

Disclaimer

This Discussion Paper is written and published to stimulate community debate on issues affecting the safety of older road users.

The contents of the Discussion Paper do not represent the views of the Road Safety Committee. The Discussion Paper is not a rationale for future legislation.

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Background

1.1 Introduction

In common with most of the industrialised world, the populations of Australia and Victoria are ageing. The number of people aged over 65 years is expected to double by the year 2030 and there will be an even greater increase in those over eighty years of age within the same time frame.

Victorians who reach the age of 65 over the next thirty years will have used a car as our primary means of transport. As we age, many of us will spend more time as pedestrians, particularly in local areas, with an increased risk of being struck by a vehicle.

Services and facilities will need to ensure mobility for an ageing population. Both mobility and access to services need to be provided in a way that reduces crash involvement.

This Discussion Paper aims to stimulate broad community debate about the ways in which Victorians can maintain sufficient mobility to preserve their independence and their capacity to contribute to society.

1.2 Inquiry into Improving Safety for Older Road Users

The Road Safety Committee, an investigatory committee of the Victorian Parliament, has been requested to inquire into, consider, and make recommendations on improving the safety of older road users and, in particular, to report on:

1. The extent to which older drivers, older pedestrians and other older road users are involved in motor vehicle accidents on Victorian roads, and the factors affecting severity of crash outcome for all older road users.
2. Strategies and programs that will assist older road users to retain their mobility.
3. The suitability of the current arrangements for competency and medical testing for older drivers.
4. The duration of licences issued to drivers and the issue of restrictions, including those that can currently be placed on the licence, based on impairment of a driver's ability to drive safely.

5. The role of health services and government and other agencies in assisting older drivers to manage the transition from driver to non-driver.
6. The mobility options available for older persons who give up driving, including public transport and the road safety implications of any alternative means of transport.
7. The need for change to legislation or statutory requirements to implement any recommendations made as a result of the enquiry.

1.3 Committee Invites Written Submissions

The Road Safety Committee invites written submissions from individuals and organisations.

Submissions addressing the above terms of reference should be received no later than 8 March 2002.

Submissions should be sent to:

Ms Alexandra Douglas

Acting Executive Officer

Road Safety Committee

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35 Spring Street

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1.4 Purpose of the Discussion Paper

This Discussion Paper forms part of the Parliamentary inquiry process and aims to give a broad overview of the current situation for older road users and to consider how that situation might change. After receiving submissions and hearing evidence, the Committee will table a formal report in Parliament containing its findings and recommendations.

1.5 Defining "Older"

If age automatically restricts our activity then the definition of "old" might be the age at which an individual experiences some notable reduction of mental or physical abilities.

This definition has real problems, because the research shows that there is a broad age range over which people's abilities start to decline. Some Victorian research indicates that conditions, often associated with older age groups, such as hypertension, arthritis and heart disease are not uncommonly found in persons under age 55 years.¹ Using this approach, people could be defined as "older" from age 50 onwards. With current life expectancies, that would mean that people are "older" for nearly 40% of their lives!

Australian and international researchers have attempted to replace the concept of chronological age (age in years) with the idea of "functional age" (notional age, based on the range of abilities). The problem with "functional age" is how it should be measured, at what cost and with what investment of time and professional resources.

What can be said with certainty is that at some stage in the natural ageing process, most individuals notice changes in their vision, the speed with which they react to outside events and a lessening ability to do the things that they used to be able to do with relative ease.

In many occupations now there is no mandatory retirement age. But most people retire some time between their 55th and 65th birthday. The traditional retirement age of 65 years provides a convenient age at which, for practical purposes, we might say someone is getting "older".

