline on our road network for the safety of all.

This also ensures that the enforcement responsibility and accountability at all times remains with police and that any resultant revenue from infringements is irrelevant to the road safety aims. Police must also maintain responsibility for strategic planning as well as the decision making process on prosecution.

Public private partnerships can deliver efficiencies to parallel enforcement strategies especially where high volume processing is required. The key factors to be applied are to ensure that:

- The evidence management system is streamlined ensuring data integrity is maintained
- Meticulous application to standards are maintained
- Quality benchmarks are provided together with sound policy, data privacy and confidentiality

Overall, system and processing integrity impacts directly upon perceptions of the offending drivers and the public – and what drivers think they can get away with (especially speeding). Swiftness and certainty of penalty rapidly brings about a behavioural and cultural change. The integrity of the processing chain is therefore critical to the community cultural change process. [5]

"Revenue raising"

A current impediment to introducing new or upgrading road safety initiatives is the negative community attitude that enforcement through technology is more focused on raising money than saving lives.

Unfortunately, some governments engender a primary focus on anticipated revenue rather than the reverse. What should be the focus of attention is the financial cost benefits to the government and the community of each life saved through enforcement initiatives. "A two-year University of Sydney study, published in this month's Transportation Research journal finds the average cost of a single death from a fatal car crash is $6million" [6]. This figure is expected to replace the outdated but accepted $1.5 million figure for Australia. The key point is that these figures are rarely seized upon and promoted in the cost benefit analysis of road trauma reduction.

The facts are simple. Speeding and other like offences are illegal. Research supports the fact that even five kilometres over the legislated speed limit doubles the crash risk [7].

From a road-policing perspective, 60kph means 60kph and 100kph means 100 kph (maximum safety speeds in good conditions). As driving is a privilege and not a right, the drivers have an obligation to themselves and others to obey the speed limits. If a choice is made by the driver to exceed the speed limit, either carelessly or deliberately, then the expected consequences are known. Any revenue is a bi-product of those consequences and should not be accepted as a "catch cry" of offenders.

Police and governments have a responsibility to minimise or neutralise this revenue raising debate, eliminate the argument as a barrier and get on with their strategic responsibility of saving lives.

Conclusion

The challenges for law enforcement over the next ten years are to continue to provide focus on safer road user behaviour, instil public confidence in planned and systematic enforcement practices, maximise the application of available technology, and maintain a leadership role in determining strategies and tactics. Enforcement must be strong, active and visible and interrelated with public education and awareness. Enforcement technology does not make the role of the traffic patrol officer obsolete – nor do 'safer' cars and better roads. Traffic law enforcement can and does change driver behaviour and is an essential element in ensuring public safety and reducing road trauma. The key is to maximise the integration of enforcement, education and road safety awareness as well as balance the mix of physical on-road policing and automated enforcement through technology.

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From the Viewpoint of Road Users

Motorcycles and Road Safety in Australia for the Next Decade

By Shaun Lennard, Chairman, Australian Motorcycle Council (AMC)

Hobart

Two significant events took place in 2008 which we hope will provide the basis for motorcycle-specific plans in the national road safety strategy for the next decade. The timing of these in the lead up to the next ten-year strategy is perfect – stakeholders have time to digest the recommendations and develop them into practical measures for an Australian strategy.

In April 2008, the Australian Government hosted the first-ever Motorcycle and Scooter Safety Summit, held in Canberra. This was followed – purely by coincidence – by the inaugural Workshop of Motorcycling Safety hosted by the Organisation for Economic Cooperation and Development (OECD)'s International Transport Forum, held in Lillehammer, Norway, in June 2008.

I was fortunate enough to represent Australian riders through the Australian Motorcycle Council (AMC) at both of these

significant events, being the sole Australian rider rep invited to the OECD workshop.

Whilst these two events were being organised in isolation, the coincidence is that – in both Europe and Australia in late 2007 – ideas were developing for major motorcycle safety forums. The OECD event originated as a European Union (EU) forum, but grew in the early planning stages to encompass the OECD and thus involve Australia.

The themes and formats were remarkably similar – the first day identifying the problems and issues and the second developing recommendations and solutions.

The OECD workshop concluded by announcing three priority general principles which the AMC believes should be adopted in Australia, (where they are not already in place):

- cooperation between the various stakeholders, including continuing dialogue and cooperation,
- a fundamental requirement of motorcycling having a place in overall transport policy and infrastructure/policy management, and
- that counter measures be founded on evidence-based research

The philosophy of the second note is certainly not in place in most parts of Australia, but progress is being made. Meanwhile, there has been a huge increase in the number of motorcycles and scooters on the roads in Australia over the past decade – from 334,000 in 1999 when the current strategy was finalised to well over 550,000 now. The average annual increase has been around 5%, although closer to 9% p.a. in recent years.

There also seems to be a view emerging in Australia that we have done as much with driver/rider training as possible, and that the focus should be on injury containment, e.g. reduction in traffic speeds. Yet what is contained in the current curriculum for novice drivers around awareness of vulnerable road users?

Some strategists have taken the approach of looking at ways to reduce the numbers of people taking up motorcycling – for example Queensland's increase of learner age and the appalling-confronting advertising campaign we saw recently. But that's a bit like trying to stop the tide, if recent years are anything to go by. It is far better to help make motorcycling safer, than simply attempting to reduce the total number of riders. I'm pleased to see that a new consultative body has just been established in Queensland, and this should see future initiatives developed in a far more collaborative manner.

At the OECD workshop we had a refreshingly different view too.

> *...I'd like to see... authorities genuinely acknowledging motorcycles as part of the transport mix*

"It's time to end the blame-game and finger-pointing..." was a common theme coming from both rider and Government representatives in Europe. That's a key change I'd like to see in place as we develop the next ten year strategy in Australia; authorities genuinely acknowledging motorcycles as part of the transport mix and motorcycle riders and representative groups understanding – seeing – that those working on road safety are genuinely interested in seeing improvements in motorcycle safety.

Before looking ahead, let's remind ourselves of the five motorcycle-specific points in the 2009-2010 Action Plan, noting that we are only a little over a quarter through that period, so there is still time for further work in these areas before the end of 2010.

The points are simply summarised as:

- public education programs focussed on the greater risk faced by motorcyclists,
- ensure that motorcycle-specific issues are taken into account in the design and construction of roads,
- promote the safety advantages of ABS,
- a best-practice graduated licensing system, and
- a national rating system for protective clothing

In addition to the three general principles, the OECD workshop then developed a number of practical measures. In many ways the first six reflect the above points from the Australian action plan, so we must be on the right track. The challenge is that the measures need to be implemented and not remain as words in a strategy.

Below is a summary of those first six OECD items, which we believe should form the basis of plans for the next decade in Australia, along with the existing action plan items.

Training programs for motorcyclists

Countries have different training needs, based on their vehicle fleet and riding environment. Motorcycle training should therefore build on existing standards, focus on risk awareness and risk avoidance, and develop an understanding of the rider/motorcycle capacities and limitations.

Improved training for drivers

A component on awareness and acceptance of motorcyclists should be included in the general training for all drivers, with a particular emphasis on the need for appropriate traffic scanning strategies.

Braking systems

Manufacturers should continue to introduce advanced breaking systems, such as combined brake systems and ABS.Getting safety messages to the riders and portrayal of responsible riding

Safety messages to riders should be developed in partnership with rider groups, in order to use the effectiveness of peer advice in communicating key issues to riders on issues that will impact their communities.

Integrated awareness campaigns

To develop an awareness of motorcyclists and mutual respect between road users, education activities and campaigns should be set up from early childhood, to emphasise that "road safety means road sharing".

Guidelines for the development of road infrastructure and training for road designers

Each level of government should include in their infrastructure guidelines measures for accommodating motorcycles, developed with input from relevant stakeholders.

The Right Approach for Older Drivers

By Mr Robin Anderson, Prof Kaarin Anstey and Prof Joanne Wood

1. Introduction

The safety of older drivers is at times a contentious and emotive issue. While it is widely believed that most older drivers are relatively safe and responsible, there is a small proportion of drivers who are unsafe, and with population ageing, the number of individuals in this group will increase. It is timely to look ahead now to design strategies to address this issue.

> *...the number of Australians aged 65 years and older will more than double from 2000 to 2025.*

2. Demographic changes

As a result of an ageing baby boomer cohort and increasing life expectancy, the number of Australians aged 65 years and older will more than double from 2000 to 2025 (1). This demographic change means that older drivers comprise the fastest growing segment of the driving population. By 2030, it is expected that the proportion of Australian licensed drivers age 65 and older will rise to 22%, compared to just 13% in 2000 (2).

Older adults comprise 19% of all road-related fatalities (3) and 9.4% of all serious injuries (4). A conservative estimate places the cost of accidents involving older adults at around 12% of the total annual cost; approximately $2.1 billion. US statistics show that drivers over the age of 75 are 3.8 times more likely to be involved in a fatal crash compared with all other drivers (3), and as a result of their increased frailty, older adults are more likely to sustain serious injury or die if involved in a crash (4). Driving cessation has been linked with isolation, depression and mortality (5).

> *US statistics show that drivers over the age of 75 are 3.8 times more likely to be involved in a fatal crash compared with all other drivers...*

3. Age-related changes that may influence older driver safety

Driving is a complex task involving integration of visual, cognitive and psychomotor skills. In later life, specific disease or general age-related changes may lead to deterioration in the basic abilities that are required for safe driving.

Cognitive changes associated with ageing that affect driving include slowing of reaction times, reduction in visual and divided attention, and reduction in executive function (6). Decline in executive function associated with atrophy of the frontal lobes, may underpin inconsistency (7) in responding to stimuli, poor planning of responses, and a lack of insight into physical or psychological declines that impact on injury risk (6). As the sheer number of people with dementia increases with population ageing (8), there will be an increasing need to manage the issue of driving in the early stages of dementia.

In addition to cognitive deficits from dementia and other medical illness, the prevalence of visual impairment increases significantly with age (9). Age-related changes in visual function have been investigated as risk factors for crashes

among older adults, (10,11), particularly reductions in visual acuity (12-15) and visual field loss (16, 17). However, research has shown that visual tests alone are a poor predictor of driving performance (6, 18-20) Eye disease is also associated with increased risk of unsafe driving (21,22). For this reason, much of the research on risk assessment of older drivers has involved tasks that require a combination of visual and cognitive processing abilities such as the useful field of view, which looks at visual processing speed and selective and divided attention, involving peripheral vision (see Clay et al. 2005 - 23) for an overview).

Adequate ability to sense joint position in the lower limbs, strength, and coordination, are also required for appropriate control and adjustment of the accelerator, brake and clutch pedals. However these abilities also show age-related declines which may be impacted further by acute and chronic medical conditions that become more prevalent in old age, e.g. arthritis.

4. How big is the likely problem?

Older adults, especially the 'baby boomers' have increasingly high expectations. They want to drive for as long as possible – and also expect to have alternative transport options to meet their individual needs. They will also have the numbers, education, contacts and political clout to ensure they are heard!

There will also be a higher rate of car use by the 'baby boomers', allied to considerably more driving by females in that group versus current seniors. Accordingly, the frequency of older driver crashes could triple unless effective countermeasures are implemented (24).

We also expect that the baby boomers' travel patterns and behaviour will be significantly different from the current over-70s - but we don't yet know how. Accordingly, new measures, especially transport regulations, should be sufficiently flexible to allow for a diverse range of mobility solutions.

> *Information and programs to assist older adults to maintain their mobility provides not only safety benefits, but immense economic, health and social gains as well.*

5. Key directions

Mobility is critical for healthy ageing. Health and road safety professionals frequently receive pleas for advice on the process of driving cessation, and its often dramatic effects on personal mobility and self-image. These are very important in ensuring a healthy old age – both physically and mentally. Information and programs to assist older adults to maintain their mobility provides not only safety benefits, but immense economic, health and social gains as well.

