

Speed Management

- 3.1 It is the Committee's view that the importance of speed management in reducing the road toll should not be understated. Excessive speed is regarded as one of the principal factors in road crashes leading to serious injury or death. Speed management has thus been targeted in the National Road Safety Strategy and National Road Safety Action Plans.
- 3.2 A number of measures have been introduced to better manage speed. In most jurisdictions, default speed limits have been reduced to 50 km/h in urban areas, while greater reliance has been placed on the use of speed cameras to enforce speed limits.
- 3.3 Despite the evident success of such measures, however, speed limits and the enforcement of speed limits remain controversial. Submissions received by the Committee have called for higher and lower speed limits. Some have also accused governments of using enforcement measures for raising revenue.
- 3.4 The Committee believes that the three key factors in speed management are:
- Creating the road environment (which will be dealt with in Chapter 4);
 - Setting speed limits to match the road environment, taking into account the needs of all road users; and
 - Gaining compliance with speed limits through a mixture of enforcement and attitudinal change.

- 3.5 Within this context the critical issue is the need for attitudinal change. One of the key factors in reducing the incidence of speeding is generating understanding within the community as to why speed limits are set. Evidence presented to the Committee indicates that there is still a widespread belief that speed limits are an arbitrary measure of driving ability, that ‘good’ drivers should be able to set their own limits. As Mr Howard of VicRoads told the Committee in evidence, however, speed limits are intended primarily to reduce road trauma:

We as a community do not understand what an enormous difference across the system a few kilometres an hour in average travel speeds means in terms of risk...Speed limits are there because they limit the amount of energy that you have to lose in a collision. That is essentially why we have speed limits. They should reflect the nature of the crash risk on a given road section. I would suggest that we do not fully understand that and certainly do not as a community generally apply it.¹

- 3.6 This chapter will briefly examine the nature of the speeding problem, current approaches to speed management, and potential measures that may enhance current management strategies.

The speed problem

- 3.7 The evidence presented to the Committee clearly indicates that speed is a major factor in road trauma. Speed affects both the risk of crashing and the severity of a crash—including in crashes caused by factors other than speed. In its submission, DOTARS noted that:

- changes in travel speeds produce disproportionately large changes in emergency braking distances and in speed at the point of impact;
- a small change in impact speed produces a larger change in impact energy;
- the probability of death or severe injury increases very rapidly as impact energy increases.²

1 *Transcript of Evidence*, pp. 7–8.

2 DOTARS, Submission no. 23, Attachment 6, p. 3.

3.8 The potential significance of this can be seen in the following examples:

- A twenty per cent increase in travel speed (for example, from 50 km/h to 60 km/h) increases emergency braking distance by almost half (44%).
- At the point where a driver braking from 60 km/h would stop completely, a driver braking from 70 km/h would still be travelling at about 46 km/h—a speed that could be fatal if the vehicle hit a pedestrian or the side of another vehicle.
- Most pedestrians struck by a car at 40 km/h survive; most pedestrians struck by a car at 60km/h die.³

3.9 In its submission, the Queensland Government identified speed as a major contributing factor to road trauma and its related costs:

Speeding continues to be a road safety issue in Queensland, with fatal crashes attributed to speed up by 32 percent over the last five years and fatal crashes in high speed zones still accounting for 49 percent of all fatal crashes. Excessive speed is a major contributing factor in approximately 15 percent of fatal crashes each year in Queensland. Speed related crashes continue to be a major contributor to major fatalities on our roads. Speed related crashes cost the community approximately \$180 million per year in hospital and health care costs, lost productivity in the workplace and the use of emergency services.⁴

3.10 Likewise, the Western Australian Government noted that speeding continues to be a significant factor in about 35 per cent of fatal crashes and 21 per cent of serious injury crashes.

Dealing with speed

3.11 The *National Road Safety Action Plan 2003 and 2004* noted that speed enforcement programs backed by extensive publicity were a significant factor in the reduction in road fatalities that occurred between 1989 and 1997. Greater compliance would reduce road deaths significantly. It is the Committee's view that there are clear benefits to be obtained through greater compliance. The issue is how to achieve it.

3 DOTARS, Submission no. 23, Attachment 6, p. 3.

4 Government of Queensland, Submission no. 31, p. 8.

- 3.12 Within the broad paradigm set out in national and state strategies, various different approaches to speed management have been tried. Detailed evidence was given in relation to Western Australia, New South Wales and Victoria.