1.6 Overview

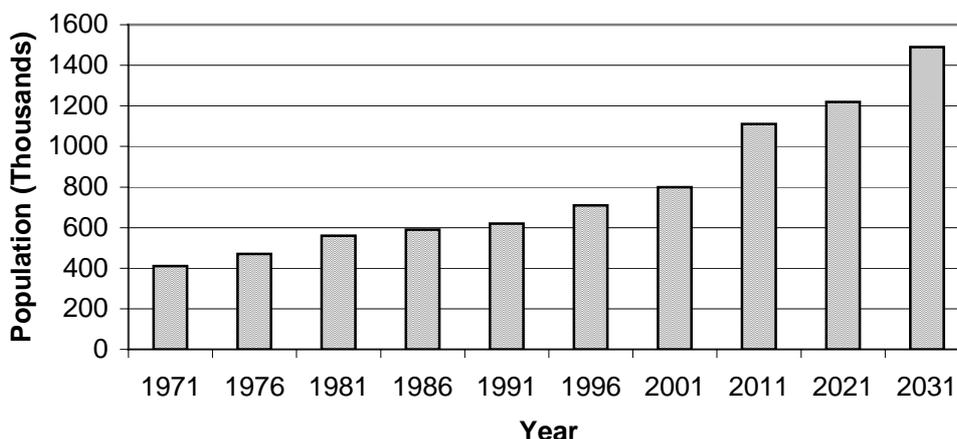
1.6.1 Ageing Population

Over the next thirty or so years, the population of Victoria will age.² This will happen throughout Australia and also in all OECD countries, though at different rates.

Figure 1 shows the extent of the ageing of the population in Victoria.

Figure 1

**Population of Persons 60 Years and Over
Victoria, 1971 - 2031**



Source: Australian Bureau of Statistics, *Demography Victoria 1992*, Catalog No 3311.2, ABS, Canberra, 1993

1.6.2 The Car as Preferred Transport Mode

Those reaching their 65th birthday over the next thirty years will live longer, on average, than their parents. Their life experience has been quite different to that of previous generations. Born after the Second World War, the majority have relied on the car as their primary means of transport. One of the reasons for this is that most people living outside the metropolitan area and even many of the 72% of Victorians that live in the Melbourne metropolitan area have spent their formative years beyond the reach of rail public transport.

The car has become so much a part of our thinking that, with few exceptions, trams and trains have not extended their reach since the Second World War. The suburbs of the Melbourne metropolitan area have sprawled. Freeways and ring roads have been built to meet the ever-increasing demand for private transport over distances that grow ever greater as the metropolitan area expands. In rural Victoria reliance on the car is even greater since several rural rail services were cut because of low patronage. Public transport is practically non-existent, more so within towns than between towns.

1.6.3 Increasing Transport Demand

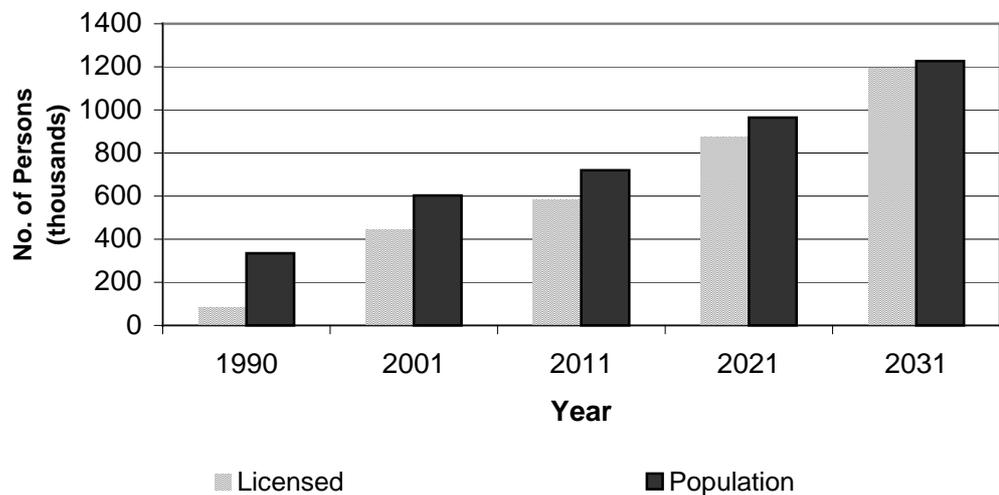
Experience in the United States and in Australia suggests that most Victorians will choose to continue to live in their family home.³ Those who do move, may well choose to move further from the city, using the capital gain from selling the family home to buy less expensive accommodation a

greater distance from town and putting the balance towards their retirement income.⁴ Thus Victorians who have recently retired, or will do so over the next few decades will perceive a continued need for a car.