> *It is essential to emphasise that driving cessation should be a gradual transition or process – not a sudden traumatic event.*

It is essential to emphasise that driving cessation should be a gradual transition or process – not a sudden traumatic event. A key element is to raise the idea of a 'mobility transition' onto the agenda early, involving three elements - namely how to drive safely as long as possible; giving up driving; and post-driving mobility options.

It is important that older road user safety programs involve seniors themselves, their support networks (family, friends and health professionals) and transport policy makers and service providers.

6. Possible new initiatives and research

It is encouraging that developments in research and policy in Australia, in respect to older road users, are generally in line with international best practice.

However, the following are areas where more research and policy development could lead to significant new beneficial programs.

1. An information campaign to inform both seniors and the general public of the high levels of safety of most older drivers, while introducing the idea of a gradual transition out of driving.
2. Work on how to identify, reach and influence the small group of seniors who drive unsafely. Evidence-based approaches to identification of unsafe drivers need to be based on the highest quality scientific research to avoid unfair bias and ensure that those who are safe are allowed to drive for as long as possible while only those who are truly unsafe are denied licensure
3. Developing materials for professionals, seniors, and their support network of family and friends, on how to handle the trauma of abruptly ceasing driving. A particular need could be special information in relation to dementia and driving.
4. Investigation and trial of post-driving mobility alternatives – especially volunteer driver programs; community transport schemes and transport brokerage.
5. Identifying road engineering safety initiatives and in-vehicle devices of special relevance to seniors and implementing them in proactive situations.
6. Research on older pedestrian safety programs which combine behavioural, information and engineering factors.

In many cases, very good results can come from partnerships where generic policies or products of national or state agencies are adapted for local use by community organisations. There are good opportunities for older road user initiatives through innovative partnerships between

research centres, government agencies, seniors and community groups and motoring organisations.

7. Conclusion

It is now accepted (at least among most safety professionals) that road safety is not a 'transport problem', but rather a wider community health issue.

It is vital to take an integrated, 'healthy ageing' approach. In the end, if we focus mainly on road safety to solve the problems of older road users, we will have largely incomplete and unsatisfactory solutions.

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Getting Australia's Truck Drivers Home Safely

By Stuart St Clair, Chief Executive, Australian Trucking Association

This article is an edited version of Stuart St Clair's address to the National Press Club on 8 July 2009

Around 20 years ago, I owned and drove a prime mover and semi-trailer. It had virtually no safety features. It didn't even have seat belts, and you turned the air conditioning on by winding the window down. It's worth comparing that to the trucking industry today.

For two weeks in July 2009, I drove the ATA's mobile safety exhibition trailer across northern Australia from Darwin to Broome and on to Perth, meeting trucking operators along the way. I drove a new Volvo prime mover, which the company has generously made available to us. It has 200 more horsepower than my old logging truck, can haul 20 more tonnes, and uses half the fuel.

It is also much safer. It doesn't just have seat belts and climate control, it has:

- adaptive cruise control, which monitors and maintains the gap from the vehicle in front;
- an electronic braking system, which gives you the best possible braking in any road conditions;
- lane changing radar, to make sure there is nothing in your blind spot when you change lanes; and
- driver alert support, which is a video camera and onboard computer that monitors your driving behaviour. It will sound an alarm if your driving performance changes; for example, if you become tired or distracted.

And it has many other electronic systems to help the driver and make the vehicle safer for other road users.

This Volvo prime mover is at the leading edge of truck safety, which has improved dramatically since I drove my logging truck two decades ago. In 1988, there were 260 fatal crashes involving articulated trucks and 320 deaths. In 2008, there were 130 fatal crashes and 150 deaths. It's a remarkable improvement, considering the growing number of kilometres travelled by the industry in response to the community's demand for freight services.

Of course, even one fatal crash is too many. The trucking industry's objective must be to make sure all our drivers get home safely – as well as every other road user. To do this, we need to start by looking at the latest evidence about what really causes truck crashes.

What really causes truck crashes?

Australia's major truck insurer, NTI, recently issued a report analysing 325 major truck crashes that occurred in 2007. The report showed that fatigue and inappropriate speed for the conditions were the cause of almost half these accidents. But almost 90 per cent of the fatigue crashes occurred toward the start of a driver's shift – within the first 500 kilometres of driving. One in four of the fatigue crashes were on a Monday – for many, the start of the working week.

These crashes didn't occur because the drivers were working excessive hours. They occurred because:

- the drivers weren't trained to recognise that they needed to be fit for duty at the start of their shift;

- their companies did not have systems to ensure they were safe to drive;
- their vehicles did not have the technology to warn them their concentration was slipping; and
- there was nowhere for them to get off the road and have a rest.

> *...we will only see further, substantial falls in the number of truck crashes if governments, the industry and our customers fully take up the safe systems approach to road safety.*

That's why the ATA believes we will only see further, substantial falls in the number of truck crashes if governments, the industry and our customers fully take up the safe systems approach to road safety.

The safe systems approach will need to be at the centre of the next version of the National Road Safety Strategy. The Government will need to involve the ATA in the development of the strategy and in the National Road Safety Council's consultation processes, along with the Australasian College of Road Safety, the Australian Automobile Association and other stakeholders.

The National Road Safety Strategy will also need to take into account the safe systems work that is currently being undertaken by the National Transport Commission.

Of course, the strategy will need to include the continued enforcement of the road transport laws. There is no place in the modern trucking industry for cowboys. Safety will need to be underpinned by visible, targeted enforcement, with national chain of responsibility laws administered by a national regulator. But it will also need to recognise that all road users make mistakes from time to time: it's part of being human. The strategy and the two-year action plans beneath it will need to include measures to build systems around drivers to help reduce the number of mistakes they make.

And it will need to include ways of minimising the consequences of accidents when they occur.

As far as heavy vehicles are concerned, these measures will need to focus on safer roads, safer trucks, safer drivers – and most importantly safer companies.

Building safer roads

The gold standard approach to building safer roads is to put in a divided highway or freeway. The NTI study confirmed that truck accident rates on the Hume and Pacific highways are falling steadily. The Australian Government's continued investment in roads will help push down accident rates even further. There is, however, one problem. As the state governments plan and build the new roads, they are often paving over or closing existing truck rest areas. Our drivers need rest areas where they can take a break – not just on the highways, but in the urban areas as well. For example, trucks are not allowed to arrive ahead of their slots at Port Botany, or they have to pay a penalty. There is no proper truck parking within 40 kilometres of the port. As a result, drivers end up arriving rushed and exhausted – the last thing we need from a safety point of view.

> *Our drivers need rest areas where they can take a break – not just on the highways, but in the urban areas as well.*

The Australian Government is now funding truck rest areas for the first time, under its Heavy Vehicle Safety and Productivity Program. It is an extremely valuable program for the industry, but there is an enormous shortfall to make up. The best and cheapest way to build the rest areas we need is to make them part of each new road project, rather than putting them in later. So to get the best safety value, I believe the Government should require the states to design their Nation Building road projects to include truck rest areas from the start.

Safer trucks

The industry's trucks will continue to become safer as new technologies arrive and are adopted throughout the fleet. However, the best way that governments can improve the safety of trucks is to allow us to use longer and safer combinations like B-triples on some routes. A B-triple is a prime mover with three close-coupled trailers, rather than the one or two we see on highways now. Two B-triples can do the work of three B-doubles or five normal semi-trailers.

They are safer than conventional semi-trailers as well:

- their design characteristics make them more stable;
- they are new, so they have the latest safety features; and
- you don't need as many to carry the same amount of freight – which immediately reduces road users' exposure to accident risk.

You would never see a B-triple in residential suburbs. They would operate on road links like:

- Melbourne to Adelaide via the Great Western and Dukes highways;
- Melbourne to Brisbane via the Newell Highway; and
- Melbourne to Sydney via the Hume Highway once it is fully duplicated.

...the truck driver licensing system is stuck in the days of the goat-track Hume.

Safer drivers

Today, a truck driver is responsible for five or six hundred thousand dollars worth of equipment plus the load. Truck driving is no longer a job of last resort. It requires skills and training. But the truck driver licensing system is stuck in the days of the goat-track Hume. It's a graduated system. You can't get a rigid licence until you've held a car licence for one or two years. You then have to wait another year until you can apply for a semi-trailer licence. You don't actually have to drive a rigid truck while you're waiting for your semi-trailer licence. You don't have to log a certain number of driving hours or learn how to become a safe driver. All the system cares about is that you serve your time – you can sit and do nothing for a year.

The forthcoming establishment of national heavy vehicle laws is a chance for governments to put a modern licensing system in place. Through our Driver Licensing Working Group, the ATA is putting together a detailed plan for consideration by governments. Under our plan, drivers would have the option of undertaking a certificate-level driving course, including training in:

- driving attitudes, skills and competency;
- occupational health and safety;
- correctly restraining loads;
- fatigue management; and
- basic first aid.

Our plan would give drivers an incentive to get better training.

Drivers who completed one of these certificates would be able to move through the graduated licensing system more quickly, because of their demonstrated competence and safety. Our plan would give drivers an incentive to get better training. It would give them a nationally recognised qualification. And it would make them safer drivers.

Safer companies and customers

I want to conclude by talking about the need for safer companies and customers – the final element in any road freight safety system. Unfortunately, there is a big difference today between the companies that adopt best safety practice and the rest of the industry.

Australia's best and safest trucking companies, like Linfox, make safety the central focus of everything they do.

- they train, support and monitor their drivers;
- they invest in the safest vehicles;
- they have policies to make sure their drivers are healthy and fit to drive when they start their shifts.
- they make sure their drivers are scheduled correctly and legally.

You don't have to be a big company to put measures like these in place. As part of the ATA's commitment to safety, we run our TruckSafe program so every company can meet these objectives. Companies who join the program have to meet strict safety standards, and are audited regularly.

Independent statistics show that companies in the TruckSafe program are about twice as safe as non-accredited companies. As a result of the chain of responsibility laws, the industry's customers are increasingly turning to companies that have safety accreditations, because it's a simple way of ensuring they meet their obligations.

Summary

In summary: safety is increasingly becoming a selling point for the best companies in the industry, not a cost. The next version of the National Road Safety Strategy will need to provide incentives for more companies to take this approach. It is an essential step toward building a safe road transport system. It will help make sure that more of Australia's truck drivers get home safely.

Healthy Drivers are Safer Drivers

- but, Confidentiality a Must in Health Checks

By Bill Noonan, Branch Secretary, Transport Workers Union of Australia Victorian/Tasmanian Branch

The Australian National Road Safety Strategy must seek to improve the health and well being of working drivers on our roads, if we are to improve overall road safety.

Despite the concerns of some employers and unions, I am pleased to highlight the success the Transport Workers Union (TWU) has had in delivering its own Health Break program over several years (before the State Government's Work Health program).

> *... the Strategy must support ... proper screening of workers ... but it must have ... the fundamental provision of confidentiality if it is to succeed*

Our Health Break program involved screening workers in the transport industry. We screened several thousand workers in a number of transport yards across Victoria. We screened for early signs of diabetes, stroke and heart disease amongst others. Specifically, we screened for sleep apnoea (which is a form of sleep disorder) which contributes to fatigue, a primary cause of truck crashes on our roads. We found a significant number of workers were suffering from sleep apnoea in addition to other preventable diseases. This has allowed us to partner with the

Institute for Breathing and Sleeping (IBAS) in addressing this worker health issue for a safer work environment.

Our program was a success not only because transport employers and union delegates were supportive but because there was recognition by all stakeholders to keep the screening and results strictly confidential between the medical/nurse practitioner and the worker. At no stage is the information forwarded to the employer or government.