Western Australia

- 3.13 The principal response to speed management in Western Australia has been a mixture of community education and enforcement, including use of speed cameras in high volume traffic areas and hand held and mobile radars in country areas.⁵
- 3.14 The success of speed cameras may be gauged by the fact that despite the number of vehicles passing through cameras increasing from four million (1994–95) to nineteen million (2000–01), there has been a 70 per cent reduction in the percentage of drivers exceeding the posted speed limit.
- 3.15 Surveys tracking the results of community education campaigns also indicate changes in attitude:

On a social proof scale, about 40 per cent of young males aged 17–39 years agreed in September 2003 that they believe speeding is completely or largely unacceptable, an improvement on the February 1998 baseline of about 30 per cent. In the same period young males agreeing that it was morally unacceptable or wrong to drive 10 km/h over the limit in a 60 km/h zone improved from a baseline of 48 per cent in 1998 to 76 per cent in 2003.

While 60 per cent of young males surveyed between July 2000 and August 2002 admitted they exceeded the speed limit on an occasional basis, an encouraging finding in self reported behaviour has been noted with more drivers limiting their speeding to lower infractions of 1–5 km/h over the posted limit, rather than higher 6–10 km/h levels.⁶

- 3.16 Despite these successes, problems continue. The proportion of 17–39 year old males who report exceeding the posted speed limit by 11 or more km/h has not been significantly reduced. In fact it increased between February and August 2002, which led to the ‘Ghost’ campaign targeting high end speeders—the approximately eleven per cent of young males

5 Government of Western Australia, Submission no. 37, p. 8.

6 Government of Western Australia, Submission no. 37, p. 8.

who say they regularly drive 11 or more km/h above the posted speed limit. The Submission notes:

Despite increased enforcement and education about a third of drivers still do not believe that speeding by more than 10 km/h increases crash risk and about half do not believe they will be booked if they drive up to 10 km/h over the limit. Educating drivers about the potential results of speeding, particularly on vulnerable road users such as pedestrians, cyclists, motorcyclists, children and older people is an important component of the WA Strategy.

Data from specific sites on country highways in the last five years shows that between 20 and 30 per cent of cars, four wheel drives and utilities passed at more than the 110 km/h limit with no signs of reduction over this period. This, and current attitudes towards speeding, shows that enforcement and education needs to be enhanced and more strategic.⁷

- 3.17 The Committee is encouraged by results in Western Australia, and by the apparent willingness of the authorities to seek new and better targeted education and enforcement strategies. Clearly, the emphasis must increasingly be focussed upon recidivist offenders. This matter will be dealt with in more detail in Chapter 5.

Fixed speed cameras NSW

- 3.18 Encouraged by reported results in Europe and the United Kingdom, in late 1999 the Roads and Traffic Authority (RTA) in New South Wales began a program of installing and evaluating fixed digital speed cameras. The decision was made to install the cameras on black lengths of road with demonstrated speed and crash problems, and to clearly signpost the cameras to maximise compliance.⁸
- 3.19 After two years operation, the following trends were noted:
- There was a very pronounced reduction in the proportion of vehicles exceeding the speed limit in all speed zones.
 - There was a pronounced reduction in the proportion of vehicles exceeding the speed limit by more than 10 km/h.

7 Government of Western Australia, Submission no. 37, p. 8.

8 Roads and Traffic Authority NSW, Submission no. 35.

- Similar trends were observed for reductions in the proportion of vehicles exceeding the speed limit by more than 20 km/h and by more than 30 km/h.
 - There was a substantial reduction in the variability of vehicle speeds, which is also conducive to increased safety.
 - These improvements were achieved early in the evaluation process and sustained throughout.⁹
- 3.20 The results in terms of reducing road trauma are impressive. In the three years prior to the installation of cameras, the selected road lengths incurred twenty-one fatalities. In the two years subsequent to the cameras being installed only one fatality occurred. This fatality happened two kilometres from the camera and was not speed related.
- 3.21 Overall, tow-away crashes were reduced by 17 per cent, injury crashes by 20 per cent, ‘casualty crashes’ (injury and fatality combined) by 23 per cent, and fatality crashes by 90 per cent. The reduction in crashes over all crash types was 20 per cent.¹⁰
- 3.22 According to the RTA, such were results were very much as predicted, and a vindication of their strategy:

The pattern of crash results, with all crash severities reduced but with much greater reductions at the higher levels of severity, are very much as could be predicted from reducing speeds. That is, both in theory and in various other studies it has been shown that reduced speeds tend to reduce crashes of all types. But because the amount of impact energy is reduced in such crashes as still occur, injuries and death are substantially reduced.

