

Contributed Articles

The ATSB Answers Questions on the Australian National Road Safety 2010 Strategy

Introduction

The Australian Transport Council (ATC), which comprises Federal, State and Territory Ministers responsible for transport, launched the National Road Safety Strategy in 2001. This Strategy is being implemented through a series of two-year Action Plans monitored and coordinated by the Australian Transport Safety Bureau (ATSB). A key objective of the National Strategy is to reduce the number of road fatalities per 100,000 population by 40% from 9.3 in 1999 to 5.6 in 2010. With approximately three more years in which to achieve this objective, it was felt appropriate by the College to seek an assessment of current progress from the ATSB. The College is grateful to the ATSB for providing the following responses to our questions:

Question 1: The target set in the year 2000 for the National Road Safety Strategy was to reduce the fatality rate per 100,000 population to 5.6 by the end of 2010. What were the scientific and policy bases for choosing this target?

The target was based on estimates of the likely effects of implementing known road safety measures. These estimates drew on a combination of empirical evidence and expert judgement and analysis. Estimates were derived for available measures in a number of areas, including improvements to road infrastructure, improved vehicle occupant protection, and measures to reduce high risk road user behaviour.

When the potential combined effect of all measures was estimated, adjustments were made to avoid double counting of benefits (that is, to allow for overlap between measures). An allowance was also made for the effect of expected growth in vehicle use.

This estimation process was intended to give an indication of the sort of improvement that was reasonably achievable, given a solid effort. On that basis, partners to the Strategy were able to agree on a target that was considered challenging, but realistic.

The estimates indicated that close to three quarters of the targeted 40% reduction in per capita fatality rates could be achieved from maintenance of existing real funding for road measures, and the flow-through effects of vehicle safety improvements that were already implemented or scheduled.

Most of the remaining improvement was expected to be achievable through improved compliance with existing rules on drink driving, speed and restraint use (achieved by

extending and refining enforcement programs, backed by public education and persuasion).

The original estimates have been reviewed a number of times. *The National Road Safety Action Plan 2005 and 2006* included the following summary comment, which is still relevant:

A recent examination of underlying assumptions provided no grounds for revising these broad expectations. However, it has become clear that some of the specific assumptions in the behavioural area were incorrect.

For example, it is now evident that the original estimation of future gains from speed measures was highly conservative — this is borne out in both research-based evidence on the potential safety benefits of travel speed reductions ... and the large fatality reductions achieved in Victoria following the strengthening of compliance measures in 2001–02.

On the other hand, projected trauma reductions from improved compliance with drink driving and seat belt laws have so far not been realised.

More details and discussion of the analysis and assumptions underlying the target are provided in the National Road Safety Action Plan 2003 and 2004, and later Action Plans (<http://www.atcouncil.gov.au/documents/atcnrns.aspx>).

Question 2: Looking at the ‘ Road deaths per 100,000 population, rolling 12-month data’ graph (see Fig.1), there seems to have been an encouraging general downward trend in the road toll until the end of 2004. After this the general trend seems to have been level or slightly upward.

a) Are there any obvious reasons for this change? Is it a case of having implemented all the ‘ easy wins’ or ‘ low hanging fruit’ or are there other reasons as well?

There are no obvious reasons for the change. It is worth noting that the change did not occur across all jurisdictions: fatality rates have continued to fall in some jurisdictions but have risen in others.

The perfect “ low hanging fruit” policy option would be one that was simple, obvious, inexpensive and immediately popular as soon as the idea was put forward. If such fruit ever existed, it must have been picked a very long time ago.

A lot of very successful measures were introduced in the 1970s, 1980s and 1990s. With the benefit of hindsight, some of these might look like obvious “ easy wins”. But it is very

difficult to think of a major successful measure that did not attract significant opposition at the time (on one or more of a number of grounds: too expensive, impractical, unnecessary, an unacceptable incursion on road users' freedom ...).

