Submission No 18

INQUIRY INTO PEDESTRIAN SAFETY (MINISTERIAL REFERENCE)

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19 June 2009

The Committee Manager
Staysafe Committee
Parliament House
Macquarie Street
SYDNEY NSW 2000

Dear Sir/Madam

Re: NSW Staysafe Committee - Inquiry into Pedestrian Safety

NRMA Motoring & Services (NRMA) is pleased to provide you with our attached submission for the Inquiry into Pedestrian Safety, currently being undertaken by the Staysafe Committee.

NRMA comprises more than 2 million Members in NSW and the ACT. For more than 85 years NRMA has represented the interests of motorists in relation to road funding, road safety and other relevant public policy issues.

Throughout the years, NRMA has advocated for safety improvements for road users focussing on the three key themes of safer vehicles, safer drivers and safer roads.

NRMA looks forward to working constructively with the Staysafe Committee to achieve improved road safety outcomes for our community.

Should the Committee's Members or staff require any additional information about our submission I encourage them to contact Ms Anne Morphett, Senior Policy Adviser – Road Safety, on 9276-7233.

Yours sincerely

Chris Siorokos
General Manager – Corporate Affairs

NRMA's Response to the Parliament of NSW Staysafe Committee

Inquiry into

Pedestrian Safety

Inquiry Terms of Reference

The Minister for Roads, the Hon Michael Daley, MP has asked the Staysafe Committee to investigate recent increases in pedestrian fatalities in NSW.

Accordingly, the Committee will inquire into and report on pedestrian safety with particular reference to:

(a) Short and long terms trends in pedestrian injuries and fatalities in metropolitan and non-metropolitan areas;
(b) Underlying causes of pedestrian injuries and fatalities;
(c) The incidence of drivers leaving the scene of the accident after hitting pedestrians;
(d) Effectiveness of recent measures to address pedestrian safety;
(e) Additional strategies to increase pedestrian safety;
(f) The current emphasis placed on pedestrian road users as part of land use policies and in the planning and management of the road system;
(g) Pedestrian safety issues and strategies in other jurisdictions; and
(h) Any other related matters.

The Parliament of NSW Staysafe Committee Inquiry into Pedestrian Safety

Introduction

NRMA Motoring & Services (NRMA) comprises more than 2 million Members in NSW and the ACT. For more than 85 years NRMA has represented the interests of motorists in relation to road funding, road safety and other relevant public policy issues.

Throughout the years, NRMA has advocated for safety improvements for road users focussing on the three key themes of safer vehicles, safer drivers and safer roads.

NRMA welcomes the opportunity to provide this submission to the Staysafe Committee. This Inquiry provides an opportunity for stakeholders and the community to state their views on pedestrian safety issues and to suggest countermeasures and strategies which aim to reduce pedestrian fatalities and injuries.

Walking is a fundamental element of travel and pedestrians are the largest single road-user group. Almost all road users are pedestrians at some time or other. Individual trips, whether by public transport or private vehicle, have some section involving a walk.

Crossing roads and negotiating traffic is a complex task. The ability to walk safely requires the capacity to make decisions based on a range of cognitive, sensory and physical abilities. The ability to safely cross roads, to judge available gaps in traffic, requires adequate functioning of a range of senses and this is why various groups are at greater risk in traffic and are over-represented in crash statistics. The main risk groups are children, the elderly and intoxicated or drug affected pedestrians.

Pedestrians are vulnerable road users. Their safety is affected by choices they make, such as crossing at marked crossings, crossing mid block or where there are traffic signals and wearing clothing that makes them more visible. In NSW people using mobility scooters are also defined as ‘pedestrians’.

Reductions in the number of people killed or seriously injured on our road, no matter what type of road user, have come about as a result of a range of interventions. These interventions have included some improvements in the licensing scheme for drivers, increased targeting of driving offences and some improved road engineering and vehicle design. As well as these factors there have been dramatic advances in trauma medicine which has also added to the ‘survivability’ of many crashes which previously would have resulted in death.

What NRMA is seeking

NRMA is seeking the following measures to improve the safety of pedestrians:

- Better footpath design, including even surfaces with no obstructions and better maintenance of footpaths;
- Dropped kerbs at crossing points;
- Puffin crossings;
- School zones with flashing lights, fluorescent yellow/ green signs and better positioning of signs;
- Central pedestrian refuges;
- Midblock light-controlled crossings;
- Pedestrian bridges or under-road passes;
- Adequate access for pedestrians when work is being carried out on footpaths;
- Trial of Zebra light (or equivalent) treatment at pedestrian crossings;
- No standing advertising on footpaths;
- Good street lighting;
- Greater enforcement of parking restrictions at pedestrian crossings, pavement Access ramps, bus stops and on footpaths;
- Greater enforcement of cycling restrictions on pavements; and examination of shared use facilities between pedestrians and cyclists ;
- Kerb extensions
- Pedestrian fencing near roads adjacent to licensed venues;
- Consideration of adopting pedestrian policies similar to the European Union;
- Targeted education campaigns at high risk groups including driveway safety awareness and a jay walking campaign;
- More research is required on the pedestrian situation in NSW; and
- Access to crash data (more comprehensive than that provided in current reports by the RTA).

Involvement of pedestrians in the NSW road toll

The RTA collates all the crash statistics for NSW from material provided by NSW Police. NRMA would like to point out to the Staysafe Committee that RTA data only includes those persons injured or killed in a crash that occurs on a public road. There are resulting anomalies in the data on children, as children run over by a vehicle and either killed or injured on private property do not appear as a child pedestrian statistic on RTA databases.

Tragically one child, often a toddler, is run over in their driveway every week in Australia. In NSW the Child Death Review Team identified these deaths and injuries as an issue and as a result a number of government and non government organisations decided to address the issue. Information has been developed by this group of organizations a copy of the brochure (English version) is in Annexure 2.

In 2002 the RTA produced an excellent resource entitled *Problem Definition and Countermeasure Summary: Pedestrian Safety.* This resource provided a clear picture of the safety of pedestrians in NSW at that time. NRMA believes that it is a shame the RTA have not released an up-dated version of that document.

Currently it is difficult for any agency other than the RTA to analyse the data and track trends or emerging issues on involvement of pedestrians in the road toll as the data which is publicly available is limited. It would be useful if the RTA made publicly available all raw data for relevant advocacy groups such as NRMA.

Pedestrian fatalities and Injuries

Year	Number killed	Number Injured
1960	367	4,022
1970	291	4,346
1980	252	4,161
1990	177	3,944
1997	114	2,985
2000	110	2,979
2001	88	2,861
2002	94	2,607
2003	94	2,490
2004	85	2,301
2005	96	2,220
2006	72	2,126
2007	68	2,119

Source : RTA document *Road Traffic Crashes in New South Wales 2007*

In 2007 there were 45,395 recorded road crashes in New South Wales during 2007. Of these, 20,319 were casualty crashes. These crashes resulted in the deaths of 435 people and injuries to another 25,845 individuals. The number of persons killed was down by 61 (12%) on the previous year and was the lowest annual fatality total since 1945.

The number of persons injured in 2007 was up by 406 (2%) on the previous year. The number of pedestrians killed was the lowest since such records began in 1928. In 2009 we have seen 30 pedestrian fatalities as of 4 June which is 11 more than this date in 2008 but only differs by 1 in a 3

year average. (Source RTA website) However, pedestrian deaths still account for around 15% of all NSW road fatalities. (As a comparison in many European countries, pedestrian deaths represent more than 15 percent of total fatalities from road crashes.) Of those killed or injured, children, older pedestrians and alcohol-affected pedestrians are the most vulnerable pedestrians on NSW roads.

The table below outlines findings on pedestrian safety Source: *Problem Definition and Countermeasure Summary: Pedestrian Safety 2002.*

NRMA believes the RTA should prepare an up-dated version of this document.

When

- While pedestrian crashes occur during all times of the day, there are certain peak times when the number of pedestrian fatalities is particularly high.
- Of all accidents in which a pedestrian was killed, 30% occurred during the hours 5pm 9pm.
- The months of **April, May, June and July have a higher number of fatal pedestrian crashes** - length of daylight hours is relatively short than at other times of the year.
- Darkness is a high risk time for pedestrian fatalities. **Of pedestrian fatalities, 56% occurred in darkness or at dusk**. Therefore, those months of the year in which the length of daylight hours in a day are shorter, have a higher number of fatal pedestrian crashes (April, May, June and July).
- **A pedestrian casualty in darkness or at dusk is more than twice as likely to be fatal**, compared with pedestrian casualties in other lighting conditions.

Who

- **Of the total number of pedestrians killed in 1996-2000, 67% were men** and 33% were women.

Data indicates that both the number and *proportion* of male pedestrians involved in fatal crashes has been higher than that for females over the last 5 years.

- Male and female **pedestrians aged 60 years and over, represent 40% of all pedestrian fatalities.**
- **Older pedestrians are over-represented in fatal pedestrian crashes because they are more likely to die as a result of their injuries than younger people**. The greater involvement of older people in pedestrian fatalities reflects the relative frailty of many older people. If an older person is hit by a car, the outcome is likely to be more severe resulting in a fatality rather than an injury.
- **LGAs with ten or more residents who were pedestrians killed in crashes**, 1996-2000**:** Wollongong, Blacktown, Liverpool, Lake Macquarie, Canterbury, Rockdale, Fairfield, Bankstown, Sutherland, Marrickville, Holroyd, Parramatta, Blue Mountains, Randwick, Campbelltown, Gosford, Strathfield, Newcastle.