These reductions in crashes, particularly the reductions in casualty crashes, indicate that the fixed speed cameras were very successful in achieving their purpose as employed in NSW—to reduce crashes in defined blacklengths.¹¹

9 RTA, Submission no. 35.

10 RTA, Submission no. 35.

11 RTA, Submission no. 35.

- 3.23 Despite the success of the fixed camera strategy adopted in New South Wales, much of the evidence received by the Committee supports the covert use of mobile cameras, the strategy adopted in Western Australia and Victoria.

Victoria

- 3.24 Victoria has followed a different course to New South Wales in the use of speed cameras. Mr Howard of VicRoads told the Committee:

Victoria, as I am sure you would be aware, has followed a very tough strategy with speed in the last 18 months. There has been increased use of mobile cameras, and their covert operation, the philosophy being that, if you speed anywhere any time, you may be detected. We are saying, 'We don't want you to speed anywhere any time.' That has been accompanied by tougher tolerances—lower enforcement levels, some fixed cameras, speed and red light cameras, tougher penalties and lower thresholds for demerit points. Next year [2004] we plan to introduce point-to-point cameras on the Hume Highway as an attempt to do something about that country road toll.¹²

- 3.25 The success of the Victorian strategy was dramatic. A doubling of infringements (from about 50 000 to 100 000 a month) coincided with a decline in fatalities from May 2002. Since then, infringements have returned to average levels, but fatalities have continued to fall.¹³
- 3.26 The Committee has been impressed by the evidence presented to it of the success of covert, random, mobile speed enforcement measures, and believes that they should become a central part of speed management in all jurisdictions.
- 3.27 That being stated, the Committee is also cognisant of the success of fixed cameras in reducing fatalities in black lengths of roads, and believes they have a role in addition to mobile enforcement measures.

12 *Transcript of Evidence*, pp. 6–7.

13 *Transcript of Evidence*, p. 7.

- 3.28 The Committee is also aware of concerns that remote enforcement depersonalises speed management. The deterrent effect of a visible police presence on the roads should not be underestimated. Nonetheless, the Committee believes that remote detection makes deterrence and enforcement more efficient and more effective than a mere ‘cops on the beat’ approach will allow.

Recommendation 4

- 3.29 **The Committee recommends that the Australian Government ask the Australian Transport Council to undertake a study of different speed enforcement measures in all State and Territory jurisdictions with a view to developing national best practice speed enforcement guidelines.**

Lower speed limits

- 3.30 The problem with speed is not just about drivers exceeding the speed limit, but authorities setting appropriate speeds for various road environments.

Urban Roads

- 3.31 Mr Howard also informed the Committee of the results of lower urban speed limits in Victoria. Fatalities on metropolitan 50 km/h and 60 km/h roads had fallen from 110 per annum to around 55 per annum—‘an enormous reduction in risk on those roads’. In contrast, there had been almost no discernable reduction in fatalities on rural 100 km/h and 110 km/h roads.¹⁴ Positive results from lower urban speed limits had also been found in South Australia.¹⁵
- 3.32 In its submission, the Western Australian Government also highlighted the benefits of lower speed limits. 50 km/h speed limits were introduced on local roads in urban areas in December 2001. Fatal crashes on 50 km/h roads were reduced by 36.8 per cent and injury crashes by 20.6 per cent.

14 *Transcript of Evidence*, p. 7.

15 *Transcript of Evidence*, p. 33.

During the same period there had been smaller corresponding reductions in fatalities and injuries on 60 km/h and 70 km/h roads.¹⁶

- 3.33 Mr Harold Scruby, Chairman and Chief Executive Officer of the Pedestrian Council of Australia, urged the Committee to 'go national with 50 kilometres per hour':

It is coming, and it is great. You only have to look at Victoria who went with it first. They now have the lowest pedestrian death rate ever.¹⁷

- 3.34 The Committee agrees that there is a need to introduce uniform limits of 50 km/h on local urban roads and 60 km/h on urban arterial roads. While broadly endorsing this proposal, the Committee believes that outside metropolitan areas and major towns urban speed limits should be applied with some discretion. A mechanism should be in place to allow rural communities to apply for exemption from uniform speed limits. Moreover, where such limits do apply, there should be a graduated transition from urban road speed limits to rural road speed limits, for example from 100 km/h to 80 km/h to 60 km/h. Such transitions must be clearly signposted.

Recommendation 5

- 3.35 **The Committee recommends that the Australian Government initiate the adoption under the next National Road Safety Action Plan of:**
- **uniform national 50 km/h speed limits on local urban roads;**
 - **uniform national 60 km/h speed limits on urban arterial roads;**
and
 - **exemption provisions for rural communities from uniform national urban speed limits.**

16 Government of Western Australia, Submission no. 37, p. 9.

17 *Transcript of Evidence*, p. 77.