The proportion of people holding a driver licence will continue to grow, as shown in Figure 2, and it is expected that almost every Victorian over 18 will hold a driver licence by 2031. The removal of many services from country towns increases the reliance of country people on the car. Given the spread-out nature of most of our suburbs and the consequent economic difficulty in maintaining a frequent and efficient bus service, access to a car is a perceived necessity for most living in Melbourne as well.

Figure 2

Population and Number Licensed Persons 65 Years and Over, Victoria, 1990 - 2031



Source: Hull M & Nguyen H, *Older Drivers, Safer Drivers: Victoria's Future*, Paper presented to the Conference of the Australian Association of Automotive Engineers, Melbourne 1994

1.6.4 Changing Future Priorities

Victorians who will reach 65 years of age in the next thirty years are better educated and more able to advocate changes they believe are needed.

A larger retired population means a smaller tax base. At the same time the demand for transport infrastructure and safety can be expected to increase.

Government on the other hand, with reduced revenue from a smaller proportion in full-time work, may be hard-pushed to meet the demands of the community for safety on the roads as well as the increasing need for transport and health services.

Changes in work practices may also need to be considered. The trend toward longer working hours by those in full-time employment, coupled with

the abolition of a compulsory retirement age may increase the number of older people on our roads at night.

The ability of older people to travel and spend will become an important factor for the State's economy.

Private and public transport will require greater coordination and integration. Community organizations providing transport for the infirm will need ongoing administrative, logistic and financial assistance in meeting the increasing demand for their services. Local and State government services will need to become involved in the transport planning process. Health researchers have reported, for example, that the loss of independent mobility is accompanied by an increase in ill-health.⁵ Thus, taking no action to address mobility needs of older Victorians would result in the need to increase health care services for them.

Changing the State's extensive road infrastructure to suit the needs of an ageing society will take time. We need to decide now what needs to be done and start doing it to prevent the road toll increasing further.

1.7 Changes That Occur to Older Road Users

Some normal and expected changes accompany ageing. Exactly when these changes occur varies greatly from person to person.

Well-documented changes with ageing include:

- Increasing frailty
- Declining vision
- More deliberate thinking and movement
- Increasing illness and greater need for medication

The list above is intended to demonstrate the scope of the challenge facing road safety legislation. With few exceptions, researchers have not been able to establish clear-cut relationships between these problems and safe use of our roads.⁶