How

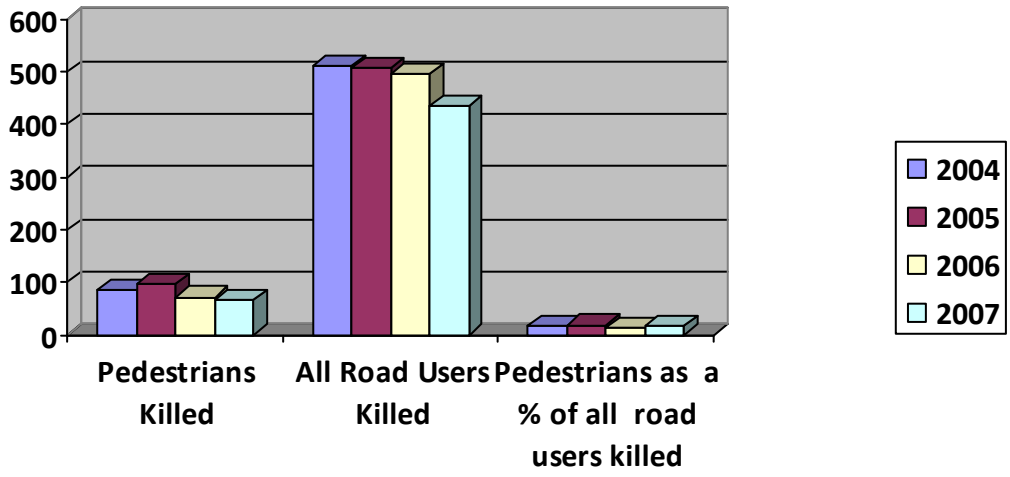
- Pedestrian fatalities are primarily the result of pedestrians trying to cross the road at locations where there is no pedestrian facility.

Why

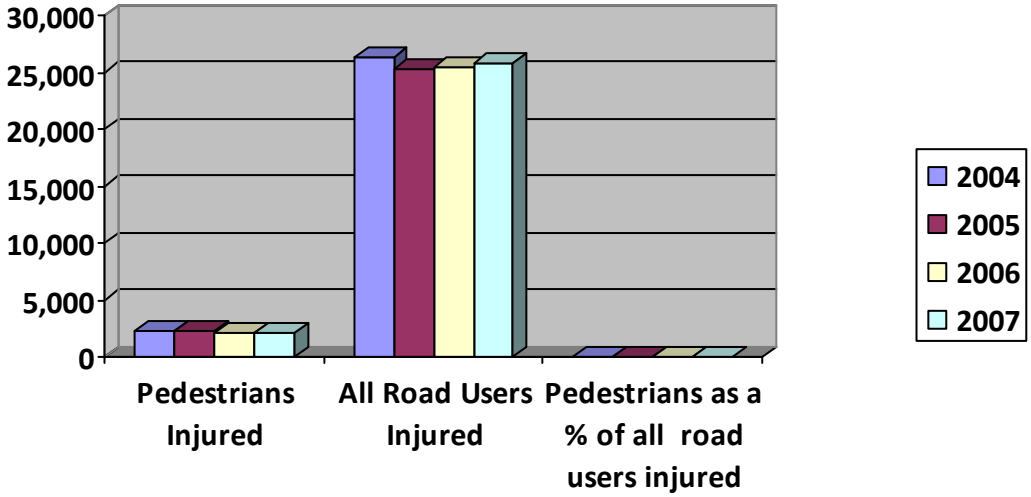
- In the 5-year period 1996-2000, **older people represented 40% of all pedestrian fatalities in NSW**. The proportion of crashes involving older pedestrians is expected to increase in the next decade as the proportion of older people in the population increases.
- Alcohol impairment is a major factor in pedestrian fatalities.
- About **90% of fatalities involving an alcohol affected pedestrian happen in darkness**, compared to 36% for non alcohol affected pedestrians.
- Of those alcohol-affected pedestrians killed in 1996-2000, **88% were male** and 18% were 21 years of age or younger.
- Almost 60% of all alcohol-affected pedestrians killed were **under 40 years of age**.
- Crashes in which the pedestrian is playing, working, lying or standing on the carriageway are particularly common for alcohol-affected pedestrians

The following information has been extracted from RTA Crash Data for 2002 – 2007. It is not as comprehensive as the earlier 2002 document. While it indicates a downward trend it does not really identify where resources need to be targeted.

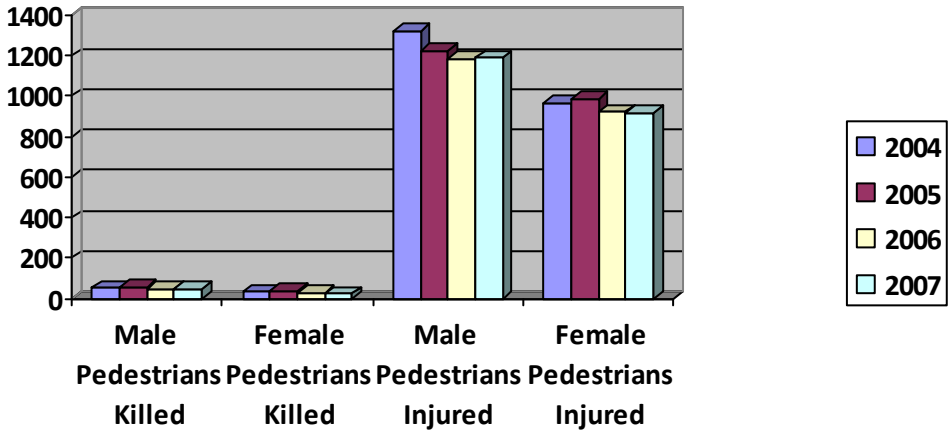
	Pedestrians Killed	All Road Users Killed	Pedestrians as a % of all road users killed
2004	85	510	16.7
2005	96	508	18.9
2006	72	496	14.5
2007	68	435	15.6



	Pedestrians Injured	All Road Users Injured	Pedestrians as a % of all road users injured
2004	2,301	26,323	8.7
2005	2,220	25,209	8.8
2006	2,126	25,439	8.4
2007	2,119	25,845	8.2

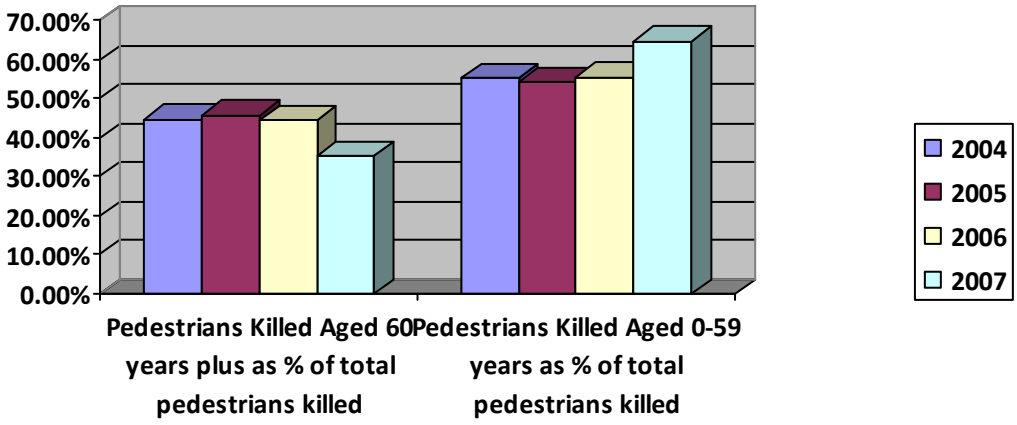


	Male Pedestrians Killed	Female Pedestrians Killed	Male Pedestrians Injured	Female Pedestrians Injured
2004	51	34	1,324	966
2005	59	37	1,225	987
2006	47	25	1,187	924
2007	46	22	1,188	920



	Pedestrians Killed Aged 60 years plus as % of total pedestrians killed	Pedestrians Injured Aged 60 years plus as % of total pedestrians injured
2004	44.7%	16.9%
2005	45.8%	18.4%
2006	44.4%	18.5%
2007	35.3%	17.1%

	Pedestrians Killed Aged 60 years plus as % of total pedestrians killed	Pedestrians Killed Aged 0-59 years as % of total pedestrians killed
2004	44.7%	55.3%
2005	45.8%	54.2%
2006	44.4%	55.6%
2007	35.3%	64.7%



Involvement of pedestrians in crashes – a national perspective

NRMA also notes the pedestrian data from a national perspective and the trends for NSW in comparison to other states and territories.

National data indicates that in 2008 there have been recent changes in numbers of deaths. Among different road user groups:

- Driver deaths decreased by 11.5%,
- Passenger deaths decreased by 10.1%
- **Pedestrian deaths decreased by 5.4%**
- Motorcyclist deaths increased by 3.4%
- There were 14 fewer cyclist deaths (down from 41 to 27).
- Male deaths decreased by 8.1 % and female deaths decreased by 10.2%.

Five-year trends - Between 2003 and 2008 national road deaths (all road user groups) decreased by an average of 1.4% per year.

The five-year trend has varied between jurisdictions:
– The greatest average annual decrease was observed in South Australia (down 7.9%), followed by NSW (down 5.6%), Tasmania (down 2.3%) and Victoria (down 1.6%)
– The greatest average annual increase occurred in the Northern Territory (up 9.2%), followed by the ACT (up 5.4%), Western Australia (up 5.3%) and Queensland (up 2.1%).