So the real question is not whether we have run out of easy wins, but whether we have run out of options that are worth implementing: options that are well supported by evidence and analysis, likely to be cost effective, and likely to have a substantial impact. The answer to that is a clear "no". The National Road Safety Action Plan 2007 and 2008 sets out a range of important options that meet these criteria.

b) Is the economy increasing vehicle kilometres travelled (VKT) and therefore exposure?

Aggregate VKT per capita has been growing at an average rate of about 0.8% per year since 1999. This is similar to the growth rate in the mid to late 90s.

There is no reason to believe that growth in total vehicle usage has accelerated sharply since the end of 2004. In fact, rising fuel prices have probably slowed the rate of growth slightly. So the fact that there has been no net reduction in the death rate from January 2005 to March 2007 (in contrast to the downward trend over the five years to December 2004) cannot be explained in terms of increasing total vehicle use.

A related question is whether growth in vehicle use accounts for the gap between the current fatality rate and the benchmark of pro-rata progress toward the 2010 target (see figure below).

The calculations on which the NRSS target was based assumed that vehicle usage would increase somewhat faster than the population growth rate, and that this would partly offset the effects of safety measures. In particular, predictions of rapid growth in VKT for heavy vehicles were taken into account.

The actual growth rate in VKT per capita has been higher than had been assumed when the NRSS target was developed. However the difference between expected and actual aggregate exposure growth only accounts for about one quarter of the current gap between the actual death rate and benchmark of pro-rata progress toward the target (even if we make the worst-case assumption that every one per cent increase in exposure tends to increase road deaths by one per cent).

One important exposure change, not predicted when the NRSS was developed, has been a substantial increase in motorcycle usage. Motorcycle deaths have increased by 25% since 2000. Without this increase, the total road fatality rate would have been appreciably lower – but still above the line representing steady pro-rata progress toward the 2010 target. (Further information on motorcycle trends is provided at Question. 4).