In planning for the next national road safety strategy, the Strategy must support directions for proper screening of workers in the workplace but it must have at its core the fundamental provision of confidentiality if it is to succeed as we did.

Time to Get Serious

The following is an edited version of an article presented to the Hobart Mercury (18th July 2009) by Harold Scruby; Chairman and Chief Executive of the Pedestrian Council of Australia and offered to the ACRS Journal as an example of actions for the next NRSS.

The Australian Transport Council's National Road Safety Action Plan for 2007 and 2008 states: "Improvements in speed management have generally been incremental since 2000, but in Victoria large scale integrated speed management initiatives were implemented from early 2002. Measured travel speeds declined on many parts of the road network, not just at enforcement sites. "These changes were followed by a large and sustained reduction in road deaths, particularly among vulnerable road users and in urban areas, where the effect of travel speeds was greatest. "There is evidence that improved speed management has made a major contribution to the overall improvement in road safety outcomes in Victoria."

In a comprehensive study published in June 2003 by the renowned Monash University Accident Research Centre (MUARC), it was reported: "following the full implementation of the mobile speed camera program (including supporting mass media publicity), statistically significant reductions in low alcohol hour casualty crashes were found across arterial roads in Melbourne and country towns and on rural highways.

> *Across Australia, the judiciary ... generally refuse to jail repeat and recidivist dangerous drivers until they kill or maim their innocent victims*

Across Australia, the judiciary has become universally four-ply soft on dangerous driving. They generally refuse to jail repeat and recidivist dangerous drivers until they kill or maim their innocent victims. Many of these criminals show such utter contempt of court, they drive home after their licences have been confiscated. In Western Australia, anyone driving while disqualified now has his or her vehicle automatically

impounded for 28 days, regardless of ownership. Repeat offences attract up to six months' impounding, and they are now considering forfeiture.

> *We must get serious about ... mobile phones...Forget the fines: make it six demerit points and confiscate the phone.*

We must get serious about the national epidemic of the use of hand-held mobile phones. This behaviour is as dangerous as mid-range driving under the influence. Forget the fines: make it six demerit points and confiscate the phone.

Here's what we'd do if we were in government:_

- Automatic impoundment of all vehicles for disqualified, high-range speeding, dangerous driving and high-range DUI offences. First offence 28 days, forfeiture for second offence within five years, regardless of ownership.
- Speeding penalties to at least equate to those of Victoria, with accentuation on demerit points and automatic loss of licence.
- Widespread covert speed cameras outsourced to free up police resources — and make it a serious offence to broadcast their location.
- Double demerit points for all demerit point offences during holiday periods. _Emulate the NSW schoolzone penalties (children are our greatest asset and deserve maximum protection).
- 40km/h zones in all CBDs, shopping zones and areas of high pedestrian activity. _Embrace the latest technology, including red-light speed cameras (at black-spot intersections and crossings) and ANPR (automatic number plate recognition) in all police vehicles to catch unregistered, uninsured and unlicensed drivers — they pay for themselves in a month.
- Reduce the maximum speed limit to 100km/h on all undivided roads.
- Increase the minimum age for a P-plate licence to 18 (as in Victoria). You can't vote, drink, sign a contract or go to war until you are 18 — full licence at 21.
- Emulate the Victorian and NSW P-plate legislation: zero tolerance on speeding, zero alcohol, along with passenger and night-time restrictions, and restrictions on fast and powerful vehicles.
- Automatic confiscation for use of hand-held mobile phones for three months and forfeiture for second offences, along with six demerit points.
- Mandatory jail sentences for any driver convicted of three dangerous driving offences (eg high-range speeding, DUI, hooning, racing, etc) in any five-year period.

More Emphasis Needed on Safer Roads

By John Wikman, Executive Manager Traffic and Safety Department, RACQ

The RACQ would like to thank the ACRS for inviting comments on suggested directions for the National Road Safety Strategy 2011 – 2020. The Club believes that the safe system approach, focussing on having safer drivers in safer vehicles on safer roads, from the 2001 – 2010 strategy needs to be retained in the next strategy.

> *More emphasis ...needs to be placed on safer roads.*

More emphasis, however, needs to be placed on safer roads. The 2001 – 2010 strategy (Australian Transport Council 2000, p6) identified that "Improving the safety of roads is the single most significant achievable factor in reducing road trauma." It was estimated that improving the safety of roads could

contribute roughly half of the targeted 40% reduction in Australia's road crash fatality rate per 100,000 population (Australian Transport Council 2000, p19).

The RACQ believes that, nine years on from the original strategy, not enough has been done to improve the safety of roads and roadside environments themselves. We believe that this has led to less of an improvement in the fatality rate per 100,000 population than the target identified in the National Road Safety Strategy.

The RACQ therefore calls for the inclusion of safer roads as the key initiative for improving road safety in Australia, and especially in Queensland, in the 2010 – 2020 strategy document. We also call for a renewed commitment to carrying out the work necessary to ensure that Australia's roads and roadside environments are as forgiving as possible to road users involved in road crashes, regardless of their cause.

> *What is needed is a commitment to provide the necessary resources…*

In Australia we have the engineering expertise to identify the design features of roads that will reduce the likelihood of crashes occurring and reduce the severity of outcomes should they occur. We can also identify the locations where these measures will have the most benefit. What is needed is a commitment to provide the necessary resources to deliver these countermeasures.

ANCAP: A deregulatory approach to reducing road trauma

By Nicholas Clarke, Business Manager, Australasian New Car Assessment Program (ANCAP)

The National Road Safety Strategy 2001-2010 (NRSS) contained a raft of actions, many of which have been implemented, but many are still to be completed. There is much research to demonstrate the benefit of investment in road and vehicle safety programs.

ANCAP is one of these programs. For 15 years its stakeholders have directly contributed about $2m per year and much more through in-kind support and communication programs to undertake the crash testing of new motor vehicles to demonstrate to consumers to differences in occupant protection in new cars offered for sale. This is an excellent example of a non regulatory approach, a consumer driven approach to reducing road crash trauma. Research shows that you are 2 to 3 times more likely to be killed or seriously injured in an ANCAP 1 star rated vehicle compared with an ANCAP 5 star rated vehicle

Nissan Urvan – 1-star ANCAP rating

Holden Cruze – 5-star ANCAP rating

> *…if everyone drove an ANCAP 5 star rated vehicle about 175 lives would be saved (and many hundreds more would not face serious and/or permanent injury) every year.*

Yet it still possible to purchase a new vehicle which has an ANCAP 1 star rating. The NRSS issued ten years ago, stated that if everyone drove an ANCAP 5 star rated vehicle about 175 lives would be saved (and many hundreds more would not face serious and/or permanent injury) every year. Ten years later, many cars have improved in terms of their occupant protection, their crash avoidance technologies and also their pedestrian (or other road user) friendliness. In fact we have over 90 five star ANCAP cars listed in our public data base.

Governments and corporate fleets account for about 60% of the new vehicle market. At the stroke of a pen these fleets could move to an ANCAP 5 star minimum safety rating. This would instantly improve the safety of this very large vehicle fleet which will be quickly passed on to non fleet users. Unfortunately there

are not yet any ANCAP 5 star rated light commercial vehicles. Many of these vehicles, light 4wd crew cab utilities, are used as "mum's taxi" and do not even meet the same ADR crashworthiness tests as normal cars.

> *All Governments could specify now a purchasing timetable which would exclude any vehicle rated less than ANCAP 5 stars.*

So if we are serious about achieving the recommendations in the NRSS of 10 years ago it is essential that we take some actions we know will work before we look to what might work in the next 10 years. All Governments could specify now a purchasing timetable which would exclude any vehicle rated less than ANCAP 5 stars. Not just some government agencies, not just some governments, but all governments and for all their contractors; to make a major contribution to reducing unnecessary road trauma.

The new National Road Safety Strategy must include a serious commitment to the deregulatory ANCAP process to encourage further developments in vehicle safety and must be truly of a united national character. All new motor vehicles should have an ANCAP crash rating at the time of their launch into the Australian market. Governments and corporate fleet buyers should demand an ANCAP 5 star rating for all their fleet vehicles. Encouraging consumers to look for and demand safer vehicles will also encourage them to think more about safety generally and help encourage them to think and participate in the other vital components of a safe system approach to reducing road trauma. ANCAP is one of many tools that the strategy needs to embrace.

A Global View of Road Safety

Make Roads Safe 'Decade of Action' Report Launched to Save 5 million Lives

By Mike Harris, Executive Director, Australian Automobile Association

ANCAP is supported by all Australian and New Zealand motoring clubs, all Australian state governments, the New Zealand government, the Victorian Transport Accident Commission, NRMA Insurance and the FIA Foundation (UK). Visit www.ancap.com.au

Governments in all countries must combat the world's fastest growing public health emergency by committing to a road safety 'Decade of Action' which would save 5 million lives and prevent 50 million serious injuries, says the new report by the FIA Foundation's Commission for Global Road Safety launched in Rome on 5 May.

A co-ordinated UN action plan for road safety is urgently needed with road crashes set to become the leading cause of disability and premature death for children aged 5-14 across developing countries by 2015.

The report, Make Roads Safe, is the second report from the Commission for Global Road Safety, led by Rt. Hon. Lord Robertson of Port Ellen. The Commission was established to examine the framework for, and level of, international cooperation on road safety and to make policy recommendations.

One key recommendation for the first ever Ministerial-level global conference on road safety, was adopted by the UN General Assembly in 2008.

Commission for Global Road Safety Chair, Lord Robertson, urged politicians to take action globally through the forthcoming Ministerial meeting to be held in November.

> *Five million lives are at stake over the coming decade. We have the tools ... to save these lives, now, we need... the political will to succeed.*

"Five million lives are at stake over the coming decade. We have the tools and the vaccines to save these lives, now we need the international community to demonstrate the political will to succeed," Lord Robertson said.

"The forthcoming ministerial meeting in Moscow can be the turning point marking a new direction for global road safety. We must respond to this preventable epidemic with urgency and determination."

The 'Make Roads Safe' report, endorsed by the world's leading road safety experts, urges UN governments attending the first ever global governmental conference on road safety in Moscow in November, to support a 'Decade of Action for Road Safety' between 2010-2020.

During the Decade, the international community should invest in a $300 million action plan to catalyse traffic injury prevention and re-focus national road safety policies and budgets.

Road crashes already kill more people in the developing world than malaria, at an economic cost of up to $100 billion a year, equivalent to all overseas aid from OECD countries:

- More than one million people are killed on the roads of

developing countries every year, and tens of millions are injured – a toll set to double by 2030. Road crashes are already the leading global cause of death for young people aged 10-24;

- Road crashes have now overtaken malaria as a major killer in developing countries;
- They are forecast to be the number one cause of disability and premature death for children aged 5-14 in developing countries by 2015, according to World Health Organisation (WHO) projections.

To tackle this growing epidemic, the Commission for Global Road Safety makes a number of key recommendations:

- The UN should approve a 'Decade of Action for Road Safety' and governments should collectively commit to reducing the forecast 2020 level of road deaths by 50% (from 1.9 million to below 1 million a year). It would have a similar status to the current UN Decade to Roll Back Malaria;
- Achieving the 2020 target could save up to 5 million lives and prevent 50 million serious injuries – a $300 million international fund should be established to encourage and support road safety interventions;
- Interim targets and strategies should be established to promote 100% helmet and seat belt use in every country by 2020, together with other road safety interventions;
- The World Bank, regional development banks and other donors should dedicate at least 10% of their road investment budgets to road safety;
- The UN Secretary General should appoint a UN Special Envoy for Road Safety to raise the profile of the issue.