Between road user groups:

- passenger deaths showed the largest average annual decrease of 5.2%
- **pedestrian deaths had an average annual decrease of 3.2%**
- driver deaths had an average annual decrease of 0.9%
- motorcyclist deaths increased by an average of 5.7% annually
- No trend was apparent for cyclist deaths.

Source: 2008 Statistical Summary Road Deaths Australia, Department of Infrastructure, Transport, Regional Development and Local Government

Deaths by State/territory and road user group – 2007, 2008 and five year trend

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Pedestrians									
2008	52	59	30	12	19	1	17	3	193
2007	68	41	42	15	20	4	13	1	204
% change 2007-2008	-23.5	43.9	-28.6	-20.0	-5.0	-75.0	30.8	200.0	-5.4
Ave change 2003-2008[a]	-10.6	4.2	-4.8	-1.4	-0.4	-13.5	16.8	-2.7	-3.2

Deaths by gender and age for individual road user groups – 2007, 2008 and five year trend

	Males	Females	0-16 years	17-25 years	26-39 years	40-59 years	60-69 years	70+ years	All deaths[a]
Pedestrians									
2008	134	59	13	34	34	45	16	51	193
2007	120	84	18	29	39	53	17	46	204
% change 2007-2008	11.7	-29.8	-27.8	17.2	-12.8	-15.1	-5.9	10.9	-5.4
Ave change 2003-2008	-5.3	0.6	-9.5	2.2	-5.2	1.5	-5.0	-5.8	-3.2

What NRMA wants

NRMA believes the RTA should prepare an up-dated version of the *Problem Definition and Countermeasure Summary: Pedestrian Safety 2002.*

Underlying causes of pedestrian injuries and fatalities

NRMA believes that a detailed analysis of pedestrian crashes must be provided by the RTA if appropriate countermeasures are to be designed. Analysis needs to include points such as: age of persons injured/killed; crash location (intersection or midblock); date; time of day; type of road (speed zone); any pedestrian facilities present (zebra crossing, traffic lights, refuge island); type of weather (wet, dry, fog);affected by alcohol or drugs and so on.

Details such as these enable appropriate responses to be developed by the NSW Government and/or other relevant departments or organisations. For example, if there is a crash history at one particular intersection with traffic lights, late in the afternoon, involving seniors it may indicate that improvements made to street lighting and the timing of the traffic lights are needed.

From the RTA crash data, available to the NRMA, there are some clear patterns emerging:

- Since 1960 the number of pedestrians killed each year has moved from 367 to 68 and that this trend down is reflected at a national level;
- The number of pedestrians injured has almost halved, down from 4,022 in 1960 to 2,119 in 2007;
- For the years 2004-2007 - Males make up more than 60% of pedestrian fatalities and more than 55% of injuries;
- For the years 2004-2007 - Pedestrians aged 60 plus years make up on average 42% of all pedestrian fatalities. (Note - The population of NSW is projected to increase from almost 7 million people in 2006 to almost 8.3 million people in 2031. A significant proportion of the increase will be people aged 65 and older, who currently make up 14% of the population but will increase to over one in five (22%) in 2031, when there will be 1.8 million people 65 and over in NSW.)

Age and frailty as a factor in fatality rates

Crossing the road unassisted by traffic facilities requires pedestrians to perform a complex cognitive task. This involves a number of skills including the judgement of speed of not only a single vehicle but often multiple vehicles travelling in both directions. Speed judgement in turn influences gap judgement so that if a pedestrian is unable to judge the speed of one or more vehicles travelling in opposite directions they will leave an insufficient gap in which to cross the road.

Young children, older people and people impaired by alcohol are particularly poor at speed and traffic gap judgement.

Older pedestrians are more likely to be severely injured or killed than pedestrians of other ages as a result of their frailty and ability to recover.

Location of crashes: High-Risk Areas

There is research as to which areas are known to have higher risks for pedestrians.

> "In Britain, about 75 percent of all pedestrian injuries that occur while crossing roads take place away from designated pedestrian crossings. This pattern for all adults holds for older people as well. Older pedestrians seem to have special difficulty, however, in certain situations: at busy two-way streets; at intersections with heavy traffic, particularly where there is no centre refuge; in complex situations, where vehicles can come from several directions; at light-controlled crossings where traffic is allowed to turn across pedestrian routes; and in situations where right turn on red is permitted, so turning traffic can threaten pedestrians unexpectedly."
>
> (Mitchell 2007)

NRMA would like to see greater research on the NSW situation.

Time of day and weather conditions - Day time Running Lights (DRLs)

NRMA supports daytime running lights (DRL's) and suggests that until they become standard on vehicles, drivers use their low beam during daylight.

About 30% of struck pedestrians fail to see the car before the crash. Most of these crashes happen during day light hours. Well-designed daytime running lights make a vehicle more conspicuous to pedestrians. It is estimated that DRLs could prevent 12% of all pedestrian fatalities. (Paine)

Claims of vulnerable road users being "masked" by vehicles with DRLs have been shown to be unfounded. Well designed DRLs do not "distract" other motorists - they instantly make the vehicle more conspicuous. This is an advantage because other road users can devote more time to detecting less conspicuous objects.

By making a vehicle more visible, by driving with the lights on, many of the more serious crashes can be avoided such as: head on overtaking crashes, right turn across path crashes, and pedestrian crashes.

Although having daytime running lights is thought to be less effective in lower-latitude Australia and New Zealand than in, say Scandinavia, northern Europe and North America, it has been estimated that in Australia they could prevent:

- Between 3% and 11% of non-pedestrian fatal crashes
- Between 4% and 11% of non-pedestrian non-fatal crashes
- Between 4% and 12% of all pedestrian fatalities. (Paine, 2005)

Low beam headlights, although not as effective as dedicated daytime running lights, will still provide many of these benefits.

Vehicle speed

NRMA notes that high vehicle speeds greatly increase the risk of injury and death to pedestrians. Research has shown that the risk of a crash causing death or injury increases rapidly even with small speed increases above an appropriately set speed limit.

The speed at which a vehicle is travelling when it hits a pedestrian (the impact speed) determines the severity of the injury to the pedestrian and the likelihood that the pedestrian will die as a result of the impact.

On average, when a pedestrian is hit at an impact speed of 30 km/h or less, the pedestrian has a 99% chance of surviving. With an impact speed of 40 km/h, the pedestrian has an 87% chance of surviving. At an impact speed of 70 km/h or more, the pedestrian has less than a 7% chance of surviving.

Crash studies have found that the risk of a fatal pedestrian injury rises steeply for **impact** speeds above 40km/h. Since impact speed is related to initial travel speed this means that just a few km/h over the speed limit can make a dramatic difference to the outcome. This has been demonstrated by the recent change from 60km/h to 50km/h speed limits on residential roads where pedestrian fatalities dropped by more than 30% in many areas. (Paine 2007)

Vehicle Safety

Serious injuries or death of a pedestrian are more likely to result from the collision with a vehicle than the subsequent impact with the road environment.

> "In recent years, cars have been manufactured more aerodynamically to reduce wind resistance and improve the vehicle efficiency. This has also improved safety as regards an impact with a pedestrian. More pedestrian friendly design of the front and bonnet of vehicles has meant pedestrians are more likely to survive impacts (up to certain speeds)." (Problem Definition and Countermeasure Summary: Pedestrian Safety)

Improvements in the design and construction of vehicles have been responsible for a great percentage of the reduction in fatalities and injuries to occupants resulting from crashes.

It has been estimated that good performance in New Car Assessment Program (NCAP) pedestrian protection tests could save 8% of all pedestrian fatalities and 21% of all pedestrian serious injuries (Paine). Currently frontal impacts comprise about 84% of all pedestrian fatalities, or 15% of all Australian road fatalities and yet apart from a general provision that bodywork should not cause a hazard to pedestrians, which it has proven ineffective even in respect of aggressive bull bars**.**

The EU recently introduced a directive which requires manufacturers to meet a pedestrian impact standard at a lower level of stringency than NCAP requirements. Vehicles designed to meet this directive are now being sold in Australia for example the Citroen C6 with an elevating bonnet to provide head impact protection which scores 4 out of 4 stars on the NCAP system.

Crash test ratings - The Australasian New Car Assessment Program (ANCAP) was developed to give consumers consistent information on the level of occupant protection provided by vehicles in serious front and side crashes. ANCAP has incorporated pedestrian impact tests in their program.

The program is supported by NRMA and other Australian and New Zealand automobile clubs, NRMA Insurance, the FIA Foundation, all State government road and transport authorities and the New Zealand Government.

About the Tests - Each vehicle model tested in ANCAP is subjected to an offset crash test into a barrier, a side impact test unless a high seated vehicle and a pedestrian impact test. A pole test is optional. The vehicles purchased for the test program are typical of those vehicles available to new car purchasers.

The pedestrian impact test estimates injuries to pedestrians struck by a vehicle travelling at 40km/h and consists of lower leg, upper leg and head forms being projected at the front and bonnet of the vehicle.

Pedestrian Impact Tests - Pedestrian Impact tests are also carried out, which estimate head and leg injuries to pedestrians struck by the test vehicle travelling at 40km/h. The results from this test are listed in the ratings below. Pedestrian impacts represent 18 % of the fatal road crashes in Australia and New Zealand but in some urban areas constitute a third of all fatalities.