Road deaths per 100 000 population

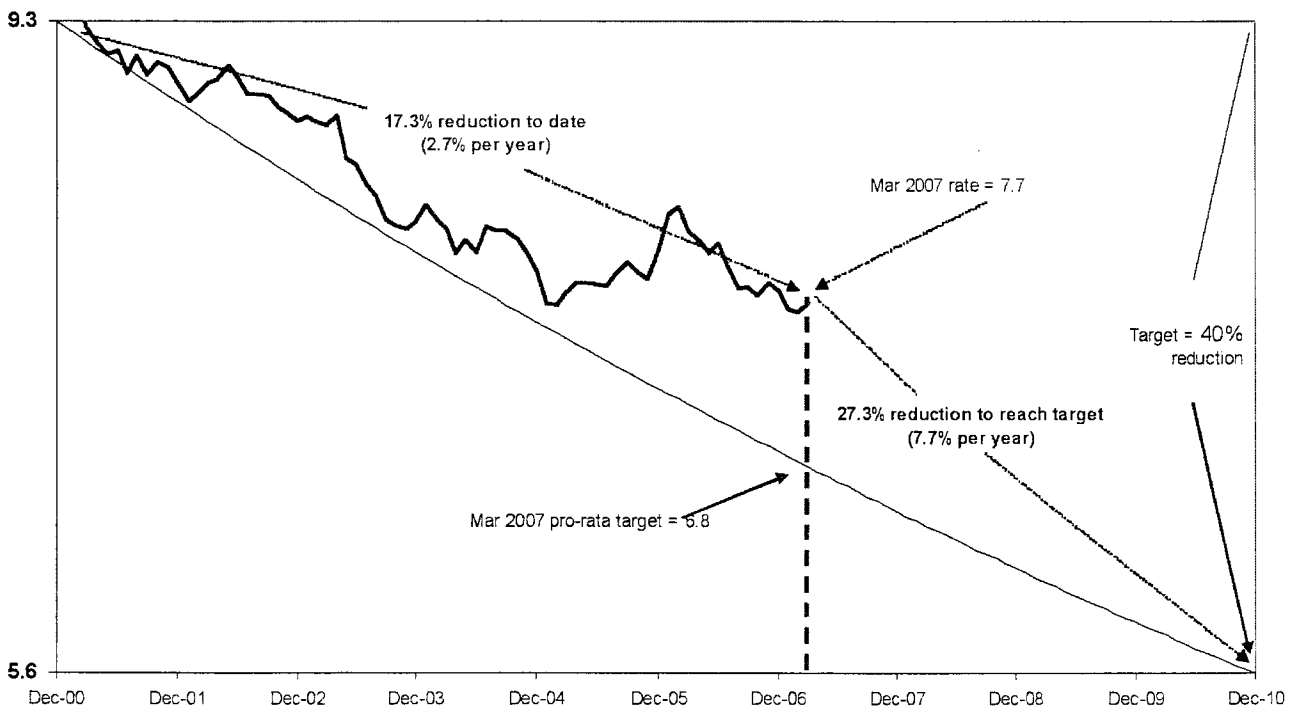


Figure 1: Progress toward the 2010 target

Question 3:

a) The ‘Deaths per 100,000 population’ graphs for the different States and Territories show marked differences. In particular it is noticeable that NSW, Queensland, Tasmania and WA all substantially failed to achieve their pro-rata targets at the end of 2006, and only one State (South Australia) achieved lower than its pro-rata target.

The NRSS does not specify targets for individual jurisdictions, but the criterion of pro-rata progress toward a 40% fatality rate reduction by 2010 does provide a benchmark for assessing progress.

Nationally, pro-rata progress would have involved a 27% reduction in the road fatality rate by the end of March 2007 (relative to the 1999 rate).

By the end of March 2007, two states were very close to this benchmark: NSW and SA both had reductions of 26%. Victoria (which had the lowest state death rate at the start of the decade) had recorded a reduction of 20%.

In terms of absolute rates, Victoria (6.5 deaths per 100,000) and NSW (6.6) have the best state results. A further reduction of around 15% would bring both these states down to the national target rate for 2010: no more than 5.6 deaths per 100,000 population.

The ACT’s figures need to be interpreted with caution (numbers are small and the road system atypical) but they are encouraging: a 35% reduction to March 2007, bringing the absolute rate for the ACT down to 3.9 deaths per 100,000 population.

Looking at the national figures to date, it is very difficult to be optimistic about the prospect of meeting the national target by 2010. At the same time, looking at the results for some individual jurisdictions, a target of a 40% reduction over 10 years does not appear to have been inherently unrealistic.

b) Can any of the differences be attributed to different inclusion criteria for the jurisdictions?

The ‘inclusion criteria’ determine which deaths are counted as road deaths. There are some minor differences between jurisdictions, but only a very small proportion of land transport deaths are affected. The effect on apparent road death rates would be minimal, and there would be no effect on trends over time within jurisdictions over the current decade (since the definitions have not changed).

c) In addition, is it possible to determine any correlation between the success levels of the different jurisdictions and their commitment to reducing road trauma as evidenced by their funding commitment to road safety policies and programs?

There is no historical data that could be used to address this question. Measuring total road safety related funding in a meaningful, comparable way across jurisdictions is extremely difficult. There are many different types of safety-related

expenditure, organisational and program structures differ, and judgements need to be made about how to quantify the safety component of expenditure on programs that address both safety objectives and other objectives (such as road construction or police patrols).

In the current Action Plan (covering 2007 and 2008), all jurisdictions have made a broad commitment to improving the range of road safety performance indicators that are available, including measures of both inputs and outcomes. Priorities endorsed by SCOT include working toward consistent collection, recording and reporting of data on safety-targeted road infrastructure spending, and the scale of enforcement efforts.