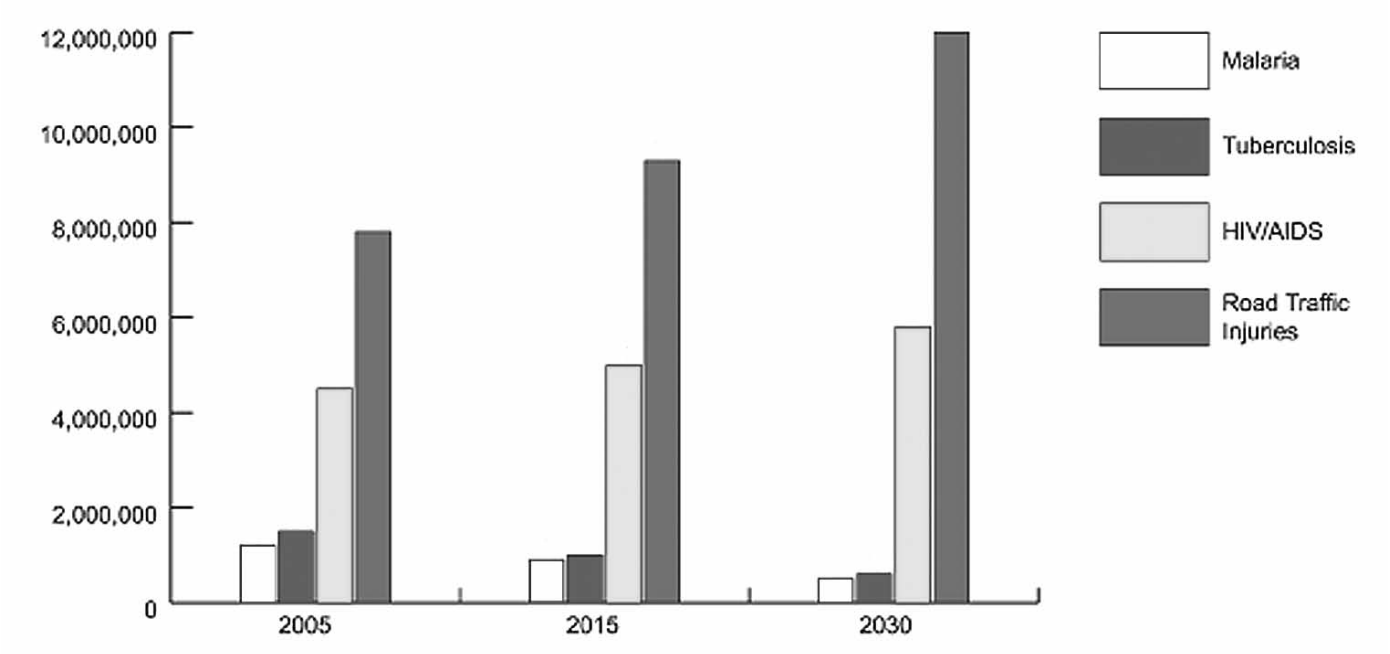
An Action Plan

Road crashes kill at least 1.3 million people each year and injure 50 million, a toll greater than deaths from Malaria. Ninety percent of these road casualties are in low and middle income countries. Each year 260,000 children die on the road and another million are seriously injured, often permanently disabled.

By 2015 road crashes are predicted by WHO to be the leading cause of premature death and disability for children aged 5 and above. This hidden road injury epidemic is a crisis for public health and a major contributor to the causes of poverty. Yet aid agencies, development NGOs, philanthropic foundations and key international institutions continue to neglect or ignore this rapidly growing problem.

Road traffic fatalities are forecast to increase over the next 10 years from a current level of more than 1.3 million annually to more than 1.9 million by 2020. The Commission for Global Road Safety believes that the urgent priority is to halt this appalling and avoidable rise in road injury and then begin to achieve year on year reductions. The world could prevent 5 million deaths and 50 million serious injuries by 2020 by dramatically scaling up investment in road safety at global, regional and national levels.

Figure 1: Causes of premature death and disability globally.



The first Global Ministerial Meeting on road safety, to be held in Moscow in November 2009 has the opportunity to set a new direction for global road safety. The UN General Assembly will then debate the results of the Moscow Ministerial during its 64th Session. The Commission, therefore, makes the following 10 recommendations to the Moscow Ministerial and UN General Assembly:

1. The Moscow Ministerial should support, and the UN General Assembly approve, the proposal that a Decade of Action for Road Safety be launched by the United Nations in 2010, with the objective of reducing the forecast level of road deaths for 2020 by 50%.

2. Governments should commit to attain the Decade goal by implementing a five pillar Action Plan designed to (1) build management capacity, (2) influence road design and network management, (3) influence vehicle safety design, (4) influence road user behaviour and (5) improve post crash care.

3. Low and middle-income countries will be expending billions of dollars in road infrastructure and transport over the coming decades and it will be crucial that they sharpen their investment focus on improving safety outcomes. To catalyse this process the international community, including donor governments and private philanthropic foundations, should invest US$300 million in the proposed 10-year Action Plan to build global, regional and country capacity, enable pilot and demonstration projects and encourage increased national investments in road safety.

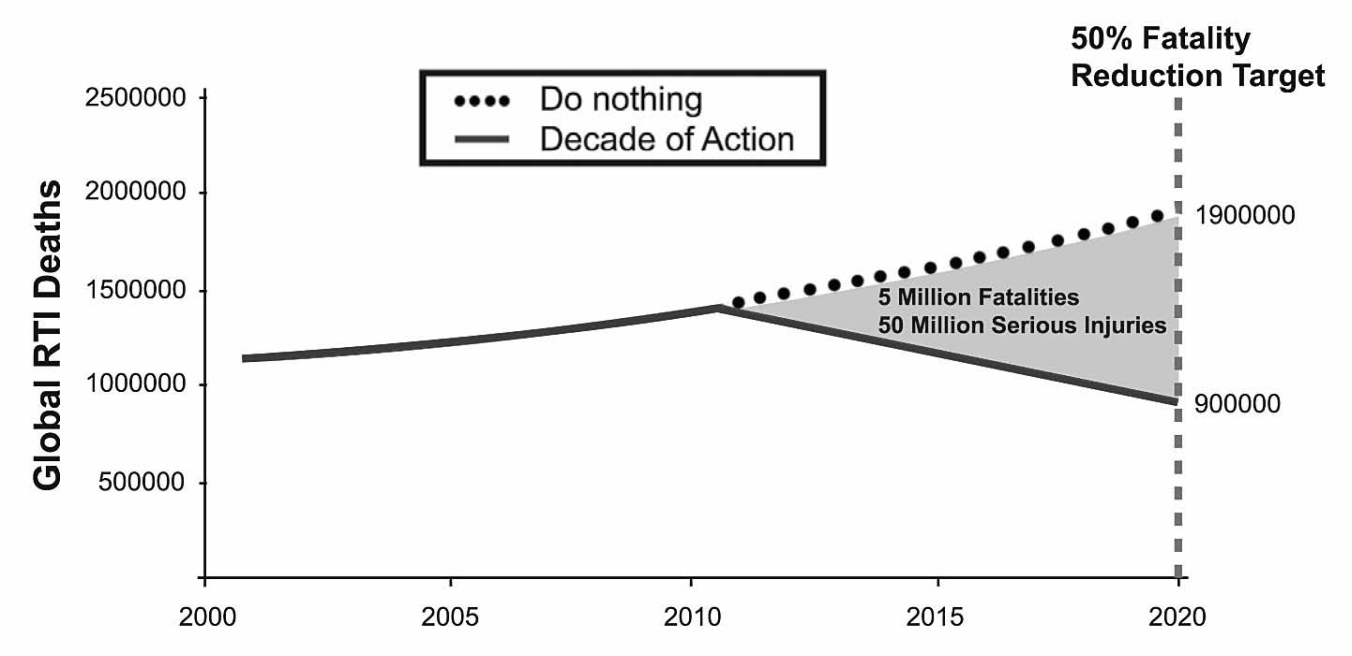
4. Governments should commit to implement a series of specific and achievable actions at regional and national level, including setting ambitious road casualty reduction targets, the creation of a lead road safety agency (eg: with legally established responsibilities and sustainable funding sources) and harmonised systems of data collection (eg: compliance with prescribed International Road Traffic Accident Database – IRTAD Group – benchmarks).

5. Governments should establish 2020 targets for: improved infrastructure safety (eg: compliance with prescribed user protection scores); improved vehicle safety (eg: compliance at minimum with prescribed crash ratings); improved road user behaviour (eg: compliance with prescribed seat belt and motorcycle helmet wearing rates); adherence to prescribed blood alcohol levels, and compliance with prescribed speed limits; and improved post-crash responses (eg: compliance with prescribed injury crash response times).

6. The World Bank and the regional development banks, together with donor nations, should ensure that at least 10% of the cost of their road investment projects are dedicated to safety rating, assessment and infrastructure improvement (eg: safety barriers, pedestrian facilities, roundabouts, motor cycle lanes, etc). This principle should be applied by donors in line with the 2005 Paris Declaration on Aid Effectiveness.

7. Governments in high income countries should lead by example by continuing to make progress in improving their

Figure 2: Potential reduction in road deaths globally if appropiate action is taken.



road safety performance, by the adoption of a 'safe systems' approach to road safety, as recommended by the OECD/ITF 'Towards Zero' expert report.

8. High-income, high performing countries should also recognise their obligation to share their experience and know-how with low and middle income countries, through study exchanges and technical partnerships, and by enabling the transfer of knowledge and supporting implementation projects.

9. The Commission urges that the UN Commission for Sustainable Development (CSD) ensure that road safety is for the first time fully recognised as a key contributor to sustainable development and the Millennium Development Goals when it examines transport in its forthcoming policy cycle review (2010-11).

10. The UN Secretary General should appoint a UN Special Envoy for Road Safety to encourage progress and raise awareness during the Decade of Action which should be subject to a mid-term review in 2015.

Global Road Safety Action Plan

The objective of the proposed Global Road Safety Action Plan is to increase local technical capacity in low and middle income countries, and to ensure that road safety management becomes self-sustaining over the long term.

Views of a Road Engineer

Rural and Urban Needs Different

By Damien Chee, Senior Traffic Engineer, Sydney

There is a wealth of research to demonstrate the nexus between physical and design/geometric aspects of the roadway with road safety performance in rural areas. The Strategy should aim to promote and sustain resource allocation to the improvement of road safety in rural areas by:

- strategic widening of the sealed width of the roadway, especially the outsides of curves
- improvements to the width and quality of the clear zones adjacent to high speed rural roads, including the removal or safety barrier protection of fixed non-frangible hazards
- improving the route guidance and delineation, including profile (audio-tactile) linemarking
- the safety improvement of rural junctions.
- improving the safety of bridges and culvert crossings including strategic widening of bridges, and improvement to approach safety barrier and linemarking provisions.

With respect to the urban road environment, there is a need to further demonstrate the nexus between traffic management techniques to resolving road safety problems. The crash profile of urban areas is distinctly different to that of rural areas and has a dominance of vehicle-to-vehicle crashes (as opposed to single vehicle crashes). These are largely the product of the large volumes of traffic, and in particular, the large volumes of conflicting traffic streams including vehicle-to-vehicle, vehicle-to-cyclist and vehicle-to-pedestrian. This problem requires sound investigation of traffic management techniques such as methods of achieving more desirable traffic/pedestrian distribution to safer routes, and the network-wide control of this traffic to minimise the number of conflicts and interrupted nature of traffic streams. Some broad strategic areas would include:

- Better separation between vulnerable road users (pedestrians and cyclists) and motorised vehicles
- Improved traffic flow conditions to reduce the number of vehicle-to-vehicle interactions (and hence crash conflicts) both longitudinally as well as those involving side road traffic.
- The improvement of sites with high crash potential/conflicts such as intersections.
- effective speed management including the consistent application of speed zones, and engineering and enforcement techniques for achieving better speed compliance.
- Industry measures and incentives for reducing heavy vehicle volumes during peak periods of the day.