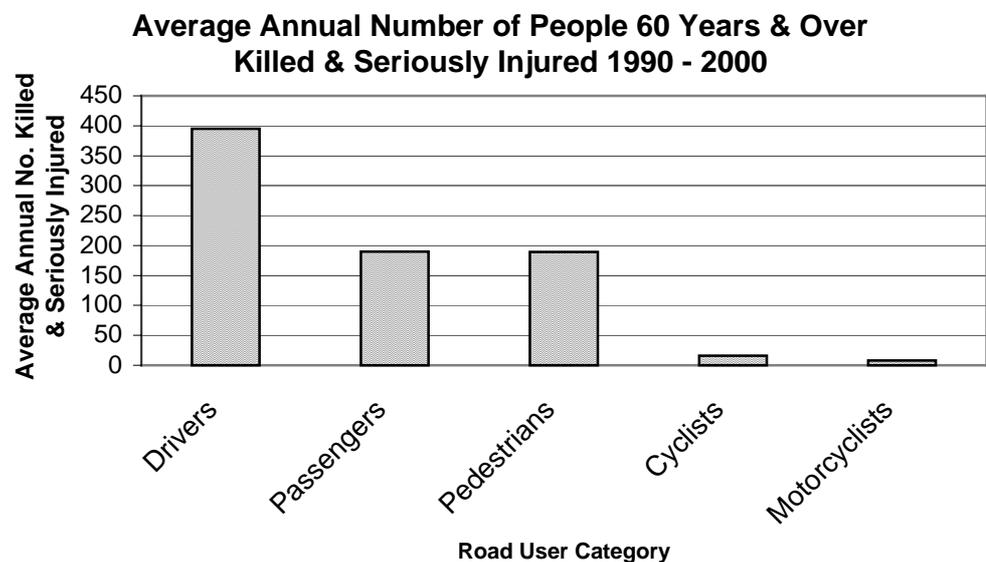
Health care professionals, who may advise that driving should be restricted, often are not able to provide their patient with information about alternative means of transport. Professionals advising older people on retirement may not suggest the desirability of moving house to be closer to transport. There is a role for planners in advising older road users on managing the transition from total car dependence to alternative forms of transport in order to maintain mobility.

1.8 Older Road User Crash Statistics

Figure 3 shows the annual average number of people aged 60 years and older, seriously injured and killed on our roads over the last decade of the 20th century. It shows that three categories of older road users sustain most of the casualties on our roads, that is, drivers, pedestrians and car passengers.

Passengers and pedestrians experience casualties at about the same level.

Figure 3



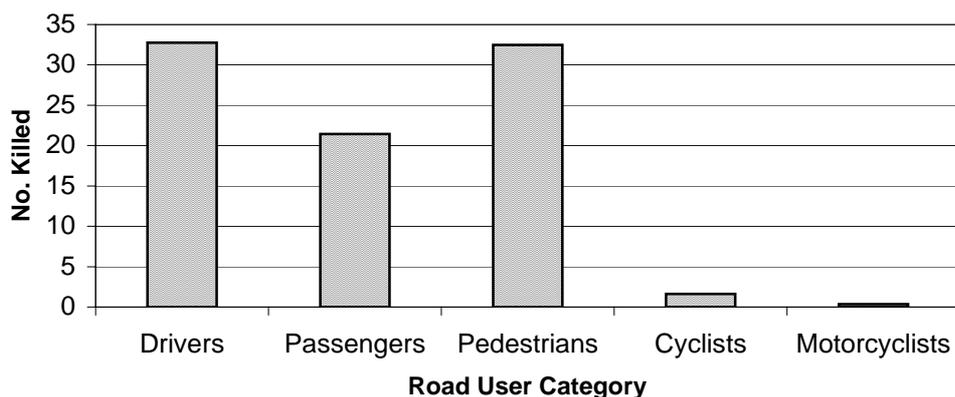
Source: Marottoli, R, et al, "Consequences of Driving Cessation Among Elderly Individuals", *Journal of the American Geriatrics Society*, Vol 43, 1995

Once they are involved in a crash pedestrians, cyclists and motorcyclists are more likely to be seriously injured or killed because they are less protected than a car driver or passenger. Looking at fatal crashes can therefore tell us more about the risks involved.

Figure 4 shows the annual average number of people 60 years or older who were killed over the same period, 1990 to 2000. The number of pedestrians killed is very close to the number of drivers killed, in fact, in some years, more pedestrians than drivers are killed. The number of pedestrians killed is also much higher than the number of car passengers killed, again because pedestrians are unprotected.

Figure 4

**Average Annual Number of People 60 Years & Over
Killed in Victoria, 1990 - 2000**



Source: Adapted from data provided by VicRoads Information Services, October 2001.

The numbers of cyclists and motorcyclists in both figures 3 and 4 are low. Given their high injury risk if involved in a crash, the number killed and injured is probably low because not many people over 60 use bicycles and motorcycles.