Even with improved data, a study of the correlation between aggregate inputs and aggregate outcomes, across eight jurisdictions, would probably not produce very useful results. There is already ample evidence (from other research) that investment in safer roads or better enforcement can improve safety outcomes. The aim of collecting input performance indicators is to monitor implementation (not to run dodgy correlation studies to determine whether implementation is a good idea).

Question 4: The ‘Road User Index’ clearly shows a greatly increased level of motorcyclist deaths since the year 2000, whereas the trend for all other road users is either level or slightly downwards. Has there been an increase in motorcycle usage and in particular, are the baby boomers an increasing proportion of this population?

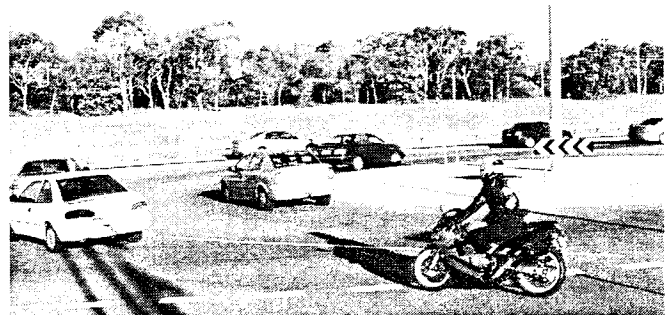
There has been a substantial increase in motorcycle registrations since 2000.

From 2000 to 2005, the average annual increase in motorcycle registrations was 4.2%, compared to average annual growth of 2.5% for total vehicle registrations.

Over that period, motorcyclist deaths increased by 23%. Total road deaths decreased by 10%.

The number of deaths per registered motorcycle decreased over this period, but not as much as the decrease in total deaths per registered vehicle. Table 1 provides more detail.

Deaths among motorcyclists of the ‘baby boomer’ generation have risen much more rapidly than for other age groups (Table 2 and Figure 2). However most motorcycle deaths still involve younger riders. Over the three years to March 2007, 74% of motorcyclist deaths were people aged under 42; 23% were aged 42 to 61.



Deaths per registered Motorcycle

	Motorcycle registrations	Motorcyclist deaths (all ages)	Deaths per Registered MC
2000	342,365 (est)	2000 191	5.58
2001	350,930	2001 216	6.16
2002	370,982	2002 224	6.04
2003	377,271	2003 188	4.98
2004	396,309	2004 196	4.95
2005	421,923	2005 234	5.55
average annual change	4.2%	1.6%	-2.5%

Deaths per registered vehicle

	Vehicle registrations	Total Deaths	Deaths per Registered Vehicle
2000	12,372,790 (est)	2000 1,817	1.47
2001	12,477,000	2001 1,737	1.39
2002	12,822,000	2002 1,715	1.34
2003	13,163,000	2003 1,621	1.23
2004	13,533,000	2004 1,583	1.17
2005	13,920,000	2005 1,627	1.17
average annual change	2.5%	-2.5%	-4.9%

Table 1: Motorcycle registrations, total vehicle registrations and deaths per registered vehicle
(Source: ABS Motor Vehicle Census and ATSB Monthly Road Death Series)

Ages	Annual growth
<=21	0.0%
22-31	1.8%
32-41	3.9%
42-61	10.6%
>=62	2.6%
All Ages	3.7%

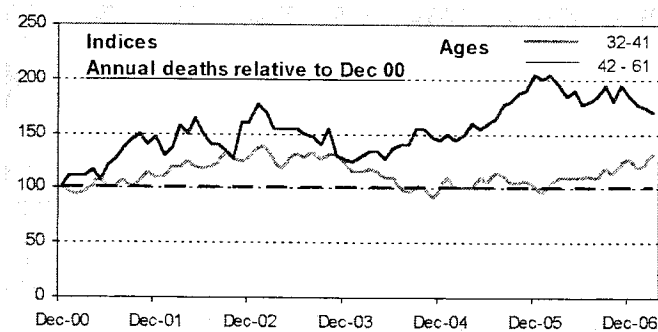


Table 2: Average annual increase in number of motorcyclist deaths, by age group (March 2000 to March 2007)

Figure 2: Motorcyclist deaths: selected age groups
(Each data point represents the number of deaths in the preceding 12 month period)

Question 5: The road toll data, when expressed as road deaths per 100,000 population, does not provide any indication of trends in various levels of injury. Is there, in fact, a fairly close correlation between the number of people killed and the number of people injured? For example, if there are fewer people being killed, are there fewer or more people sustaining serious injuries?