Launch of Road Safety Guides a Success for Austroads

By Adrian Paton, Austroads

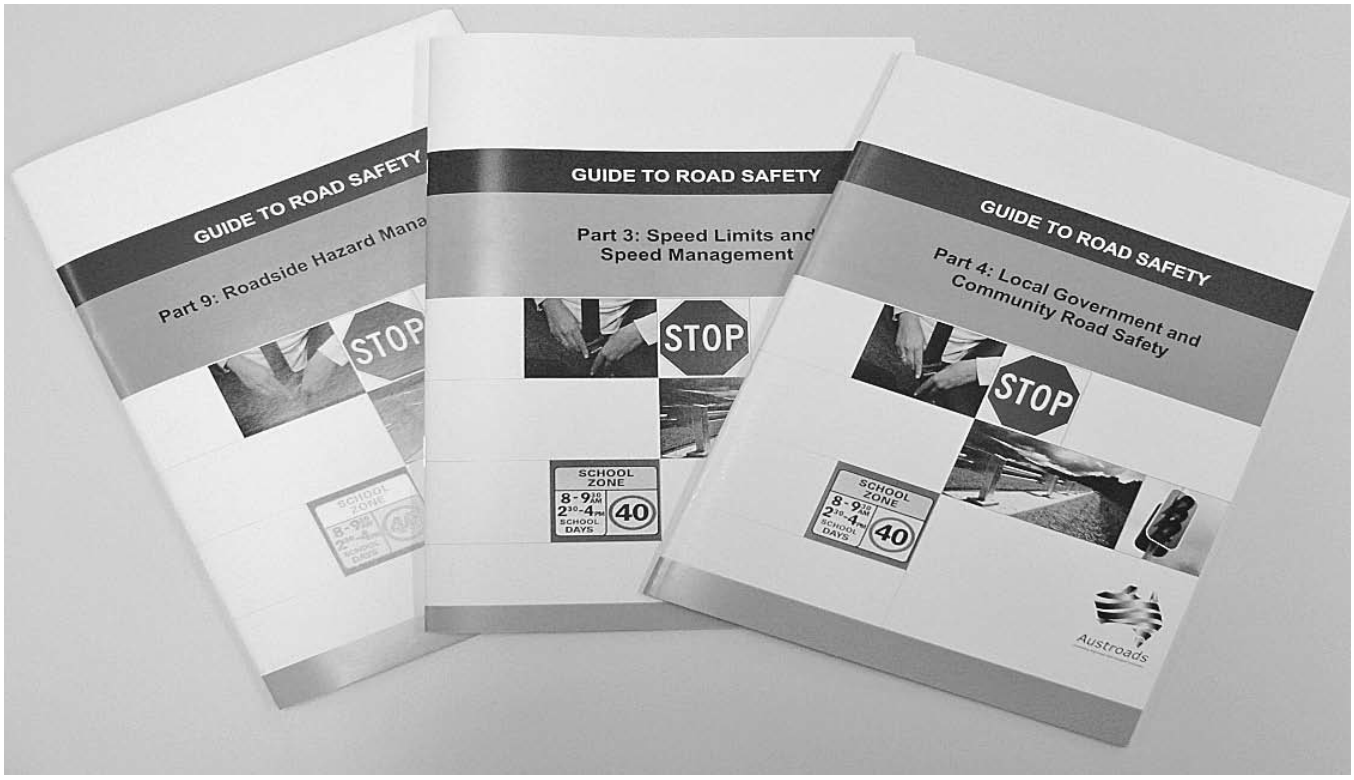


Photo: Philip Roper ARRB

Austroads launched their full suite of road industry guides at the ARRB offices in Melbourne on 1 July. Five years in the making and with over 300 people involved during this time frame, the commitment to complete the range of guides was made by Austroads in 2004. Since then both Austroads and ARRB have collaborated to see the guides through to the finished product.

The guides have been developed to update methods and processes that have been previously documented, as well as encompassing new technologies and procedures. In their entirety they cover the complete gamut of road design, construction, maintenance and operation, and provide cutting edge and contemporary information regarding the road network.

Around 200 people attended the launch from road agencies, contractors and consultants, and people involved in the writing, research and production of the guides. An overview of the guides was provided including their purpose and objectives, approach to their development, the role of ARRB, the types of new guides and their adoption by road authorities, the relationship to earlier Austroads material, and arrangements for updating the new guides.

Overviews of five of the guides (Road Safety, Asset Management, Road Design, Pavement Technology and Traffic Management) were presented which described what's new, some specifics on their content and how they will affect and influence the road agencies in Australia and New Zealand in road transport matters.

All road agencies across Australasia have agreed to adopt the Austroads guides, which is a positive step towards further consistency and harmonisation.

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Driving and licensing experiences of learner drivers in two Australian states prior to major changes in the licensing laws

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Abstract

The learner licence is an important component of the graduated driver licensing system. This research describes the driving and licensing experiences of learner drivers in Queensland and New South Wales licensed prior to the changes made to the system in mid-2007. The sample consisted of 392 participants who completed a telephone interview just after they obtained their provisional licence. The results suggest that learner drivers in the two states had many similar experiences when they were obtaining a learner licence. However, once a learner licence was obtained, there were differences in the amount of practice, the supervisor learners practised with, the type of vehicle they used and the amount of unlicensed driving. This paper provides important baseline descriptive data that can be used to measure the impact of the changes that were introduced to the learner licence phase in mid-2007 in both of these states.

Keywords: learner driver, driver licensing, learner licence, learner test, learner practice

Introduction

The learner phase is a key component of a graduated driver licensing system. GDL systems typically have three stages, the learner stage where the driver is supervised at all times, a provisional stage that allows unsupervised driving but with restrictions and then a full licence [1]. The learner phase is designed to allow new drivers the opportunity to gain practical driving experience with vehicle handling, the road environment and with the behaviour of other drivers [2]. This phase recognises that individuals need to learn how to drive and to accumulate their initial driving experience in lower risk situations [3]. Learner driver behavior appears to differ on measures that the driver licensing system is likely to influence such as the completion of logbooks [4]. Every state and territory within Australia has a learner phase, although each is different [5]. This study examines the learner phase in Queensland and New South Wales as they represented, at the time, a more traditional learner phase and a more progressive learner phase respectively, as outlined below.

In Queensland, at the time this study was conducted, the youngest age at which a person could obtain their learner licence was 16 ½ years by passing a road law knowledge test. The learner had to hold their licence for a minimum of six months, display L plates and drive under supervision. Unless they were over the age of 25, they had to have a zero blood alcohol limit. They lost their licence if they obtained four demerit points within twelve months for driving offences. Once they turned 17 years, they were eligible to obtain their provisional licence [5].

The New South Wales system, at the time the data for this study was collected, had similarities with the Queensland system. Individuals in New South Wales were able to obtain their learner licence from 16 years by passing a road law knowledge test and holding this licence for a minimum of six months. Learners in New South Wales also had to display L plates and drive under supervision with no alcohol in their blood. Additionally, they were restricted to a maximum driving speed of 80 kilometres per hour and had a towing restriction. They could obtain a provisional licence from when they turned 17 years [5]. However, the key difference between the Queensland and New South Wales licensing systems was the requirement for learner drivers in New South Wales to record a minimum 50 hours of driving experience in a logbook.

Both of these systems have now changed. In July 2007 the Queensland Government made a number of changes to their GDL system including lowering the minimum learner age to 16 years, and introducing a two phase provisional licence and a hazard perception test as well as a passenger and high powered vehicle restriction [5]. The New South Wales Government also changed their GDL system from 1 July 2007. They extended the learner period to 12 months and required 120 hours of practice. They also amended the restrictions that applied to drivers on their provisional licence [5].

This article describes the self-reported experiences of learner drivers in Queensland and New South Wales under the pre mid-2007 licensing system. The experiences described include obtaining a learner licence, their practice experiences, the vehicles they had access to and used while on a learner licence, their exposure to driver education and their experiences in obtaining a provisional licence. It is important that the behaviours of learner drivers under the previous system are documented in order to identify if the modified learner licence systems in both of these states are effective.

Method

Participants for this study were recruited during 2006 and 2007 from driver licensing centres that undertook a significant number of driving tests in Queensland and New South Wales. At the driver licensing centres, 687 eligible individuals were approached with 494 agreeing to participate in the study. The actual number of participants that completed the interview over the phone was 392 resulting in a participation rate of 57.1 per cent. The learners were licensed under the pre-July 2007 licensing system. In Queensland, participants were recruited from Brisbane and Townsville while in New South Wales, participants were recruited from Sydney, Newcastle, Ballina and Lismore. The participants were recruited just after they had passed their practical driving test to obtain a provisional licence. Although the sample was not selected randomly, this was partially addressed by the inclusion of both urban and regional licensing centres.

The recruiter approached the learner driver outside the driver licensing centre and provided information regarding the study and its voluntary nature, and offered them a movie ticket as an incentive for completion. After the individual agreed to participate, the recruiter recorded their name and phone number so they could be contacted to complete the interview over the phone. Participants completed the interview within a few weeks of recruitment. If the interviewer was unable to reach the participant on their first call, they continued to ring back on up to three occasions. It took participants approximately 35 minutes to complete the interview. The interview collected information regarding the personal, social, environmental and socio-demographic factors that affect the driving and licensing experiences of learner drivers. The data was analysed using SPSS with non-parametric tests used for categorical level data and parametric tests used for Likert scale items. Although this is not strictly interval level data, it approaches normality as sample size increases.

Results

Sample characteristics

There were slightly more females (51.6 per cent) than males (48.4 per cent) within the sample. The mean age was 19.82 (sd = 4.66) although the most common age was 17 years. Most of the sample (84.9 per cent) was single. Over two-thirds of the sample (67.4 per cent) was still studying although a significant number of the sample had completed either grade 10 (41.9 per cent) or grade 12 (37.3 per cent) at school.

Although 82.4 per cent of the sample were employed, 61.9 per cent of those jobs were part time. This would explain why 52.4 per cent of the sample had an annual income of less than $10,000 per annum. A further 20.7 per cent had an annual income of between $11,000 and $20,000 per annum. Over half of the sample (54.4 per cent) were unaware of their parents' annual income.

Further analysis was conducted to identify if there were any differences between the learners who participated from Queensland and those from New South Wales. These tests revealed that there was no difference in terms of age (t (389) = 1.64, p = .102), gender ($X^2(1)$ = .59, p = .444, ϕ = .03), level of education completed ($X^2(1)$ = 1.01, p = .314, ϕ = .05), marital status ($X^2(1)$ = 3.16, p = .076, ϕ = -.09), learner income ($X^2(1)$ = 2.01, p = .156, ϕ = -.08) or parent income ($X^2(1)$ = .14, p = .71, ϕ = -.03). However, participants from New South Wales were more likely to still be studying ($X^2(1)$ = 10.28, p = .001, ϕ = -.16) while those from Queensland were more likely to work ($X^2(1)$ = 13.10, p = <.001, ϕ = .18) and more likely to work full time (X2(1) = 6.44, p = .011, ϕ = .14).

Obtaining a learner licence

Participants were asked the length of time since they had sat the learner knowledge test for the first time. As shown in Table 1, there was no difference between the states with the average length of time in Queensland being 25.27 months (n = 218, sd = 32.93) and in New South Wales, 23.73 months (n = 172, sd = 22.32).

There was also no difference in the number of times that the learner drivers in each state reported that they sat the test. In Queensland, the average number of attempts was 1.93 (n = 216, sd = .99) while it was 1.74 attempts in New South Wales (n = 172, sd = 2.47).