***EuroNCAP* -** European NCAP (EuroNCAP) testing procedures are substantially the same as ANCAP testing procedures. However, the EuroNCAP results are to be used as a guide only, as the structure and equipment of the European specification model may differ materially from that of the Australian or New Zealand vehicle of the same name.

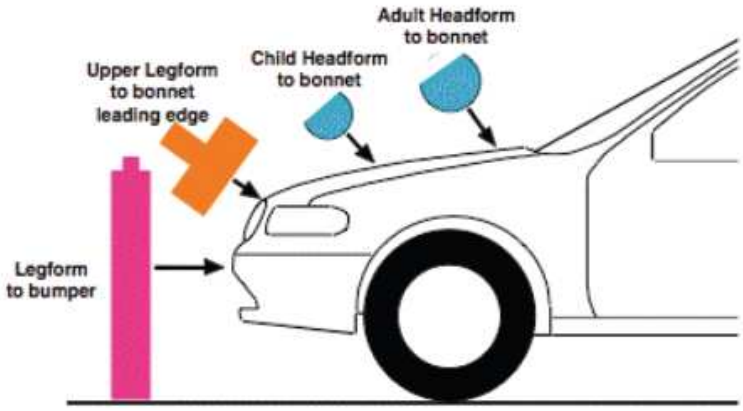
Also, if different safety equipment is fitted, the Australian or New Zealand vehicle of the same name is likely to provide different levels of protection to those noted.

Test Results - To simplify the crash test results and the pedestrian impact results, ANCAP has assigned an occupant rating and a pedestrian rating in stars to each vehicle model. The occupant rating considers the injury measures to the head, neck, chest, abdomen, pelvis, upper and lower legs and the deformation of the vehicle´s structure.

The star rating assigned on the basis of the crash test results combines offset and side impact results, and points where advanced seatbelt reminders are fitted, plus points when the optional pole test was conducted.

The pedestrian rating considers the injury measures to the head, upper legs, knees and lower legs when struck by a vehicle travelling at 40km/h. Detailed test results are available via the NRMA website at www.mynrma.com.au

ANCAP Pedestrian Protection Ratings



What NRMA wants

- NRMA would like to see greater research on the location of pedestrian crashes in NSW and that it be made publicly available.

- NRMA wants the NSW Government to advocate for DRLs complying with the European Standard to become part of the Australian Design Rules. Until then we want the NSW Government to educate motorists about the value of driving with low beam headlights on during the day.

- NRMA would like to see the NSW Government provide more information to the community on ANCAP and vehicle safety features and how they can reduce injuries and risks of fatality.

The incidence of drivers leaving the scene

NRMA has no data on this issue. Media reports have recorded some incidents but the extent of the problem could only be determined by the Police and from RTA data.

NRMA believes that most drivers are aware of their responsibilities regarding staying at the scene of a crash and calling the emergency services.

NRMA sees potential in the measures discussed here from the US and Europe.

The US experience - Changing the environment

Adapting the road environment has been shown to provide protection to pedestrians resulting in a reduction in fatalities and injuries.

As the road crash data from the US, Europe and Australia for pedestrians indicates, older pedestrians are a high priority group. The design of the road environment needs to address their requirements if pedestrian fatalities and injuries are to be reduced.

Existing roadways, cars, public transportation services, and pedestrian facilities were generally not designed with the older person in mind. Government planners and traffic engineers need to have a better understanding of the characteristics of older people. In fact improvements made on their behalf would also be of benefit to people with a disability, parents walking with children and, most likely, the general population.

The U.S. Department of Transportation has developed the National Highway Safety Administration's National Agenda, which outlines seven areas where action is needed to prepare users, vehicles, and highways and other types of transportation infrastructure for the coming wave of older travellers. The areas they have identified are:

- safer, easier-to-use infrastructure;
- safer, easier-to-use automobiles;
- improved training for older drivers;
- transportation services that are better suited to the older users;
- state and local participation in devising new program and policies;
- wider dissemination of information about transportation policies and options for the older transportation user; and
- additional basic research.

Many guidelines are available on the physical design of pedestrian infrastructure that is easy for older and disabled people to use. The U.S. Federal Highway Administration's two-part *Designing Footpaths and Trails for Access* (FHWA-EP-01-027) is a good example.

Building underpasses beneath some wide city streets, as shown here, has helped Phoenix protect pedestrians.

Two-stage crosswalks like this one in Phoenix are the result of pedestrian safety initiatives taken by the city with technical support from FHWA. This countermeasure is helping to reduce pedestrian-vehicle crashes in Arizona. Note the fence to help protect pedestrians as they cross the street.

The European experience

The road environment

> "The European approach to maintaining traffic safety in general and the mobility of older people places emphasis on serving the pedestrian. In fact, even the traffic safety initiatives that target vehicles in Europe often have, as their primary focus, creation of a safer environment for pedestrian traffic." (Mitchell 2007)

Many types of infrastructure improvements in Europe are used to make road crossings safer and easier for pedestrians. Improvements include footpath extensions to narrow the roadway at pedestrian crossings and at intersections in residential areas; central refuges for pedestrians; pedestrian phases for traffic signals at intersections; mid block light-controlled crossings, where a walker can call for a pedestrian green phase that stops traffic; speed control tables at pedestrian crossings; and speed tables to continue footpaths across side roads where they join more major roads.

Narrowed Roadways - Several approaches can be taken to shorten the crossing path for the pedestrian, including narrowing roadways. In streets with extensive parking, pedestrians have difficulty seeing traffic while standing on the footpath, and drivers have difficulty seeing them. In Britain, about 17 percent of all pedestrian injuries, and 8 percent of pedestrian fatalities, were categorized as "masked by stationary vehicle." On a footpath built out to the outer edge of the parking bays at a crossing, pedestrians are able to position themselves safely so they can see and be seen. In addition, the distance across the road is reduced, so the time pedestrians spend on the road is decreased. This feature is used in Britain, France, the Netherlands, and Scandinavia.

In NSW it is apparent that No Stopping standards specified in the Australian Road Rules and adopted by the RTA to provide appropriate sight lines for motorists and pedestrians are not being applied by all local councils with consequent impact on road safety.

Central Pedestrian Refuges - Pedestrian refuges in the middle of the road are among the most helpful infrastructure features for older pedestrians. Refuges can offer an element of traffic calming by narrowing the roadway. They are widely used in Britain and Scandinavia, and as part of traffic calming systems in the Netherlands.

Central refuges are used midblock on two-way roads where pedestrians may wish to cross perhaps where a pedestrian path crosses the road. Refuges can be used on roads with speed limits up to 80 km/h. Refuges also can be used at intersections, where side roads join more major roads.

Pedestrian refuges are used extensively across NSW but unlike zebra (marked foot) crossings, they do not generally incorporate enhanced street lighting.

There are a number of narrow median islands, such as Flinders Street at Taylor Square (Darlinghurst, Sydney) that are not wide enough to enable a person to stand safely in the centre of the road. The existence of the island tends to lure pedestrian s into a false sense of security. An added concern is that pedestrians at this location may well be affected by drink and drugs.

City center street in Toulouse, France. Typical of good practices in Europe. It is designed for pedestrians just as much as for vehicles.

Photo: C.G.B. Mitchell.

This road narrowing in Britain improves the visibility of pedestrians to drivers and reduces the time pedestrians need to cross the road. Note the bollards to make the buildout more visible to drivers, and the curb ramps with tactile warning tiles for visually impaired pedestrians.

Photo: C.G.B. Mitchell.

Most European countries are modifying their road infrastructure to encourage slower driving. Traffic calming can involve:

- Reducing the width of roadways;
- Using white lines to make roads look narrower to achieve psychological calming;
- Introducing pinch points at which a two-way road is reduced to a narrow one-way road, usually with priority for traffic in one direction; redirecting the traffic flow sideways at a chicane; and
- Installing speed humps or speed tables.

Midblock Light-Controlled Crossings - Light-controlled pedestrian crossings, with buttons for pedestrians to register demands to cross roads, are widely used in midblock locations. A difficulty with any light-controlled crossing is that traffic engineers tend to provide crossing times that require pedestrians to walk faster than some older or disabled people may be able to manage. To overcome this problem, the most recent crossing design in Britain uses a people detector to watch pedestrians on the crossing and extends the green phase for them if they are walking particularly slowly. The detector also can reduce the green time if pedestrians walk quickly and clear the crossing in less than the time allowed or cancel the crossing phase altogether if the pedestrian subsequently walks off. The detectors are also used to detect if vehicle traffic is approaching and help to reduce delay for all road users.

In Europe, the objectives for pedestrian infrastructure include the provision of routes that are direct, continuous, safe, convenient, and attractive. Paths and footpaths are designed to provide for the journeys that people want to make, including routes through residential areas. Guidelines in France and Britain advise that footpaths should be sufficiently wide (1.8 metres minimum), well surfaced and drained, illuminated at night, and monitored for personal security. They also recommend that pedestrian routes should include frequent seats or resting places because approximately 10 percent of adults cannot walk more than 400 metres without a rest or experiencing pain and that, at least in town centers, pedestrian routes to major destinations should be signed.

Pedestrian fencing near roads adjacent to licensed venues – The problem of alcohol affected pedestrians being struck by cars has been highlighted by the crash data. Pedestrians that consume alcohol are often unable to make safe decisions regarding where and when to safely cross roads.