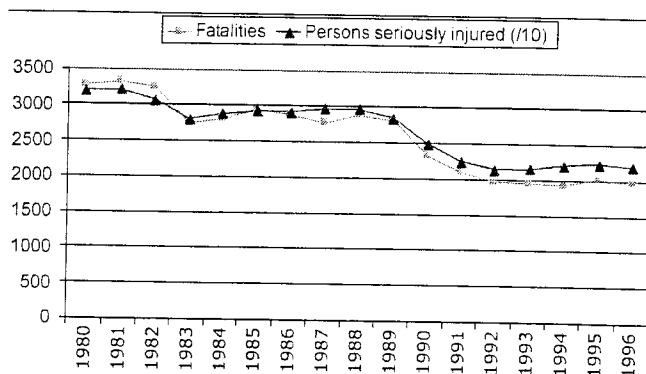
Historical data at the national level show a very close correlation between reductions in fatalities and reductions in police-reported serious injuries (see Figure 3 below).

The National Road Safety Strategy explicitly aims to reduce the burden of road injuries as well as road deaths. However, no injury reduction target was established because no national injury data series was available when the Strategy was developed. A national series of police-reported serious injuries was discontinued in 1997, when data from New South Wales ceased to be available.

Despite the absence of an explicit injury target, the Strategy was based on an expectation that, in general, measures that reduce fatalities will also reduce the number of serious injuries. The data support this assumption.

Moreover, the planning, implementation and evaluation of specific road safety initiatives is generally based on data for road injuries, as well as fatalities. Examples include black spot programs, traffic law enforcement campaigns, and improvements in vehicle safety design. Injury data are often the primary guide to planning and policy, because numbers are larger, and less subject to random statistical variation than fatality data.

Figure 3: Number of fatalities and serious injuries, 1980 to 1996



Note: Serious injury counts have been divided by 10 to facilitate comparison of the two trend lines

Question 6: There has been a good response by car manufacturers in Australia, largely as a result of publication of the Australian New Car Program test results, to make vehicles safer for their drivers and passengers. Does the Federal Government have plans to also encourage the manufacturers to make vehicles safer for pedestrians and cyclists?

For many years, the safety of vulnerable road users has been acknowledged as a serious road trauma issue. The Australian Government has been monitoring international research and regulatory developments regarding the safety of vulnerable road users. The most effective strategy, but with the highest infrastructure cost, involves separation of vulnerable road users from vehicular traffic to prevent the possibility for collisions between vehicles and people. Travel speed reductions are highly effective: even very small reductions in motor vehicle speeds can reduce pedestrian and cyclist deaths substantially. Other strategies have focussed on the design of the front of vehicles to reduce likelihood of injury to pedestrians in the event of a collision.

Japan and the European Union have recently introduced requirements intended to improve the protection afforded to adults and children when struck by a vehicle. The Japanese and EU requirements are not the same, and some research has suggested shortcomings in both of these regulations.

In 1997, the Australian Government provided funding for the development of test equipment capable of conducting headform impact tests on the bonnets of vehicles. The Australian Government has also contributed to research into pedestrian safety through the International Harmonised Research Activities (IHRA) Pedestrian Safety working group. The work of this group has been fed into the development process for a Global Technical Regulation for pedestrian safety, which is being sponsored by Japan. The Australian Government will consider the case for regulation for the safety of vulnerable road users once an agreed set of international requirements has been established.