Based on the statistical information available, it can be concluded that the greatest road safety improvements for older people can be made by interventions that affect drivers, passengers and pedestrians.

The remainder of this Discussion Paper will look at risks for pedestrians, drivers and cyclists; consider infrastructure and broader policy matters; and pose questions and raise issues for consideration.

These questions are by no means conclusive or exhaustive, but serve a purpose to stimulate discussion.

Pedestrians

2.1 Crash Risk

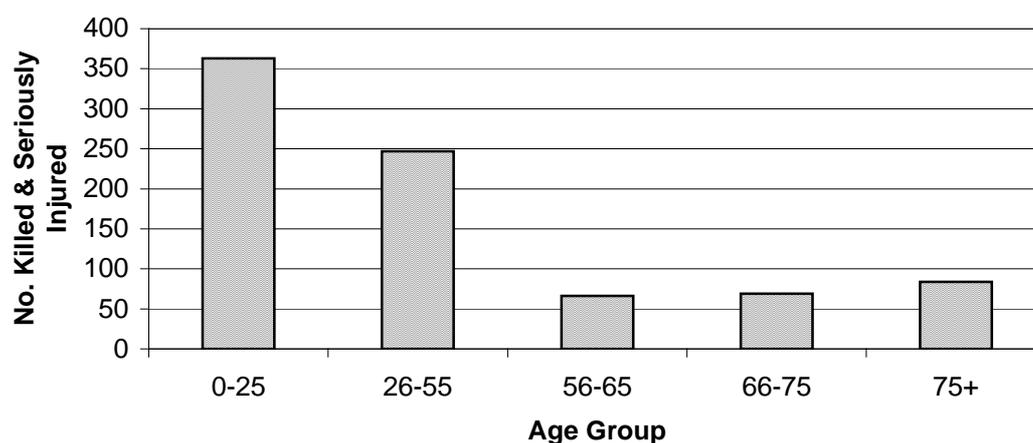
All road users become pedestrians on leaving their car or public transport. It should be noted that the term pedestrian also includes users of mobility aids, such as wheelchairs and motorised mobility devices capable of not more than 10 km/h on level ground.

In the year 2000, pedestrians accounted for 15% of deaths and 11% of serious injuries on Victorian roads. If involved in a crash, pedestrians are one third more likely to be killed than other road users.⁷

A review of the numbers of pedestrians killed and seriously injured in different age ranges appears in figure 5. It shows that, in raw numbers, more young pedestrians become casualties than those who are older.

Figure 5

Average Annual Number of Pedestrians Killed & Seriously Injured in Victoria, 1990 - 2000



Source: Adapted from data provided by VicRoads Information Services, October 2001.

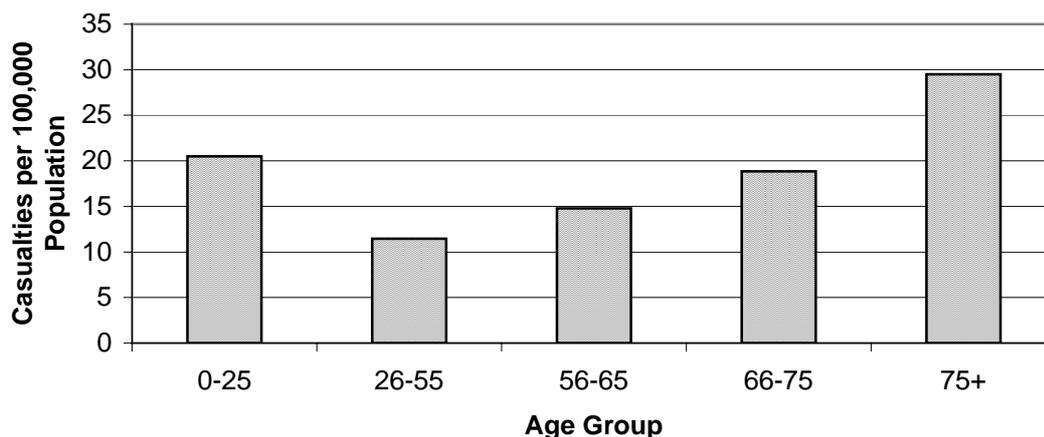
Note: A casualty crash is one in which a person is killed or seriously injured, that is, where they are hospitalised for more than one day. These figures do not include minor injuries, where they may have been attended by a doctor, but not hospitalised for more than a day.