> "Pedestrian fencing is used at locations where it is desirable to restrict pedestrian access to the road carriageway. These fences are very effective in compelling pedestrians to utilise the pedestrian facilities. However, there remain disadvantages associated with fencing, in particular the restriction of parking, high maintenance costs and potential roadside obstructions.
>
> In addition, fences can 'trap' pedestrians on the carriageways and may limit options for pedestrians to access the road and adjacent land. Consequently pedestrian fencing is only used at sites where the safety benefit to pedestrians is clearly demonstrated and outweighs the disadvantages." (RTA 2002)

Kerb extensions - Kerb extensions are kerb areas which extend into the parking lane. These allow pedestrians to stand beyond the line of parked cars, giving greatly increased visibility between vehicles and pedestrians. They also permit pedestrians to reduce the area of conflict by reducing their exposure time when crossing the road.

PUFIN Crossings

NRMA recommends greater use of 'PUFIN' crossings as used extensively throughout the UK.

PUFIN Crossings (**P**edestrian **U**ser **F**riendly **In**telligent Crossing) are an updated version of a Pelican Crossing.

Technology can now provide intelligent pedestrian crossing signals that automatically cater for all users. **PUFIN** crossings automatically detect the presence of traffic approaching and pedestrians crossing the road and will allocate extra time to the walk phase if needed.
Slower moving pedestrians such as the elderly and people with disabilities may need the extra time. Other more agile pedestrians may require far less time to complete a crossing. In either case the signals will adjust accordingly, making them more efficient.

Puffins use sophisticated electronic detectors to track the progress of pedestrians and extend their crossing time if necessary. Main Roads WA evaluated two types of electronic detectors, **Infrared** and **Microwave** to determine the best system for Australian conditions.

The RTA is believed to have trialled a PUFIN crossing at the mid-block crossing on Campbell Parade, near 'Bondi Icebergs', however, it is unknown how effective the trial has been as no public information is available.

Western Australia has been trialling PUFINs at two metropolitan mid-block pedestrian crossings. The effectiveness of the PUFIN crossing was evaluated through video surveys carried out before and after implementation. PUFIN technology aims to improve the efficiency and safety of the pedestrian mid block crossings. NRMA understands that Main Roads WA will install new PUFIN crossings or convert existing mid block crossings to PUFIN operation where the need is identified and subject to funding availability.

Photo of a PUFIN crossing in the UK

What NRMA wants

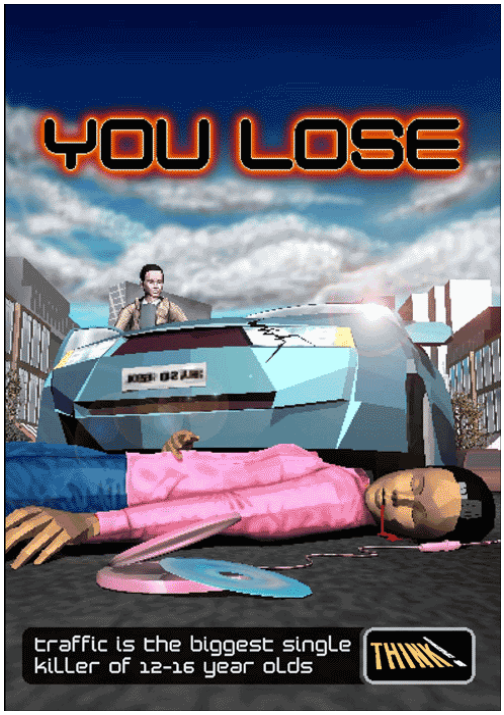
- Better footpath design, including even surfaces with no obstructions and better maintenance of footpaths;
- Dropped kerbs at crossing points;
- Central pedestrian refuges;
- Midblock light-controlled crossings;
- Pedestrian bridges or under-road passes;
- Adequate access for pedestrians when work is being carried out on footpaths;
- No standing advertising on footpaths;
- Good street lighting;
- Greater enforcement of parking restrictions at pedestrian crossings, pavement access ramps, bus stops and on footpaths;
- Greater enforcement of cycling restrictions on pavements; and examination of shared use facilities between pedestrians and cyclists ;
- Kerb extensions; and
- PUFIN crossings.

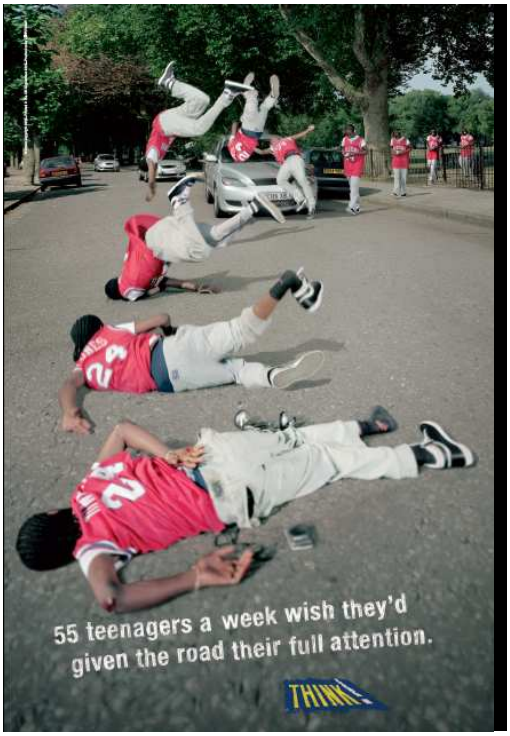
Education for young people

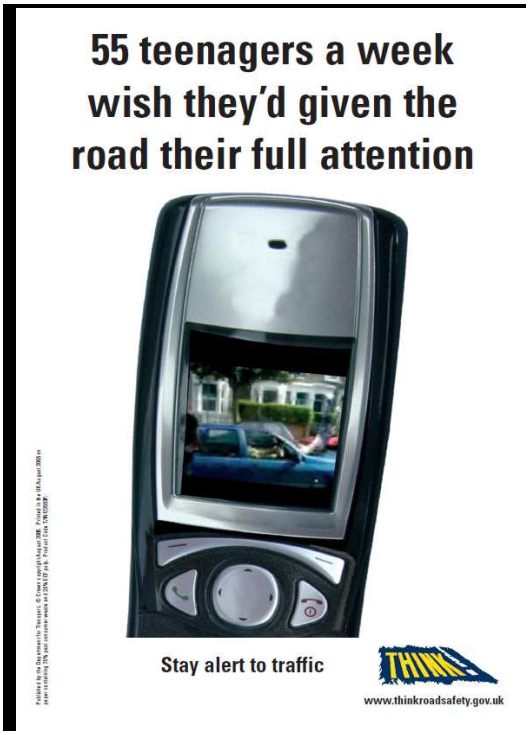
In the United Kingdom **traffic is the biggest cause of accidental death of 12 to 16-year-olds.**
To address this serious road safety problem the government there has developed specific education campaigns targeting this risk group.

The THINK! strategy for teenage pedestrians **was** based on research has found that teenagers are easily distracted on the roads, especially when they're in small groups of friends. THINK! works to encourage teenage pedestrians to **be more aware of traffic** and to **avoid distracting influences** when crossing the road.

Below are examples from a major UK education campaigns targeting young people.







The UK has a long history of creating specific campaigns for various road user groups - drivers, pedestrians, motorcyclists, bicyclists and horse riders. The development of these advertising campaigns also includes that it ties in to school programs; includes mainstream media, such as cinema advertising, where appropriate; and has an evaluation component.

The THINK! Strategy enables road safety groups, from across the UK, access to their campaign materials and in many instances the ability to co-brand. The consistency of messages (the words and images) is important as it means the target group are not confused by a variety of messages on the same issue.

A screen grab from the website for children to click and view the road safety advertisement.

The children's website developed by THINK! is impressive as it reaches children via a medium they're familiar with that is enjoyable and interactive.

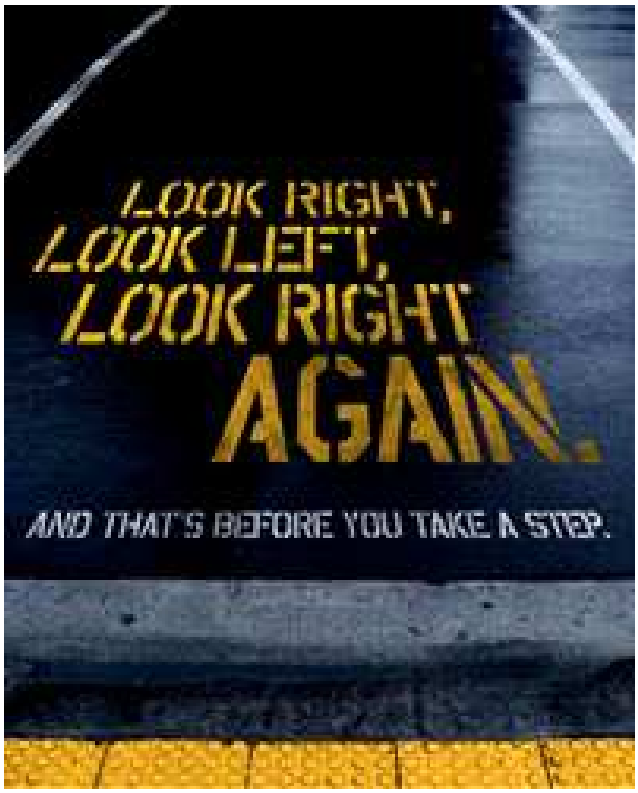
NRMA would like to see NSW invest in similar educational material. The section on the RTA website for children (via the *Centre for Road Safety* and then click on *Children*) has road safety songs and rhymes for young children but nothing interactive at all.