Rural Roads

- 3.36 In a study of potential benefits and costs of speed changes on rural roads, Professor Max Cameron of the Monash University Accident Research Centre (MUARC), looked at the economic costs and benefits of increasing the speed limit to 130 km/h on rural roads. Impacts were examined for rural freeways, rural divided roads and rural two-way undivided roads. The costs tested were vehicle operating costs, time costs, crash costs and air pollution costs, the aggregate of these impacts representing the total social cost. Two different methodologies were used, 'human capital' and 'willingness to pay'.¹⁸
- 3.37 Broadly speaking, vehicle operating costs, crash costs and air pollution costs decline as speeds are reduced, while time costs increase. The optimum speed for total social cost is somewhere in between. The optimum speed for total social cost is lower for trucks than for cars. Crash costs are higher under the willingness to pay approach than under the human capital approach, with consequent reductions in optimum speeds. Any increase in speed increases the cost of road trauma.
- 3.38 With regard to rural freeways the report found:
- Increasing the speed limit to 130 km/h for all vehicles on rural freeways would have substantial social costs. The total social cost could be constrained, and even reduced, if trucks were limited to 100 km/h on such roads. A variable speed limit system allowing speeds of 120 km/h for cars and light commercial vehicles during good conditions, but reduced to 100 km/h under adverse conditions, while limiting trucks to 100 km/h at all times, would keep total social costs below current levels. However, all scenarios whereby speed limits are increased for some vehicle types and circumstances are necessarily accompanied by increased road trauma to provide travel time saving benefits.¹⁹

18 The human capital approach characterises people, and therefore life, as a labour source and input into the production process. The value to society of preventing injury or death is the saving in potential output or productive capacity. The willingness to pay approach attempts to capture trade-offs between wealth and risk. It estimates the value of life in terms of the amounts that individuals are prepared to pay to reduce risks to their lives. The willingness to pay approach will generally put higher values on life than the human capital approach. However, the human capital approach provides a fairly reliable lower bound estimate of the social cost of crashes. Bureau of Transport Economics, Report 102, *Road Crash Costs in Australia*, Commonwealth of Australia, Canberra, 2000, pp. 19–21.

19 M. Cameron, *Potential Benefits and Costs of Speed Changes on Rural Roads*, ATSB, Canberra, 2003, p. 56.

3.39 Prospects for increased speed limits were even less promising on rural divided roads:

Increasing the speed limit to 130 km/h on rural divided roads would have even greater social costs than the increased limit on freeways. If trucks were limited to 100 km/h, the impact on total social costs would be smaller but they would still increase. Even a variable speed limit like that for freeways described above would be associated with an increase in road trauma costs. The higher crash rate on the divided roads compared with rural freeways will result in any speed limit increase producing even greater road trauma increases than on freeways, despite lower traffic volumes on non-freeway roads.²⁰

3.40 The report found that using 'willingness to pay' valuations, there was little case for increasing car speeds and a case for reducing truck speeds from current levels. Optimum speeds for cars on rural freeways was found to be 120 km/h taking into account total social cost, but there would still be an increase in road trauma.²¹

3.41 With regard to rural undivided roads the report found:

There is no economic justification for increasing the speed limit on two-lane undivided rural roads, even on those safer roads with sealed shoulders. On undivided roads through terrain requiring slowing for sharp bends and occasional stops in towns, the increased fuel consumption and air pollution emissions associated with deceleration from and acceleration to high cruise speeds would add very substantially to the total social costs. Using 'human capital' costs to value road trauma, the optimum speed for cars is about the current speed limit (100 km/h) on straight sections of these roads, but 10–15 km/h less on the curvy roads with intersections and towns. The optimum speed for trucks is substantially below the current speed limit, and even lower on the curvy roads. The optimum speeds would be even lower if 'willingness to pay' valuations of crash costs were used.²²

20 Cameron, *Potential Benefits and Costs*, p. 56.

21 Cameron, *Potential Benefits and Costs*, p. 56.

22 Cameron, *Potential Benefits and Costs*, p. 56.

- 3.42 The Committee is of the opinion that speed limits on rural roads should be re-examined. The disproportionate representation of rural roads in trauma statistics, and the evident problems with creating a safe road environment in rural road networks (see Chapter 4), indicate that speed limits on rural roads need to be set at levels appropriate to the engineering standards and local conditions of roads.

Recommendation 6

- 3.43 **The Committee recommends that the Australian Government ask the Australian Transport Council to undertake research into safe speed limits on rural roads with a view to implementing a system of speed limits and signage appropriate to the engineering standards and local conditions of roads.**