As part of its test regime, the Australasian New Car Assessment Program (ANCAP) conducts pedestrian safety impact tests on vehicles and provides this information to consumers along with frontal and side impact crash protection ratings. However, to date, only a small number of vehicles have achieved very good results in these pedestrian safety impact tests.

Question 7:

a) It is inevitable that cost considerations must affect policy decisions on road safety expenditure at both a jurisdictions and national level.

Yes.

For additional comment, see answer to question 9.

b) How is funding currently allocated?

Funding relevant to road safety is provided by three levels of government (Federal, state/territory and local) through budget allocations relating to road construction and maintenance, road use regulation, law enforcement, vehicle standards regulation, health, education, land use planning and related activities, including research, consultation and policy development. Private sector organisations also allocate funding to relevant activities.

c) What is the progress with and future of the Federal Black Spot Program?

The Auslink Black Spot programme has been funded continuously since 1996. Funding for the programme has been extended several times since it was first introduced. By June 2008, it will have fixed 4,200 road hazards around Australia. On conservative estimates it will have prevented at least 130 deaths and around 6,000 serious crashes. Benefits will continue to accrue over the life of the treatments. Evaluations have shown that the programme is highly cost-effective.

Current funding is \$45 million a year. This had been scheduled to finish in June 2008, but in April 2007 the Australian Government announced that funding is to be extended and increased. An additional \$345 million over six years will be provided for the program. Funding will be increased to \$60 million a year from 2009-10, and continued at this level until at least 2013-14.

For further information, see:

http://www.ministers.dotars.gov.au/mv/releases/2007/April/057MV_2007.htm

Question 8: How can the amount and detail of data on crashes in Australia be improved?

It is currently not possible to obtain nationally consistent road injury data from road transport sources – the ATSB used to maintain a national series of police-reported serious injuries, but this was discontinued in 1997 when data from NSW ceased to be available.

To fill this gap, the ATSB has established a funding agreement with the Australian Institute of Health and Welfare (AIHW) to provide data extracted from the National Hospital Morbidity Database; this will not be suitable for short-term monitoring [there is an inherent two to three year time lag in the data], but will allow analysis of long term trends, including the relationship between trends in serious injuries and trends in road deaths. The first series of reports based on this data are currently being prepared for joint publication by the ATSB and the AIHW.

At the September 2006 meeting of SCOT, members considered a proposal for improving the collection and collation of other road safety data from jurisdictions, to extend the national data currently available. SCOT agreed that national road crash statistics collections should include more timely monitoring data on:

- alcohol test results for drivers and motorcycle riders killed in road crashes
- occupant restraint usage (seatbelts, child restraints etc) by vehicle occupants killed in road crashes
- fatalities and fatal crashes involving rigid trucks.

The ATSB is liaising with states and territories on the best way to progress these items.

Question 9: Some countries are following Sweden's lead and adopting the 'Vision Zero' policy on road safety, that is, a strategy aimed at making it virtually impossible for a person to be killed or seriously maimed as a result of a road crash. Is the Government considering adopting this policy in Australia? If not, why not?

That's a good succinct summary of Vision Zero: "a strategy aimed at making it virtually impossible for a person to be killed or seriously maimed as a result of a road crash". In addition, the Swedish Vision Zero approach includes an explicit commitment to the principle that safety cannot be 'traded off' against competing social objectives. In effect, that means that any measure that would have safety benefits should be implemented, even if the estimated costs exceeded the expected benefits (cost-benefit analysis has no place under Vision Zero: it involves an assessment of tradeoffs between safety and other objectives).