The RTA website has improved its material for young drivers with its *Geared* website but has no equivalent for children. In fact, the RTA website whilst providing useful information on licensing and registration provides only limited educational information for the public. There are few brochures or factsheets available even though the RTA is the primary Government Department responsible for road safety.

Education for adults

There are some interesting education campaigns targeted at adult pedestrians from overseas jurisdictions. It is impossible to prove that advertising or education changes behaviour but it can be a powerful tool to get people discussing the topic of road safety. Some examples that follow demonstrate that potential.

An example from Auckland, New Zealand, where 70% of crashes involving pedestrians occur on main roads. This was a *Don't Step into Danger* campaign.



To the left is an example from Canada, where the focus of the campaign is to encourage pedestrians to understand how important it is for them to be seen by drivers.

A video was also produced which featured an "invisibly dressed" pedestrian dummy that is struck by a car travelling at 50 km/h and 70 km/h at night. This campaign aimed to demonstrate the importance of wearing bright and reflective clothing – particularly in dark or wet weather conditions.

What NRMA wants

- NRMA would like to see NSW government invest in children's interactive road safety educational material; and
- The NSW Government to run targeted education campaigns aimed at high risk pedestrian groups.

NRMA has a long history of involvement in pedestrian safety. This includes:

Research

One research example was the work in 2002 on *Intoxicated and Drug Affected Pedestrians* which investigated issues around intoxicated pedestrians, including both alcohol and other recreational drugs.

The project included three components:

(i) Qualitative discussion groups with 'clubbers' and 'socialisers' to explore alcohol and other drug issues;
(ii) Analysis of crash data on pedestrian fatalities for persons aged 16 years and over in NSW over the ten year period 1992-2001; and
(iii) Quantitative telephone survey of 350 higher risk male drinkers, based on issues arising from the first two components.

Although the report is now old it was incredibly useful as it – (i) provided details about crashes; (ii) gave some understanding of the public's knowledge on the issue as well as their drinking/drug taking behaviour and (iii) identified the highest risk groups. All of this information enabled NRMA to develop a small campaign on the issue.

The *Intoxicated and Drug Affected Pedestrians* report is available to the Committee on request.

The issue of intoxicated pedestrians has not been widely addressed within the context of road safety. Therefore, NRMA has tackled the issue in small ways via the media. Media releases were distributed resulting in articles in newspapers across NSW (major papers as well as regional press) and radio interviews. The intent has been to raise awareness of issue with the general public - as drivers and as pedestrians. Media has been directed at times when there are likely to be more people affected by alcohol – for example around large sporting events, at Christmas and New Year.

Education

Child pedestrians

NRMA believes that it is critical that in NSW the development of road safety strategies and programs take into account the social, cultural and linguistic diversity of the population.

NSW has some positive factors in place which may be assisting in reducing children's risks as pedestrians. Some of the strengths of NSW are:

- Road safety education as part the school curriculum for children in kindergarten through to year 11;
- School zones in place around all NSW schools;
- An Early Childhood Road Safety Education Program is supported by the *Kids and Traffic* resources. Resources include a variety of materials which support the inclusion of road safety education in programming and planning for children and families (provided free to all licenced children's services (10 or more children) in NSW.

NRMA has partnered with Kidsafe, the Motor Accidents Authority and a number of other departments and organisations in a project entitled *Child Pedestrian Safety In Communities.*

Based at Kidsafe NSW, funded by the Motor Accidents Authority (MAA) and supported by a range of key stakeholders, this project targeted parents and carers of children aged between 5 and 10 years of age to highlight the importance of their role in child pedestrian safety.

Strategies of the project included the following:

- A website to allow easy access to information and resources.
- A Media Campaign to reach parents and carers in the priority areas.
- Resource development to support the media campaign
- Provision of Small Grants for localised community-based projects

Media and resources were targeted to parents and caregivers, of children aged between 5 and 10 years of age within the priority areas of NSW. Priority areas for this project are the local government areas where the most child pedestrian injuries have occurred in previous years.

The project had a Non-English Speaking Background (NESB) component and targeted Arabic, Chinese and Vietnamese languages as the most predominant NESB groups with young children.

School Zones

NRMA has a long history of working with the NSW Government to enhance safety around schools and on speed related issues. NRMA believes more visible Police are needed to moderate motorists' behaviour. We also believe many motorists are unaware of the tough school zone penalties.

NRMA supports more publicity of the various driving offences, such as those for speeding in school zones, for example via the RTA's electronic variable message signs, by including information with car or license registration renewal papers, and by using televisions and posters in RTA Motor Registries to reach this 'captive audience'.

NRMA also believes school zones can be improved and we support flashing lights, fluorescent yellow/ green signs and better positioning of signs.

We want the RTA to listen to and trial NRMA's ideas to improve school safety by creating a school taskforce of key stakeholders to meet regularly to develop new ideas. In addition to the NRMA and RTA this could include the NSW Police and Parents & Citizens Association.

Positioning of School Zone signs - NRMA believes the location of school zone signs can be improved, particularly on multi-lane roads where signs can easily be obscured from view by other vehicles.

NRMA believe signs should be located not only on the left hand side of the road but also on central median islands or alternatively cantilevered above the road to create a "gateway" effect to highlight the start of the School Zone.

NRMA also recommends that the RTA should instigate School Zone audits on an annual basis in conjunction with the local council traffic engineer, local traffic police, school principal and a P&C representative to identify and address issues, including trees obscuring signs and any need for new facilities.

Flashing lights - NRMA strongly supports flashing lights in NSW school zones to highlight both the location of the zone and also to warn when the school zone is operating. Lobbying by NRMA helped secure a commitment of $46.5 million in the NSW 2007-2008 budget to install flashing lights at 100 schools a year for the next 4 years. This is funded from school zone speed camera revenue.

NRMA believes that revenue from fines has increased significantly in the last year and in turn the government should commit to additional flashing lights. There are more than 3,100 schools and 11,000 school zones in NSW. Ninety-five per cent of schools in NSW still do not have flashing lights.

Speed cameras - School Zone speed cameras are installed only at schools where flashing lights have been installed. The cameras operate 24 hours / day and enforce reduced speed limits during school zone hours.

Almost 160,000 motorists were caught speeding by the 25 school zone cameras in the 6 months to the end of December 2007 with $20.7 million being collected in fines. 2008 speed camera revenue figures are expected to be obtained and published by either the media or State Opposition in due course.

There are now 53 of these cameras located in 38 school zones. The RTA states a further 11 speed cameras in 6 school zones are under construction and scheduled to commence operation in early 2009[i].

The Government has committed to put the revenue generated by the school zone cameras back into "school safety". This could include a package of measures such as flashing lights, pedestrian bridges, "lollipop" school crossing supervisors and fences. Many of these were previously funded from other sources.

Dragons teeth - NRMA have identified a number of other school, pedestrian crossing and traffic calming initiatives that we would be keen to share with you and with the Roads & Traffic Authority to enhance the safety of road users. These range from signposting improvements to the better use of gateways, including measures such as 'dragons teeth' and 'zig-zag' lines as used in the UK and the possibility of using yellow lines in place of white lines for the full length of a school zone. NRMA welcomed the recent announcement by the NSW Government.

Children and vehicles -NRMA developed the CarSense campaign with specific messages to address the dangers of hot cars, fitting child restraints correctly and driveway safety. CarSense addresses the dangers of leaving kids alone in cars or around cars by using the simple message **Keep Kids Safe, Keep Them With You.**

The CarSense campaign covered many areas where kids are involved with cars. The goal of the program is to educate caregivers, providing them information so that kids are not inadvertently placed in harm's way.

CarSense messages were carried via:

- An extensive radio campaign with ads in English and to selected ethnic media in Mandarin, Cantonese, Arabic, Korean, Vietnamese (selected as these language groups have more children under 10).
- Posters for child care centres, community centres, shopping centres;
- Website material
- Media coverage generated by NRMA press release; and
- Coverage in the *Open Road*.

NRMA intends to run this campaign again in 2009-2010.

Interactive Education - *RuleSmartz4Kiz* – is a children's interactive road safety game and quiz designed and produced by NRMA to enable young kids to learn about the do's and don'ts of road rules in a fun and entertaining way.

Aimed at those aged 7-11, *RuleSmartz 4 Kidz* is permanently installed on computers in the NRMA Mobile Member Centre, allowing those children in regional and rural areas to take part when the Mobile Member Centre visits their town.

RuleSmartz 4 Kidz can be played on almost any computer and is also available on NRMA's website at www.mynrma.com.au and NRMA distributed copies to all public libraries in NSW and the ACT.

NRMA RoadZone Road Safety Program - has been providing road safety educational experiences for students and members of the community for almost 10 years. The program, which was launched in September 1999, was designed by NRMA Motoring and Services in conjunction with Questacon, the National Science and Technology Centre in Canberra, to provide fun, interactive and educational road safety exhibits and experiences for young people throughout NSW and the ACT.

NRMA RoadZone exhibit and in-school program support the school curriculum for primary school students. The program is aligned to the school curriculum and is underpinned by educational principles and teaching and learning strategies that are consistent with those underpinning the NSW road safety school curriculum, policies and programs.