The number of people in each age group who can be injured depends on how many of them there are. When we adjust pedestrian casualties for the

total number of people in each age group, a different picture becomes clear. Figure 6 shows that, of all age groups, older pedestrians have the greatest risk of injury.

Figure 6

**Pedestrian Casualties per 100,000 by Age Group
Victoria 1999**



Source: Adapted from data provided by VicRoads Information Services, October 2001.

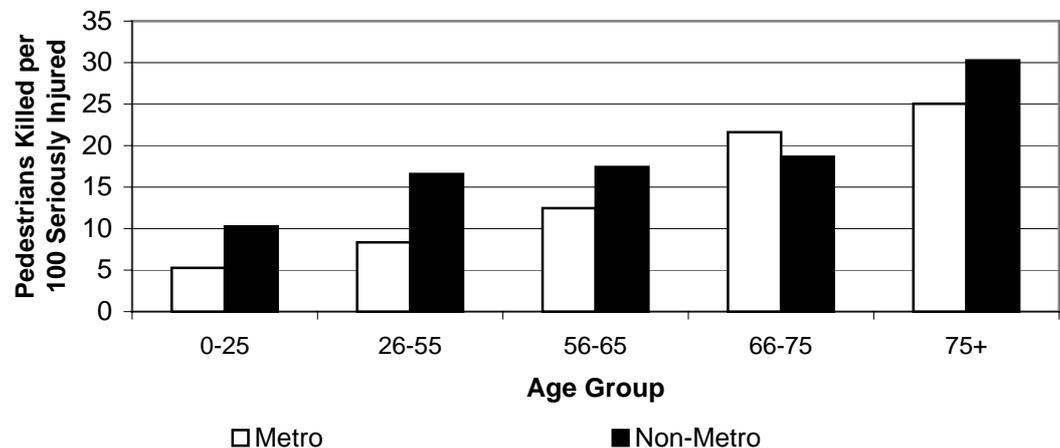
2.2 Pedestrian Casualty Risk in Rural Victoria

Figure 7 indicates that, for most age groups, the probability of a pedestrian crash being fatal is higher in non-metropolitan Victoria than it is in the Melbourne metropolitan area. This may be best explained by the greater incidence of 100 km/h zones in rural Victoria and the lack of pedestrian facilities such as footpaths, outside the major regional centres. It is also possible that speed limits are less rigorously enforced in rural areas.

Disturbingly, figure 7 shows an increasing likelihood of a fatal outcome to a pedestrian crash as the age of the pedestrian involved increases.

Figure 7

**Average Annual Number of Pedestrians Killed per 100
Seriously Injured, 1990 - 2000**



Source: Adapted from data provided by VicRoads Information Services, October 2001.

2.3 Why Older Pedestrians are at Risk

A Monash University study found that older people are over-involved in pedestrian crashes and are more likely to be injured or killed than younger pedestrians.⁸ This over-involvement may be associated with declines in physical, sensory, perceptual, and cognitive changes that are known to increase with advancing age.

The Monash study found that older pedestrians took twice as long to assess the traffic and cross the road than younger pedestrians. They were often caught by approaching traffic. Older pedestrians spent more time studying the ground, whilst approaching the road and actually on it, and less time studying approaching traffic; they were more likely to be confused in complex traffic environments; they were slow to react to approaching traffic and failed to re-check approaching traffic whilst negotiating the road.