In Queensland, it had been an average of 24.45 months (n = 212, sd = 32.84) since they had sat their test and passed. In New South Wales, the average was 23.23 months (n = 172, sd

Table 1: Obtaining a learner licence in Queensland and New South Wales

	QLD M (sd)	NSW M (sd)	t	df	sig
Months since first sat test	25.27 (32.93)	23.73 (22.32)	.527	388	.599
No. of times sat test	1.93 (.99)	1.74 (2.47)	1.02	386	.308
Months since sat test and passed	24.45 (32.84)	23.23 (27.94)	.385	382	.701

= 27.94). This was not significantly different. Once learners obtained their licence, 91.7 per cent of them held their licence continuously. There were no differences between the two states on this measure ($X^2(1) = .827, p = .363, \phi = .05$).

Practice while on a learner licence

As shown in Table 2, there was no difference between the states in terms of the length of time that participants had spent actively learning to drive or holding their learner licence before they took the practical driving test. On average, learners in Queensland spent 15.44 months (*sd* = 22.26) actively learning to drive and held their learner licence for 17.47 months (*sd* = 21.34) before they took the practical driving test. In New South Wales, learners spent 19.24 months (*sd* = 20.39) actively learning to drive and held their learner licence for 18.88 months (*sd* = 16.23) before they took their practical driving test. This suggests that some participants from New South Wales started to actively learn to drive before they obtained their learner licence.

Participants from both states were asked to recall the amount of time they spent practising their driving. In Queensland, learners reported that they completed an average of 64.11 hours of practice (*sd* = 51.05) while the mean in New South Wales was 73.31 hours (*sd* = 29.12). This difference was significant ($t(389) = -2.114, p = .035$). The practice undertaken by learners was divided between time spent with professional driving instructors and time spent with parents or friends. In Queensland, learners reported that they spent an average of 13.25 hours with a professional instructor (*sd* = 17.40) and 51.09 hours with parents and friends (*sd* = 48.86). In New South Wales, learners reported that they spent an average of 9.05 hours with a professional instructor (*sd* = 15.84) and 64.26 hours with parents and friends (*sd* = 30.17). As shown in Table 2, the differences between the states on both of these types of practice was significant. Learners in Queensland spent a greater amount of time with professional driving instructors compared to those in New South Wales ($t(389) = -2.46, p = .014$). Learners in New South Wales spent a greater amount of time with parents and friends ($t(388) = -3.103, p = .002$).

Learners in New South Wales were required at the time to complete 50 hours of practice, which needed to be recorded in a logbook. Learners in Queensland also had access to a log book for voluntary completion. Participants from Queensland were asked if they were aware of the log book. Over two-thirds (67.7 per cent) responded that they were unaware that a log book was available.

Within the sample, 14.5 per cent of the participants reported practicing driving without a supervisor. Learners from Queensland were more likely than those from New South Wales to practice their driving unsupervised ($X^2(1) = 5.54, p = .019, \phi = .12$). Within the Queensland sub-sample, 18.3 per cent reported driving unlicensed while 9.8 per cent of those from New South Wales reported the same behavior.

Table 2: Practice while on a learner licence

	QLD M (sd)	NSW M (sd)	t	df	sig
Months since started actively learning to drive	15.44 (22.26)	19.24 (20.39)	1.02	386	.308
Months held learner licence before attempting practical driving test	17.47 (21.34)	18.88 (16.23)	-.723	389	.470
Total hours of practice	64.11 (51.05)	73.31 (29.12)	-2.11	389	.035
Hours with a professional instructor	13.25 (17.40)	9.05 (15.84)	2.46	389	.014
Hours with parents and friends	51.09 (48.86)	64.26 (30.17)	-3.10	388	.002

Table 3: Availability of vehicles

	QLD M (sd)	NSW M (sd)	t	df	sig
Number of cars in household possible to learn in	2.12 (1.40)	2.12 (1.08)	.015	390	.988
Number of manual cars in household possible to learn in	1.08 (1.07)	.86 (1.00)	2.04	389	.042
Number of automatic cars in household possible to learn	1.16 (1.08)	1.43 (.98)	-2.55	390	.011
Manual cars that were learnt in	2.44 (3.59)	1.47 (1.72)	3.27	389	.001
Automatic cars that were learnt in	1.76 (3.32)	1.98 (1.53)	-.825	388	.410

Availability of vehicles

Participants were asked to provide information regarding the number of cars in their household that it was possible for them to practice in. There was no difference between the states in the number of cars that it was possible for learners to use. As shown in Table 3, learners from Queensland (sd = 1.40) and New South Wales (sd = 1.08) reported that they had access to an average of 2.12 vehicles. On average, 1.08 (sd = 1.07) of these vehicles were manual in Queensland, while .86 (sd = 1.00) were in New South Wales. This is a significant difference (t (389) = 2.04, p = .042). There was also a significant difference between the two states regarding the number of cars that were automatic (t (390) = -2.55, p = .011) with an average of 1.16 vehicles (sd = 1.08) in Queensland and 1.43 vehicles (sd = .98) in New South Wales.

As shown in Table 3, in Queensland, learners reported using an average of 2.44 manual cars (sd = 3.59) in which to learn to drive. This contrasts with New South Wales learners who used an average of 1.47 manual vehicles (sd = 1.72). This difference is significant (t (389) = 3.27, p = .001). However, there was no difference between the states for the number of automatic cars that learners used with an average of 1.76 vehicles (sd = 3.32) in Queensland and an average of 1.98 vehicles (sd = 1.53) in New South Wales.

Learners from Queensland were more likely than those from New South Wales to obtain a manual licence ($X^2(1) = 32.95, p < .001, \phi = .29$). In Queensland, 65.6 per cent of learners obtained a manual licence while in New South Wales 36.4 per cent obtained a manual licence. In Queensland if you are tested in an automatic vehicle you are only able to drive automatic vehicles. However, if tested in an automatic vehicle in New South Wales you are able to drive either a manual or an automatic vehicle once you obtain your stage two provisional licence.

Driver education courses

Very few participants reported that they completed a formal driver education course while on their learner licence (12.3 per cent). Of those from Queensland, 6.9 per cent completed a course while it was 19.1 per cent of participants from New South Wales. This difference between the states was significant ($X^2(1) = 13.19, p < .001, \phi = -.18$).

Obtaining a provisional licence

Of the total sample, 62.8 per cent obtained their provisional licence on the first attempt. There was no difference between the states ($X^2(1) = 3.15, p = .076, \phi = -.09$). Within Queensland, 58.9 per cent obtained their provisional licence on the first attempt while in New South Wales 67.6 per cent of participants reported obtaining their provisional licence on the first attempt.

Discussion

This paper describes the experiences of learners in Queensland and New South Wales prior to the changes introduced to this licence stage in mid-2007. As shown, the process of obtaining a learner licence was very similar in both states. There was no difference between Queensland and New South Wales regarding the number of times that the learners sat the knowledge test in order to obtain their learner licence. There was also no difference in the months since they first sat their test, the months since they sat the test and passed and the number that held their learner licence continuously. This suggests that the experience of obtaining a licence was similar in both Queensland and New South Wales, although it appears that more learners in New South Wales started learning to drive before they obtained their learner licence.

However, learners in Queensland and New South Wales had different experiences once they obtained their learner licence. Learners in New South Wales obtained more hours of practice than those in Queensland and they did so by spending a greater amount of hours practising with their parents and friends rather than professional driving instructors. Although there were differences in the amount of hours that learners spent practising while on their learner licence, there was no difference between the states regarding the number of months that learners had spent actively learning to drive and the number of months they had held their learner licence before attempting the practical driving test.

A key difference between the states at the time was that learners in New South Wales were required to complete a log book that demonstrated they had obtained a minimum of 50 hours of supervised practice. The fact that learners in New South Wales had to complete a certain number of hours may explain why they spent a greater amount of time practicing their driving with parents and friends. Given the low income levels of learners, they are unlikely to be able to afford to pay for 50 hours of supervised practice with professional driving instructors. While a voluntary log book was available in Queensland, over two-thirds of learners were unaware of the log book's existence. Additionally, learners in Queensland were more likely to practise their driving without a supervisor than those from New South Wales.

Learners from New South Wales were more likely to obtain an automatic licence than those from Queensland. This may have reflected a difference in the licensing laws. As noted earlier, in Queensland, learners that obtained an automatic provisional licence were restricted to driving automatic vehicles. In New South Wales, this restriction only applied for the first provisional licence stage (unless supervised by an unrestricted Australian licence holder). After the new driver upgraded to the stage two provisional licence they were able to drive either a manual or an automatic vehicle. As a result, New South Wales drivers are probably less motivated to sit the test in a manual as the restriction on driving an automatic vehicle lapses.

Participants from New South Wales were more likely to complete a formal driver education course than those from Queensland. However, the actual number of participants that completed a driver education course while on their learner licence was very small (12.3 per cent). This probably reflects the fact that driver education programs are not a compulsory part of the licensing system [6].

There was no difference between Queensland and New South Wales learners in the numbers of learners that obtained their provisional driver licence on the first attempt. Overall, 62.8 per cent of the group obtained their provisional driver licence on the first attempt.

The major strength of this work is the high participation rate. Of the 687 eligible individuals approached, 392 participants completed the interview. This resulted in a participation rate of 57.1 per cent. However, this study has a number of limitations that need to be acknowledged. The first is that this data is self-report and, therefore, could be influenced by phenomena such as the social desirability bias or recall issues. However, self-report data relating to a range of behaviours, such as drink driving and crashes is considered to have an acceptable level of validity when it is collected anonymously and there are no consequences associated with providing responses [7] as was the case with these interviews. The second is that, to ensure the recruitment of sufficient participants for this research, recruitment occurred at larger driving licensing centres. As the recruitment did not occur a random basis, the sample may not be representative of all learner drivers. This problem has been partially addressed by recruiting learner drivers from both metropolitan and regional locations. Thirdly, the fact that New South Wales learners were required to record supervised driving in a log book while Queensland learners were not may result in a recording bias. In other words, the completion of the log book by New South Wales drivers may have improved the accuracy of their recall. In contrast, without this aid, the Queensland drivers may have either over estimated or under estimated the amount of hours of supervised driving that they completed. In this regard, it is worth reiterating that there was no licensing related reason to inflate hours.

Further research could help overcome these limitations by utilising different methodologies that do not use self-report data and using different sampling techniques. Further research is also needed to assess the impact of the changes made to the learner phase in mid-2007. Additional research could examine the experiences of provisional licence holders and the role of parents in the graduated driver licensing system. Ideally, as much of the existing work regarding graduated driver licensing systems is from other countries such as New Zealand, the United States of America and Canada, this research should occur within Australia and compare the different licensing systems operating across the country. Given that learners had sat the theory test approximately two years prior to undertaking the practical test, further research could identify if there were benefits in requiring learners to resit the test before they completed the practical driving test.

Conclusion

This paper describes the driving and licensing experiences of learner drivers in Queensland and New South Wales prior to the changes introduced to the licensing systems in these states in mid-2007. Queensland and New South Wales had very similar learner phases at this time with the key difference being the requirement of learners in New South Wales to complete, and record in a log book, 50 hours of supervised driving.

The research found that learners in both states had very similar driving and licensing experiences prior to obtaining a learner licence with some exceptions such as the proportion of learners who engage in unlicensed driving. Participants in both states sat the test a similar number of times, and held their learner licence for a similar amount of time.