The program is well received by teachers and community participants, is entertaining and engaging for students. The program involves approximately 70,000 participants each year.

International research

A research project conducted by the Department of Transport in the UK (Road Safety Research Report No. 50; 2004) concluded that the top performers for child pedestrian safety were Sweden, the Netherlands, Finland, Germany and Denmark. In contrast to the other countries, the majority of these countries reported that they:

- Have speed reduction measures (including environmental modification and low speed limits) and signalised crossings in most local authorities or municipalities;
- Have these measures outside many schools;
- Have outside play areas, such as parks or playgrounds, in most residential areas;
- Conduct national publicity campaigns once a year or more, aimed at child pedestrian safety; and
- Have legislation that assumes driver responsibility for accidents involving child pedestrians in residential areas.

The characteristics shared by both the top performers and the majority of other countries were also identified in the survey. These countries:

- Promote pedestrian education and training initiatives nationally or in most states;
- Have compulsory road-safety education; and
- Conduct regional publicity aimed at child pedestrian safety. (Source: Road Safety Research Report; 2004)

The research into risk factors for child pedestrians has indicated how important it is to target socially disadvantaged groups or children, including those from culturally or linguistically diverse backgrounds.

Factors which may increase the risk of children from socially disadvantaged groups are:

- Possibility of being exposed to hazardous environments (e.g. facilities for safe play);
- The ability of parents/carers to supervise children (single parent families, depression); and
- Children's attitudes and behaviour (e.g. risk taking)

In relation to cultural diversity, other factors may include:

- Exposure to a different environment (e.g. different travel patterns);
- Access to information and services related to language; and
- The ability of parents/carers to supervise children appropriately due to a lack of familiarity with traffic conditions (especially for first generation immigrant families).

NRMA believes that it is critical that in NSW the development of road safety strategies and programs take into account the social, cultural and linguistic diversity of the population.

What NRMA wants

- NRMA wants the significant increases in speed camera revenue to be used to fund additional flashing lights. NRMA believes the flashing light technology used by the RTA is too expensive. Alternative technology could be used for local streets, for instance.

Measures that NRMA supports

Access to Data - NRMA would like the RTA to provide comparable data to that supplied by Victorian Government agencies. This would provide increased transparency for the general public and enable NRMA and others to conduct more focussed research, advocacy and education programs. NRMA would welcome improvements to current levels of data that the RTA provides to align with information from other jurisdictions.

Research – More research is required on the NSW situation – research areas include:

- Signal timing and elderly pedestrian's abilities;
- Lengthened signal timing and its effect on traffic delays;
- Effectiveness of overhead pathways across multi-lane roads (especially in suburbs with high or increasing numbers of elderly residents and where schools are in close proximity to such roads);
- Comparisons in the location of pedestrian crash sites and in the incidence of fatalities and the type of injuries received.

Education – NRMA would like to see education programs that:

- Target younger children about the dangers of crossing roads. Although there is information provided via the school curricula there needs to be further information.
- Increase awareness of parents and carers of the limitations of children in traffic and the dangers to children as pedestrians.
- Education of older pedestrians about the increased danger they face because of reduced mobility and safer

For each of these groups, it is important to consider:

- When and how the audience should receive information—for instance, children, depending on their stage of development, may not be able to understand certain messages or complicated images used to convey messages
- Demographic factors – the socio-economic levels in the community; the level of literacy in a community; the number of people from countries which are not English speaking; access to information services(for example internet services in neighbourhood centres or libraries). All of these factors affect the design and distribution of materials educational materials and the media/ information channels selected for education campaigns.

Traffic signal timing - NRMA believes traffic signals can be managed by the RTA much more effectively to reduce delays for both traffic and pedestrians, improve pedestrian safety by reducing the amount of 'jay-walking' especially in Sydney, Newcastle and Wollongong and reduce vehicle emissions and fuel usage. One way for this to be achieved would be to introduce performance standards for RTA Networks Operations [traffic signal operation] staff to ensure improvements can be tracked and recognized.

Remove impediments on footpaths - Footpath advertising signs impede on pedestrian flow and can obscure the view both to and from vehicles and force pedestrians to divert onto the road. The position of trees and other flora beside footpaths, particularly in rural areas, often impedes the driver's ability to see pedestrians.

Setting appropriate speed limits - Just setting appropriate speed limits does not necessarily bring immediate safety results – it often takes enforcement. Enforcement of existing speed limits does provide immediate safety benefits, perhaps more quickly than any other single safety measure. NRMA has called for the Government to provide for greater Police presence on our roads. Police presence provides the opportunity to influence road users simply by their visible presence and also educate road users who do not adhere to the road rules – immediate enforcement rather than a fine in the post weeks later.

Effective speed management also requires that speed limits are appropriate for the standard of the road, the roadside risks, road design, traffic volumes and mix and presence of vulnerable road users.

The concern for NRMA is that the NSW Government may choose to announce a plan for reducing speed limits as part of their answer to crashes resulting in fatalities and serious injuries. This could be tempting as it is a cheap option in comparison to improving the safety of the road infrastructure.

Increase visibility at pedestrian crossings – Innovative brighter line marking products have been developed by companies such as 3M and Prismo as a low cost engineering solution to enhancing safety at pedestrian crossings by increasing their conspicuity. The RTA has not chosen to adopt this new technology. By reflecting vehicles headlights it reduces reliance on ambient street lighting or purpose built lighting to illuminate the crossing.

One product being trialled in the UK is Zebrabright which is a unique system has been developed to provide a low-cost engineering solution to help reduce accidents at zebra crossings.

This technology is one which some UK councils are turning to. It is an advanced marking system which has been developed to provide a low-cost engineering solution to help reduce accidents at zebra crossings.

As part of Ennis Paint, one of the world's largest producers of road marking materials, Prismo is working with the UK's Nottingham County Council on test sites to trial the new technology.

During the day it looks like a coloured surface on the road, but at night it reflects back light cast on it from vehicle headlights, so that to the approaching driver, the surface of the road appears to light up. Zebrabright projects light back at the approaching driver, highlighting the white surfacing in the pedestrian crossing and not relying on ambient street lighting or purpose-built lighting to illuminate surfaces.

What NRMA wants

- Trials of innovative brighter line marking products to enhance safety at pedestrian crossings by increasing their conspicuity.

Older pedestrians

Walking can enhance the health of older people beyond the established cardiovascular and muscular-skeletal benefits associated with exercise. Exercise also has a positive effect on lowered risk of chronic disease, improved immune system and recovery, decreased depression and anxiety.

Older pedestrians are injured not only as a result of being struck by a vehicle but also as a result of falling on a footpath or roadway. These falls are not recorded as part of the RTA data so the extent of the problem can only be determined by considering Department of Health data.

There are features of the physical environment which do discourage seniors from walking. Many seniors are discouraged from walking because of a fear of falling. This fear is based on facts. Seniors are injured in falls as pedestrians and for many it does result in hospitalization and a move into a nursing home.

Senior's fear of falling is real because in many areas of NSW the footpaths are in a state of disrepair and in some areas are nonexistent.

Another problem for seniors is the lack of pedestrian amenities such as seats – seniors (and others) need to be able to take a rest break when out walking and seats are often not available. Seats also are of no value if they not maintained.

Safer environments – for senior pedestrians include safe footpaths, crosswalks, clear pedestrian signals, sufficient crossing time at intersections, benches for resting, reduced traffic speed, and traffic islands. Placing stores, services, and transport routes within walking distance of residential areas is another strategy that would make walking a more attractive option for older adults.

Implementing these suggestions about the road environment that can encourage seniors to walk may also encourage walking among other age groups.

Educational interventions - that will inform drivers and pedestrians of their rights and obligations when interacting with other road users, thereby, enhancing the safety of all pedestrians. 'Courtesy is Catching' is a simple message which may resonate with all road users.

Education can be a powerful tool for changing behaviour and improving safety skills. Pedestrians, bicyclists, and motorists alike can benefit from educational tools and messages that teach them the rules, rights, and responsibilities of various modes of travel.

There are major differences in the walking abilities, behavioural patterns, and learning capacities of different groups of pedestrians and other road users. For example, children have different physical and psychological abilities than adult pedestrians, young drivers exhibit different behaviours and driving skills than older drivers, and college age pedestrians may be reached through educational outlets that differ from those of other groups. Educational programs need to be tailored to the specific audiences they intend to address and to the behaviours they seek to modify.
Common audiences for pedestrian-related education programs include:

1. Road users, including drivers (young, adult, or older), bicyclists, and pedestrians (children, university age pedestrians, the drinking population, adults/parents/ and older pedestrians;
2. Commuters/employees; and
3. Transportation officials and decision makers, including engineers, planners, developers, local officials/leaders, and police.

Annexure 1 References and Useful websites

Old World Ways: Roadway designs in Britain and other European countries emphasize maintaining the safety and mobility of older pedestrians.
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Road Users Can Grow Old Gracefully—With Some Help.
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http://www.tc.gc.ca/policy/Transed2007/pages/1101.htm

Pedestrian protection through vehicle design
Paine,M. ; Pedestrian Colloquium, 26 Nov 07

Daytime Running Lights For Motorcycles
Paine,M. ; 19th ESV (2005)

Traffic Signals and Older Pedestrians
http://www.centersofexcellence.org/senior-safety-and-mobility/articles/Traffic-Signals-and-Older-Pedestrians

Children's Traffic Safety: International Lessons for the UK.
Christie, N ; Cairns,S and H. Ward; Towner, E; Road Safety Research Report No. 50; Department for Transport: London, July 2004

NRMA Research Report on Intoxicated and Drug Affected Pedestrians
Morphett, A ; Prabhakar; Span, D ; November 2002

The Safety Of Elderly Pedestrians At Five Urban Intersections In Miami: Jose H. Guerrier and Sylvan C. Jolibois, Jr.
From Proceedings of the Human Factors and Ergonomics Society 42nd Annual Meeting, October 5-9, 1998, Chicago, Illinois.