Another Victorian study reported that older pedestrians, once involved in a crash, had a 54% likelihood of receiving fatal or serious injuries, compared with only 19% of crash-involved older drivers.⁹

A United States study showed that 90% of pedestrians aged seventy or more were unable to attain the walking speed of 1.2 metres per second recommended in the standards for design of US traffic lights.¹⁰ A crossing speed of 0.91 metres per second was recommended instead. Some of the trials reported below suggest that a similar problem occurs in Victoria.

2.4 Existing Older Pedestrian Programs

VicRoads, the Transport Accident Commission and Victoria Police all have strong involvement in road safety as it relates to motor vehicles. The involvement of these State instrumentalities in pedestrian road safety has been somewhat less marked. Traditionally, pedestrian road safety has been left to local government.

Recent changes suggest that pedestrian road trauma is now being taken more seriously, but the amount spent directly by Government on pedestrian safety remains minimal, compared with the sums spent on infrastructure for motor vehicles. Existing pedestrian programs largely provide assistance to local government to improve pedestrian safety, rather than increasing the direct involvement of the State in a co-ordinated strategy to reduce pedestrian injuries and deaths.

VicRoads has trialled Pelican Crossings in a few metropolitan locations. The Pelican crossing flashes yellow lights to traffic at the end of the pedestrian Walk cycle, requiring motorists to give way to pedestrians who may still be on the crossing. Evaluations of the Pelican crossing show that it provides more time for slower pedestrians to cross the road and minimises delays to traffic when pedestrians cross more quickly.

Puffin pedestrian operated lights have been installed in three Melbourne suburbs as part of VicRoads' *WalkSafe* program. *WalkSafe* is a program aimed to reduce pedestrian crashes. These crossings detect the walking pace of pedestrians on the crossing and adjust the time that the green Walk signal is displayed.

Local government has been encouraged to assist in the installation of these crossings in areas where there are many older pedestrians.

The *Walksafe* program is a welcome innovation. However, the fact that a specific pedestrian infrastructure safety program has to be developed indicates that a road safety program integrating the needs of all road users is urgently required.

Question

1. *Should Pelican and Puffin pedestrian signals become standard signals with the existing, fixed-time crossings phased out?*

2.5 Vehicle Design for Older Pedestrian Safety

2.5.1 Pedestrian-Friendliness

Whilst modern cars have been carefully designed to provide maximum protection for their occupants, more work is needed to make sure that cars are constructed to do minimum damage to pedestrians.

European research suggests that changes to the bumper, the leading edge of the bonnet and the top of the bonnet of passenger cars would result in up to 2,100 fewer pedestrian deaths each year in the European Union.¹¹

Associated research shows that bull bars are extremely dangerous for pedestrians and cyclists. The bull bar is designed to be rigid and robust to protect the vehicle and its occupants, but these characteristics produce disastrous effects on pedestrians in the event of a crash.

A means of evaluating the "pedestrian-friendliness" of cars already exists. So far, all that seems to have been managed is the publication of pedestrian friendliness performance ratings of cars.

Questions

- 2. To what extent do bull bars provide road safety benefits for car occupants? Should the fitting of bull bars be reviewed in the interest of pedestrian safety?*
- 3. Should Australian Vehicle Design Rules be amended to incorporate more pedestrian-friendly vehicle manufacturing standards?*

2.5.2 Moderating Vehicle Speeds

Higher vehicle speeds mean more serious pedestrian injuries. This principle has been recognised in the recent reduction of the default urban speed limit in Victoria from 60 to 50 km/h.

Variable speed signs allow speed limits to be changed to match the varying conditions, such as near schools in shopping streets, or where there is high pedestrian activity. Unfortunately they are not often used.

General enforcement of the speed limit is difficult because of limited police resources.

The technology exists to restrict the maximum speed of a motor vehicle to the speed limit. As advanced technology becomes more common in cars, limiting of speeds will become possible.