However, those from New South Wales spent more time practising with supervisors than those from Queensland. Learners from New South Wales spent a greater amount of time being supervised by parents and friends when compared with those from Queensland. In contrast, those from Queensland spent more time with a professional driving instructor. Learners from Queensland were more likely than those from New South Wales to drive unsupervised. Learners from New South Wales were more likely to obtain an automatic driver's licence than those from Queensland. This may be a reflection of differences in the licensing systems and the restrictions that apply to the licences in each state.

Since the data for this study was collected, there have been changes to the learner licence in both Queensland and New South Wales. This research has provided important baseline data that can be used to identify the impacts of changes to the learner licence.

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The Material Culture of Road Safety: Road safety as museum display?

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Abstract

The museum does not usually spring to mind as a site for road safety promotion but no other institution has so much involvement in collecting and displaying the material culture of motoring and interpreting its history for the general public. Safety is part of the motoring story and should be part of its public history. This paper considers the place of motoring within museum culture and looks at trends in some of the biggest and best-known museums in Europe, the United Kingdom and Australia to introduce the visiting public to the idea of road safety as part of motoring history.

Introduction

Those concerned with promoting road safety have turned first, and naturally, to advancing automotive and civil engineering, introducing restrictive legislation, increasing powers in law enforcement and changing driver behaviour. They have tried to raise the public profile of road safety as an issue in the media, through the courts and in parliament. While the focus has been on the present and the future, little attention has been paid to the past and yet it is in a familiarity with history and heritage that the public's awareness of road safety may also be encouraged. The public history of motoring is traditionally presented in motoring and transport museums where collections of automobiles and motoring memorabilia are displayed as the material culture of motoring. However, motoring history also includes road safety and as museum curators think creatively about how to interpret their collections more broadly, the material culture of road safety is one segment of that history that is slowly being explored. If road safety advocates seek outlets for road safety awareness, then to include it in the public history of motoring as part of the museum experience may be yet another productive avenue to explore.[1]

Museum culture

Superficially museums may be seen as simple repositories for the material culture of our past. Certainly they offer physical protection to objects considered to be of value because of their rarity, intrinsic beauty or association with some event of historical significance. Under these terms the museum may appear nothing more than a public storehouse, but on the contrary, the museum is a politically and culturally loaded institution. Objects in a museum are selected for inclusion because of the values attributed to them. Such judgments are made on a range of social, cultural, political, economic or personal criteria, but regardless of the reason, an object's position in a museum is due to an act of choice. Moreover, the way in which the objects are displayed reflects the philosophy of time and place. Susan Pearce describes museums as 'deeply dyed with economic and ideological thrust of the times' [1]. The positioning of objects, their juxtaposition against other objects, their manner of presentation, their relationship to and accessibility by the visitor are not random but all reflect a predetermined understanding of the purpose of museums and the function of display within them. The subsequent interpretation of museum objects and their place in themed exhibitions is determined by what curators deem important whether that be provenance, technical specifications, description or function.

The museum is therefore much more than just a storehouse - it gives meaning to the objects in its care. 'Museums hold the stored material culture of the past', explained Susan Pearce, 'and the associated documentation which makes it intelligible' [2]. The role of the museum then becomes one of mediation between the object and the visitor and it is this aspect which provides so much opportunity for manipulation and control of the way we collectively think [2, 3]. The influencing power of the museum emanates from the architecture of the building right down through the curatorial policy to what is written on the interpretive panels attached to each object on display or what is said in the audio guides. The museum itself is an artefact of culture and therefore a complete package of influence [4]. Explicitly and implicitly the museum constructs a complex narrative about objects and their relationship to humans, those who built, made or used the collected objects and those who come to view them.

1 This paper is based on research undertaken in the collections, displays and public materials available at and produced by the following museums during 2008-09: National Transport Museum of Ireland, Howth, Ireland; Ulster Folk and Transport Museum, Belfast, Northern Ireland; Glasgow Museum of Transport, Glasgow, Scotland; Cars of the Stars Motor Museum, Keswick, England; Heritage Motor Centre, Gaydon, England; Coventry Transport Museum, Coventry, England; Haynes International Motor Museum, Sparkford, England; National Motor Museum, Beaulieu, England; London Transport Museum, London, England; Swiss Transport Museum, Lucern, Switzerland; Landesmuseum fur Technik und Arbeit, Mannheim, Germany; Mercedes-Benz Museum, Stuttgart, Germany; Musée National de l' Automobile, Mulhouse, France; Musée de la Voiture et du Tourisme, Compiegne, France; National Motor Museum, Birdwood, South Australia.

The Museum, Modernism and Motoring

The museum in the western world developed along with the Enlightenment and grew to prominence with the rise of modernism. The museum as an institution was a kind of material culture encyclopaedia that would serve to educate the visitor about history or art or science. Such learning was undoubtedly one-way, involving the direct transfer of clear, specific and unambiguous knowledge from the museum object to the visitor [5]. Learning from objects was believed to be in itself edifying and there was a certain moralism attached to bringing objects of beauty or importance to the gaze of people who could never see them in any other way. Apart from the supposed intrinsic worth of the objects and what they could convey the museum collection was ordered rationally according to agreed understandings of progress, growth and development. There was as much importance placed on the formal ordering of objects and their systematic display as on the objects themselves because in this way the modern world could be presented as controlled and orderly. The museum was, if nothing else, an authority. 'The idealised space of the modernist museum', explained Eileen Hooper- Greenhill:

> *" was positivist, objective, rational, evaluative, distanced and set aside from the real world. The museum visitor was accorded the status of the neutral observer, walking in an ordered fashion through galleries that were in themselves ordered, well-lit, and laid out for the acquisition of knowledge – the knowledge that could be construed from objects, that, once properly arranged in the neutral space, would speak for [5]."*

This was the general pattern followed by museums begun in the nineteenth century but it was a pattern that particularly suited the motor or transport museum.

The motor car, first developed in 1886 and spreading across the western world by the turn of the century, was ideally suited to display in the 'modern' museum. In many ways the motor vehicle was, and still is, the most easily recognised symbol of modernity. Functional, the epitome of technological progress, indicative of the transportation revolution that serviced the twentieth century and the mass production that fed its economy, the motor vehicle was both the product of modernism and its agent. It is not without just cause that Henry Ford can be described as a modern man and Fordism the guiding philosophy of twentieth century industrial production [6,7].

Not surprisingly, throughout the twentieth century, collections of motor vehicles in private hands and within museums steadily grew. Temporary displays were first staged in England in 1909 and Germany in 1911, and more permanent museum exhibitions were built by 1927 in France and 1936 in Germany [8, 9]. The motor museum began and continued as a specialised example of the modernist-style museum to the point where Colin Divall and Andrew Scott could say that 'object-centred and minimallyinterpreted transport exhibitions are heirs to the celebratory and progressivist legacies of the nineteenth-century museum!' [8]. It seemed that transport museums stayed firmly trapped in the formalist and 'Whiggish' style of nineteenth century practice. It is not difficult to see why.

'Whiggish history', explains Divall and Scott 'conceptualizes technological progress as an asocial, apolitical process, presenting technological knowledge and the technical qualities of artefacts as matters divorced from the rough and tumble, the messy complexity, of everyday existence' [8]. Motoring history as presented in modernist museums is totally geared to the primacy of the motor vehicle as the obvious and preferred material culture of motoring and, what is more, these vehicles are most easily displayed in isolation from 'the messy complexity, of everyday existence' which includes, of course, crashes and road trauma. The restored motor vehicle is the material evidence of technological progress, engineering refinement and mechanical success.

Vehicle improvement is the central theme of any museum collection reflecting the passion and interest of the collector. Some such as Daimler and Benz collected the products of their own creation – the Mercedes Benz Museum opened in 1936. The Schlumpf brothers collected European models, especially Bugattis, and this eventually became the basis of the Musée National de l'Automobile in 1982. Cars were collected and grouped to show the progressive development not only of the motor vehicle as engineering but as art as well. The motor museum display was also about love.

At Haynes International Motoring Museum in England red cars are grouped together for visual and aesthetic impact [Figure 1]. The souvenir catalogue explains that: 'As you walk from the darkened entrance displays depicting the Dawn of Motoring, you can be forgiven for drawing breath as you step into the vibrant ambience of the stunning Red Hall' [10]. There are other examples. In the Museé National de l'Automobile in Mulhouse, France, Bugatti engines are on display. Here it is possible to sit on comfortable chairs while looking at a selection of Bugatti engines spotlighted against a black backdrop and at the same time push an audio cue to enjoy the individual purr of each engine as well.

Love for historic vehicles means that museums are often places of pilgrimage for enthusiasts where the focus of attention is the vehicle itself, divorced and isolated from its contextual history. Some curators have recognised that the museum must offer more than a site of veneration and they have tried to put the car in context by painting a broad social history for their exhibits [11]. Cars are displayed against the backdrop of timelines, or set in period street scenes. They are placed in historic tableaux, such as the story of the bombing of Coventry, or the 1938 highly detailed garage display at Beaulieu. Some are displayed with themed music to give a period context. At Beaulieu the invention of the motor vehicle is placed within the broader history of man's search for mobility in a themed ride called 'Wheels'.

The most difficult context of all for museum curators is to put the element of human engagement back into the history of the motor vehicle especially when museums are so object-centred.

Figure 1: The 'Red Room' – Haynes International Motoring Museum

Certainly the main figures of motoring history are often mentioned in this way – Benz, Daimler, individual racing drivers, collectors such as Montague or depicted at all. Some vehicles are displayed with mannequins in them dressed in the period costume pertaining to the vehicle's production date. This no doubt suggests the place of the driver and his passengers. At the Motoring Heritage Centre visitors are permitted to sit in a couple of vehicles to 'get the feel' of a vintage car. At the Coventry Transport Museum visitors are afforded a ride in a simulator to recreate the sensation of breaking a land speed record.

The National Motor Museum in Birdwood, South Australia has made a conscious effort to repopulate its motoring story with owners, drivers, car sellers and designers. One of its most important characters is Harry Monsoor, a hawker with a 1927 van who transported goods to the isolated families of the far north of South Australia. Oral histories that record reminiscences of vehicle use and vehicle manufacture sometimes are used to bring the motorcar user back into the picture. Many museums exhibit some minor pieces of driving clothing such as goggles, hats, coats, gloves and the like, books, maps, travelling knick-knacks but these pieces of motoring paraphernalia are encased in glass and objectified.

Motor Museums and Road Safety

Motor museums built from particular collections, and set to attract the visiting enthusiast who shares the passion for the automobile as an object of mechanical art, seems hardly the place to display road safety. Any mention of road safety suggests that road travel is dangerous, that motor vehicles are associated with death and that the motoring experience is far more complex and 'messy' than that depicted by the 'Whiggish' display of shiny cars. The contradiction seems obvious and yet there is scope for road safety to be considered as part of a museum display and in some motor museums a move is being made in that direction.

Automotive Engineering - the vehicle

The most obvious way in which road safety can be introduced into motor museums is through the interpretation of the motor vehicles themselves. Most commonly motor vehicles are displayed in chronological order or by make and model. Interpretive signs are usually concerned with the provenance of the vehicle and its technical specifications but the engineering developments that took the motor vehicle from Benz's Patent-Motorwagen through to the present day were not only about speed, performance or comfort, they were also about safety. Collapsible steering columns, crumple zones, seatbelts, airbags, anti-lock brakes are all obvious and well-known examples of recent safety developments. Equally important are less well documented features such as design changes and the relationship between styling and safety; improved lighting; enclosed driving compartments; changes in construction material from wood to steel; development of the pneumatic tyre; synchronisation of gear shifts or even bringing the gear shift lever into the car body from outside; attachment of rearview mirrors and dipping mirrors for night driving, indicator lights and windscreens made of toughened not plate glass; compulsory fitted speedometers and horns; recessed door handles, bumper bars and more. The history of the motor vehicle is the history of improved provision for safety perhaps

less consciously determined and scientifically developed before the 1960s but there all the same [12]. Sometimes this history is complex and needs to be exposed through the work of historians but the evidence for it exists in the material culture of the motor vehicle sitting on the museum floor and can be drawn out for curators to use in their interpretations. For example, Kurt Möser has written about developments in the interior design of the motor vehicle arguing that the developments in style and function had much to do with the concept of seeing the car interior as approximating a living room [13]. This conflicted with the idea of restraining passengers with seat belts for their own safety and resulted in changes to the design features of the seat belt such as its retractability within an interior casing, colour co-ordination and the invisibility of the seat-belt mechanism. The seat-belt has a history of its own, coming as it does from aviation, and a material culture to display as a singular engineering object, but that history can also be told in conjunction with the material culture of the vehicle itself as Kurt Möser has demonstrated.