The ATSB is not aware that any country other than Sweden has made a commitment to Vision Zero in this form. Let's take a concrete example of what a serious commitment to Vision Zero means in practice. On an undivided rural road, there will inevitably be head-on collisions between vehicles. At current rural open road travel speeds, many of those collisions will be fatal. From a Vision Zero perspective, this can be, and must be, prevented from happening. One option is to separate opposing lines of traffic, using wide medians and/or barriers. Unless and until this engineering solution has been applied to all rural roads, traffic speeds need to be reduced, so that head-on crashes will be survivable, without risk of permanent major injury to vehicle occupants. If all the vehicles using a road were of the same mass, and provided the best occupant protection currently considered feasible, speeds up to about 70 km/h would be compatible with Vision Zero. If there were some older vehicles still on the road, or a mix ranging from small passenger vehicles to large trucks, Vision Zero principles would require speeds substantially lower than 70 km/h. If the traffic mix included motorcycles, the maximum speed of all vehicles would need to be limited to about 30 km/h.

Similar considerations apply to off-road-into-object crashes. Unless (or until) all roadside hazards can be removed or protected by barriers, Vision Zero requires speed reductions to the point where impacts would not cause death or lasting disability. This would mean speeds under about 70 km/h.

In urban areas, there are similar issues under Vision Zero: either the road network must be re-engineered to eliminate the possibility of events like vehicle-to-vehicle side impacts and vehicle-pedestrian impacts, or speeds must be reduced so that the risk of death or permanent major injury is effectively eliminated. Speeds around 30 km/h would be the maximum.

It would be necessary to find a way of ensuring compliance with such speed limits; intelligent speed limiting devices (suitably tamper-proof) might be a technically feasible option.

A serious commitment to Vision Zero would mean a serious commitment to implementing the necessary measures, regardless of direct financial costs or other social costs (such as increased travel times).

The Swedish Government endorsed Vision Zero in principle, but made it clear that this was a long-term in-principle commitment, with no specific timetable for implementation. Sweden has not, for example, reduced rural speed limits to meet Vision Zero principles, and has not announced any plan for doing so (let alone a timetable). In other words, the practical implementation of road safety in Sweden still involves processes of tradeoffs, compromise and cost-counting (not unlike those that apply in other countries).

Critics have presented a number of arguments against Vision Zero.

The first is pragmatic. It is very difficult to imagine any government actually taking the action needed to put Vision Zero principles into practice.

It is also difficult to see the benefit of endorsing the principles without an intention to implement them (and there are other problems with that option).

The second is also pragmatic. Many potentially cost-effective measures have not been implemented. Therefore, abandoning

the test of cost-effectiveness would bring no immediate safety benefits. In fact, it is arguable that a strong focus on identifying and implementing the most cost-effective measures is a good way of optimising the rate of progress in improving safety outcomes.

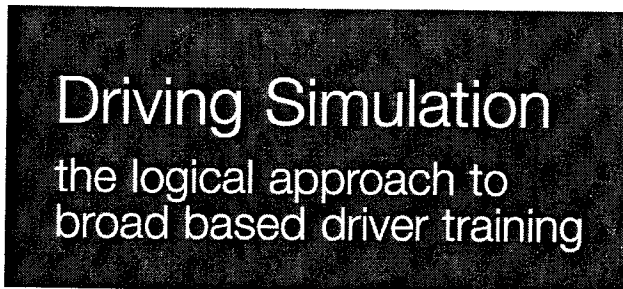
The third relates to the broader consequences of abandoning the test of cost-effectiveness: if safety is to be given absolute priority over all other social objectives, then at some point the achievement of other objectives will inevitably be compromised. That could mean a reduction in overall community welfare, or even overall community health and longevity.

The question of a commitment to Vision Zero principles was debated when the current National Road Safety Strategy was formulated. There was a consensus among all jurisdictions not to include such a commitment in the Strategy.

The Safe System principles set out in the last two National Road Safety Action Plans incorporate some of the more positive, constructive and practical elements of the Vision Zero perspective, without abandoning the principle that policy choices need to take into account considerations of practicality and cost-effectiveness.

For further information please contact: The General Manager Road Safety, ATSB, tel: 1800 621 372

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