Hey! Older pedestrians need more time than that to cross a street!
Source: United States Department of Transportation - Federal Highway Administration
http://www.tfhrc.gov/safety/pedbike/articles/hey.htm

http://www.kidsandtraffic.mq.edu.au/
The Early Childhood Road Safety Education Program is part of the RTA's Youth, Community and Education Program and is a partnership between the NSW Roads and Traffic Authority (RTA) and Macquarie University.

http://www.mynrma.com.au/cps/rde/xchg/mynrma/hs.xsl/car_sense.htm
CarSense - child safety in and around motor vehicles. Specific messages address the dangers of hot cars, fitting restraints correctly and driveway safety.

http://talesoftheroad.direct.gov.uk/index.php
The UK Department for Transport THINK! Website material for children

http://www.tsc.berkeley.edu/newsletter/Aug02/pedestrians.html

Annexure 2

INTOXICATED (DRUNK) PEDESTRIANS

Information Fact Sheet

PEDESTRIAN FATALITIES

Analysis of 10 years of data for NSW (1992-2001) reveals important findings about alcohol related crashes. (Source of data : Roads and Traffic Authority).

This fact sheet draws upon the key findings and has been produced to raise awareness about how pedestrians are a danger to themselves and others when they're intoxicated.

GENDER AND BLOOD ALCOHOL CONTENT (BAC)

Blood alcohol content (or BAC) of .05 equates to, on average, two standard alcoholic drinks over one hour for a male, and one for a woman.

- 40% of male fatalities and 11% of female fatalities involved a BAC of .05 or more.
- Males accounted for 89% of the pedestrian fatalities with a BAC of .05 or more.
- Among males (16-70 years) a large proportion of pedestrian fatalities had a BAC of .05 or more. These fatalities were broadly distributed across all age bands.
- Among those killed with a BAC of .05 or more, nearly three quarters (72%) had a BAC of .15 or more. This BAC level represented 29% of all male pedestrian fatalities and 8% of female fatalities. As with drink driving, a large part of the problem associated with intoxicated pedestrians occurs at very high blood alcohol levels.

OTHER FINDINGS

Time of Crash
The large majority (87%) of pedestrian fatalities with a BAC of .05 or more occurred in the hours of darkness.

Over half of the fatalities occurred on Thursday, Friday and Saturday nights.

Geographical Location
The rate of pedestrian fatalities with a BAC of .05 or more was lowest in the Sydney Metropolitan Area, estimated at 5.2 fatalities per 100,000 population over the 10 year period.

The rate was higher in the Newcastle Metropolitan Area (8.5), the Wollongong Metropolitan Area (10.9) and the Country areas of NSW (8.9).

Fatalities outside the metropolitan areas were more likely to have a BAC of .05 or more than a BAC of zero.

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REDUCING THE RISK

- The dangers of drink-driving need to be extended to pedestrians.
- Consuming too much alcohol impairs your ability to judge speed and distance, so be careful of traffic when leaving venues.
- Be careful of walking on roads in darkness.
- Cross roads at traffic lights.
- Never sit or rest on the road, however quiet it might appear.
- Make sure you look after your friends after you leave the venue.
- If hosting a party, arrange for guests to get home safely or stay overnight.
- Be conscious of how much alcohol you and your friends are drinking – alternate with low or non-alcoholic drinks and have something to eat.
- Help pedestrians you see at risk.

KEY FACTS

Pedestrians are the largest road user group.

Approximately 1 in 5 road deaths in NSW is a pedestrian.

Intoxicated pedestrians account for a 1/4 of pedestrian fatalities.

90% of alcohol-affected pedestrians were killed in the hours of darkness.

89% of alcohol affected pedestrians killed were male.

Over half of the fatalities occurred on Thursday, Friday and Saturday nights.

visit **www.mynrma.com.au**

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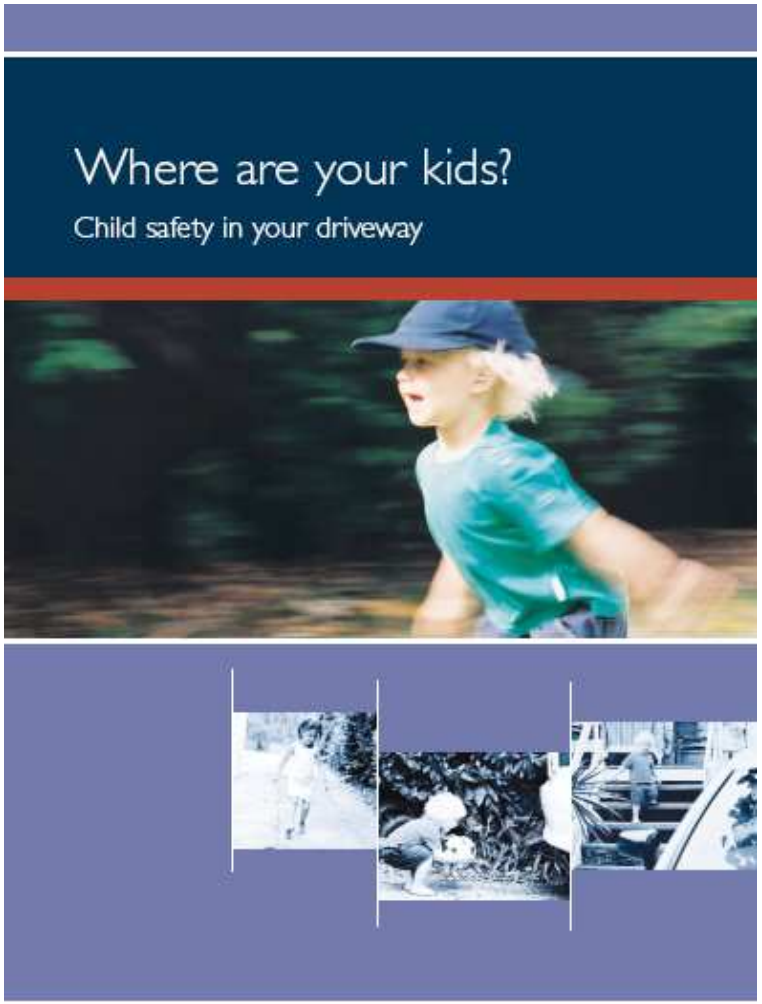
Annexure 3



TRAGICALLY ONE CHILD, OFTEN A TODDLER, IS RUN OVER IN THE DRIVEWAY OF THEIR HOME EVERY WEEK IN AUSTRALIA.

The vehicle is usually only moving slowly and is often being driven by a parent, family member or friend.

We don't think of small children as being in danger in such a familiar and caring environment - but they are!

Small children are naturally inquisitive and want to see what's going on. They can also move surprisingly quickly.

In the time it takes for the driver to say goodbye and start the car, a child can move from a 'safe' position onto the driveway and into the path of the vehicle.

Small children can be impossible to see from inside a car especially if they are immediately behind it.

The rear vision of a number of popular cars has been tested and results show that there is not a 'blind spot' but in fact a large 'blind space' behind most cars.

Even if your car has parking sensors or a video camera fitted, you may not notice a small child until it is too late to stop.

What can you do to prevent such a tragedy?

- Always supervise your children whenever a vehicle is to be moved - hold their hands or hold them close to keep them safe.
- If you're the only adult at home and need to move a vehicle, even only a small distance, place children securely in the vehicle with you while you move it.
- A driveway is actually a small road – discourage children from using it as a play area.
- Make access to the driveway from the house difficult for a child, possibly using security doors, fencing or gates.

The Facts

- Young children often do the unexpected – they require constant supervision to keep them safe.
- More than one third of pedestrians aged under six years killed in motor vehicle crashes were killed 'off road' in yards, carparks and driveways.
- Children aged under three years are the most likely to be killed or injured in home driveways, often by a reversing vehicle driven by a parent, relative or friend.
- Many of the young children who are not killed sustain severe and permanent injuries.
- Even when drivers use mirrors while reversing, visibility behind the car is limited. This has been confirmed in an NRMA Insurance study.

HELPFUL INFORMATION

NRMA Insurance Reversing Visibility Index

In an NRMA Insurance study the reversing visibility for more than 80 of the most popular vehicles has been assessed. The Index shows that there are large differences in the results for the vehicles tested and even the best vehicle has a blind area of around 3 metres that could easily hide a child. A complete listing of the ratings is available from the NRMA Insurance website – www.nrma.com.au/reversing
More stars are better.

Star rating	Vehicle
4 and 3.5 stars	Holden Barina, Kia Sportage
3 and 2.5 stars	Toyota Landcruiser, Ford BA Falcon
2 and 1.5 stars	Holden VY Commodore, Range Rover
1 and 0 stars	Mitsubishi Pajero, Hyundai Elantra

Consumer tips

While there is no substitute for supervision, if you are considering purchasing a device to assist driver awareness at the rear of a car, some consumer tips are available on the MAA website at www.maa.nsw.gov.au

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