The story of automotive engineering can be told from the road safety perspective if there is a will to do so. Some museums are beginning to take that direction but at the moment it is largely geared to brand promotion. The Mercedes-Benz Museum in Stuttgart is perhaps the best current example of how to integrate the story of road safety into the museum context. As a company, Mercedes-Benz has always prided itself on its attention to safety research and development and not surprisingly this features prominently in their new museum, opened in 2006. Here they emphasise Mercedes-Benz's contribution to passive safety through the work of its 'doyen' Béla Barényi [14]. They emphasise the development of crumple zones, the passenger cell and more sympathetic interior style features and link that with the production of the 220 S in 1964.

Here the visitor is able to see the Mercedes-Benz models, hear audio information and read about the safety philosophy of the company on interpretative boards. One of these boards puts the development of safety engineering into the company's perspective. Of the road safety issue emerging after the 1965 publication of Ralph Nader's Unsafe at any Speed, the Museum concluded that 'the debate also spilled over to Germany, but it took a while before vehicle manufacturers seriously dealt with the topic – the sole exception: Daimler-Benz.'[2] In this way the company was able to present itself as holding the leading edge in safety design and to reinforce that view through its museum displays [Figure 2]. However, at the same time, the visitor to the Mercedes-Benz museum is encouraged to think about safety issues and to see them in historical and technological context. Awareness of road safety is effectively integrated into the museum's purpose.

Similarly, other companies with an overt interest in safety have sponsored special displays such as the Volvo display at the National Motor Museum in Beaulieu. Here safety developments

Figure 2: Crash dummies - Mercedes-Benz Museam, Stuttgart

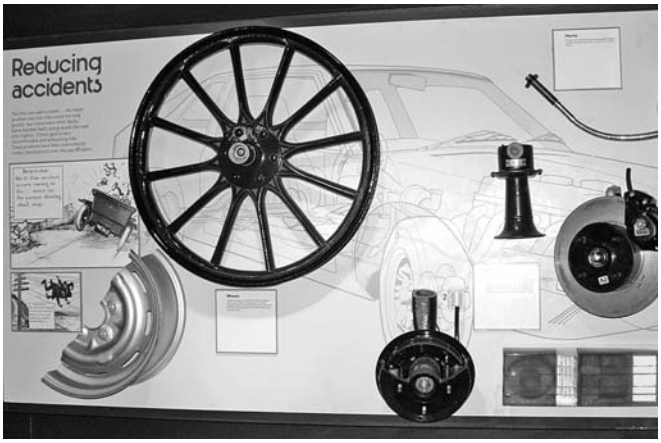

Figure 3: Safety improvements in vehicle engineering display - National Motor Museum, Beaulieu

Figure 4: Airbag display – National Motor Museum, Beaulieu

2 Notation from an interpretive board at the Mercedes-Benz Museum, Stuttgart, Germany, 2008

are linked chronologically with developments in Volvo engineering. Images of historic cars and descriptions of their various engineering features developed with safety in mind are displayed covering windscreens, bumpers, seat belts, developments in vehicle styling, doors and handles, indicators, lights, mirrors, and tyres. The display effectively takes the material culture of road safety including air bag mechanisms and various automotive parts, detaches them from the motor vehicle and mounts them onto a generic car body drawn on the display [Figures 3 and 4]. The effect is to make a clear link between the museum as a repository of objects and the material culture of road safety. Although the vehicle collection at Beaulieu takes prominence and is in some ways detached from the safety display which is set in an alcove, still visitors are encouraged to think about road safety within the context of vehicle engineering and as part of a broad collection of the material culture of motoring.

At the Glasgow Transport Museum the case is rather different. Without a brand to promote this museum uses a more general approach to incorporating its road safety display as part of its primary focus on vehicles. The road safety section includes a 1996 crash test car driven into a barrier at 40mph (64kph) in the Transport Research Laboratory of Berkshire and a video showing the car in action. Nearby is an ambulance and a Police patrol car from 1985 used in the local area. Large backboards display historic road safety posters and television advertisements from the 1950s through to the 1990s including one featuring James Dean. Interspersed with these are interpretive panels giving road safety statistical information and general commentary. The connection with the modern day is made through a panel which reads 'Around 1200 people visit the Museum each day. Nearly 70 will be seriously injured in a road accident during their life.'[3] In this example the display presents vehicles with a road safety connection as part of the vehicle collection. At the same, the display includes an overt promotion of road safety by making use of historic campaign material.

At the Heritage Motor Centre in England large back boards discuss various elements of improved engineering, such as airbags, brakes and steering interspersed with diagrammatic and video representations of their operation, or, as in the case of the discussion on tyre types, actual examples behind glass. These boards are intended to suggest that cars are safer now than in the past because of engineering developments. 'Your car can help you if you crash!!' the board reads. 'Today, cars are designed to protect the people in them' but instead of showing incremental improvement in safer engineering the displays more generally compare the advantages of new vehicles over old. The improvements are therefore absolute and static. In this sense the displays may suggest to some visitors that we have already reached the safe state. The use of objects in this display is minimal and therefore there is little connection between the issue of road safety and the motor vehicles on the museum floor. They remain the focus of the visitor's interest.

Road Engineering - the environment

Improvements to the vehicle, the driver and the road share a three-pronged responsibility for road safety. The museum curator must employ an imaginative use of vehicle parts or other relevant objects to make an effective road safety display about vehicle engineering but when looking at the role of road engineering the problems of material culture are exacerbated further. It is possible to replicate some aspects of road engineering in museums through the building and interpretation of models. This is easiest in transport museums which have a broader object base and interpretative purpose than the pure motoring museum. In the Ulster Folk and Transport Museum in Belfast and the Swiss Transport Museum in Lucerne, for example, improvements to road surfaces – from dirt tracks through paved, Macadamised, tarred and concrete roads to widespread use of asphalt - are depicted through models based on samples of the various surfaces but the limitations to effective display and discussion are genuine. At Beaulieu display boards are used to discuss roadside lighting, and traffic flow management with signs and traffic lights. In the Glasgow Transport Museum and the London Transport Museum road engineering, traffic reduction and traffic management are implicitly displayed through public transport exhibits, town planning designs and interpretive boards that discuss government planning and regulation. Traffic planning, better traffic flow and traffic reduction schemes are all part of the motoring story but difficult to incorporate with material culture.

Human Behaviour- the driver

The most controversial element of road safety for any museum curator must be the contribution of the driver or the human element. What is the material culture that effectively displays this aspect of the road safety story? The connection between road safety and the reinvigoration of the driver, through interpreting the driver's material culture as part of the motoring story, is not well made and, to be fair, difficult to do. When driver behaviour and road safety is the subject, museums usually resort to information boards along the lines of driver education promotional material. A number of museums have introduced interpretive panels that make general statements about road death and injury. Both Glasgow Transport Museum and the National Motor Museum at Beaulieu direct the visitor to contemplate the statistics of road trauma in relation to their own lives. Visitors to Beaulieu are reminded that 'While you enjoy your visit to Beaulieu, three people will be killed on our roads and seventy-five more will be injured'.[4]

3 Notation from an interpretive board at the Glasgow Transport Museum, Glasgow, Scotland, 2008

4 Notation from an interpretive board at Beaulieu.

Perhaps the Heritage Motor Centre has gone furthest by incorporating six bays with road safety information and displays produced by Warwickshire County Council. Each bay follows a different road safety issue as it applies to different groups within society. They are named:

1. Road safety affects us all . . . find out where to go for more information.
2. Giving up driving is a difficult decision, but it's one we all have to make.
3. The Highway Code: When did you last read a copy?
4. You are 40 times more likely to die as a motorcycle rider than as a cardriver.
5. 1 in 5 newly qualified drivers have a crash within a year.
6. When teaching young children road safety keep it simple.

The bays mostly contain panel boards and take away leaflets but at the bottom of the fourth panel is a crashed motorbike and lying beside it a set of leathers and helmet stylised as a fallen rider [Figure 5]. The implication is unmistakeable and represents the strongest representation of road death in all of the museums surveyed for this study.

Both the Swiss Museum of Transport and the National Motor Museum in South Australia have opted for interactive road safety exhibits that promote active safety. In Lucerne visitors are asked to consider impairments to perception especially through alcohol and drug consumption. They can engage in an interactive chat about alcohol and safe driving with the bartender at 'Bar Chez Johnny'. Another exhibit allows the visitor to test their reaction times. At the National Motor Museum in South Australia is the MAC Safe Driving Interactive which helps visitors to learn about tailgating, concentration when driving and the impact of speed. The museum advertises the inclusion of this equipment as fitting with the aims of the police to educate drivers, saying that 'It is hoped that this educational tool will promote the transference of knowledge in a meaningful way, and encourage a change in behaviour, reducing the incidents of road trauma' [15]. Perhaps it is the human aspect of road safety that is the most difficult to represent in a motoring museum and yet road death is a statistical fact and an undeniable part of motoring history. Occasionally it creeps into the motoring story as in Musée National de l'Automobile where we learn that the Paris to Madrid car rally of 1903 was cancelled at Bordeaux because of the large number of dead and injured among both drivers and spectators or that one of the Renault brothers was himself killed in a car crash. But on the whole, road death is difficult to mix with passion for the vehicle itself. It seems incompatible with the experience of admiration, indeed veneration which traditionally encourages patronage of motor museums. It is this contradiction in the motoring story that has always been difficult to express and remains so.

Figure 5: Heritage Motor Centre, Gaydon

Conclusion

In some ways the road safety exhibits in motoring and transport museums give the impression of being add-on extras. This is because they sit very much in the mode of road safety promotional exercises that could be found in any venue for the purpose of raising road safety awareness. Explicit road safety promotion is certainly valuable and part of the motoring story but it is possible to incorporate the road safety story into the museum in a more subtle way.

The key point to make is that road safety should not be seen as an add-on extra but rather as an integral part of the history of motoring. This history includes developments in vehicle engineering and an evolving complex relationship between human beings and their cars. In this the Mercedes-Benz Museum in Stuttgart has been very successful. To be effective in museums, road safety must become more integrated into the culture of the museum as part of the way in which the motor vehicles are presented, displayed and discussed. This may require a rethinking of the purpose of the motor museum. Moreover, it may require curators to consider developments in museology occurring elsewhere in the sector, especially evident for example in postcolonial museology and the emergence of community museums and post-museums which allow museums to tell competing stories, discuss uncomfortable knowledge and expose painful history in their exhibitions. Motor museums have been largely trapped in the nineteenth century modernist model whereby the motor vehicle is displayed in a rational way for visitors to enjoy and for enthusiasts to venerate. But museums offer something unique and that is an engagement with the past through the use of objects. This presents road safety advocates with a new opportunity to encourage the public to consider road safety in a much more integrated and involved way. The best road safety displays in museums are those that are intrinsic to the vehicle displays themselves, incorporated within the purpose of the museum and those that make creative use of the available material culture of road safety. Road safety may be about the present and the future but it is worthwhile also to consider the past.

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