Questions

4. *Should variable speed signs be placed in the vicinity of schools and in the vicinity of high density pedestrian traffic?*
5. *Is 50 km/h too high in places of high pedestrian activity?*
6. *Should we now be discussing a national uniform system to limit the maximum speed of cars, depending on the speed limit of roads they are travelling on?*

Infrastructure for Older Pedestrian Safety

Figure 4 indicated that older pedestrians are killed almost as often as older drivers. If all age groups are considered, slightly over 27% of all deaths and serious injuries in Victoria, in a ten-year period, were pedestrians. In a car-dependent culture, it is unlikely that a quarter of Commonwealth, State and local government road safety budgets is directed at pedestrian safety.

Many aspects of road infrastructure appear to favour the car occupant over the more vulnerable pedestrian. These can be summarised under the headings of time, priority and sharing the road.

2.6.1 Time

Pedestrian crossing times at pedestrian operated traffic lights are minimised to provide advantage to the motorist over the pedestrian. Pelican and Puffin crossings go some way towards rectifying this problem, but as discussed earlier, are installed only in selected areas.

On some wider roads, pedestrian crossings are arranged so that the pedestrian crosses the entire width of the road in two sections, being

required to wait in a pedestrian refuge or on a median strip for an entire cycle, sometimes exposed to inclement weather conditions.

Slower and more timid pedestrians are disadvantaged by not knowing how much time remains before the Walk sign will change to Don't Walk. An effective and economical solution is already in place in Singapore, where a display shows the number of seconds remaining until the Walk light will change.

One rationale for allowing shorter pedestrian crossing times is that motorists will otherwise become impatient and be less compliant with red traffic lights. Pedestrians also may become impatient and commence to cross against the Don't Walk light. Whilst older people are less likely to cross deliberately against the lights, they may follow others whose vision they believe to be better.

Also because of slow cycle times, pedestrians may try crossing the road away from traffic signals. This too is very dangerous.

Questions

7. *Should traffic lights be phased so that a pedestrian can cross without having to stop in a pedestrian refuge or on a median strip? Alternatively, do we need to consider shelters for pedestrians waiting on medians and even on pedestrian refuges?*
8. *Should signals showing the time before the Don't Walk sign appears be used on pedestrian crossings?*
9. *How can traffic management priority systems provide a "fair go" for both pedestrians and motorists?*
10. *Would shorter time waiting for Walk lights or other signal changes encourage pedestrians to use existing crossings?*

2.6.2 Priority

Turning drivers are required to give way to pedestrians crossing the road they are turning into. Pedestrians know what to expect at these intersections – provided both the pedestrian and the driver see each other. However, this rule no longer applies at intersections with a roundabout. Here the responsibility to avoid vehicles is placed on the pedestrian. Older pedestrians, with slower perception and reaction times, are required to

apply two sets of rules when crossing the road, depending on the type of intersection.

The green Walk signal at intersections does not give undisputed priority to pedestrians. The pedestrian still needs to check for left and right turning traffic – this requires scanning the whole width of the intersection. Less certain pedestrians are easily intimidated by turning motorists and may wait an entire cycle to make a crossing. Moreover, drivers of vehicles turning right across oncoming traffic, sometimes complete their turn despite the presence of pedestrians on the crosswalk.

Questions

- 11. Should pedestrians again be given priority at roundabouts?*
- 12. Should pedestrian crossings be provided at roundabouts?*
- 13. Should roundabouts be established in areas of high pedestrian activity?*
- 14. Should Walk and Don't Walk signs be required wherever there are traffic lights?*

2.6.3 Sharing the Road

A fall can have quite severe consequences, including death, for older pedestrians. When crossing roads, they spend a lot of time looking at the pavement surface and not checking for traffic, for fear of falling.¹¹ Whilst steps from footpath to road have mainly been replaced with ramps, some ramps do not end on precisely the same level as the road surface, leaving a small step on which the unwary may trip. Often the ramps are not wide enough to accommodate heavy pedestrian flows, prams, bicycles and wheelchairs.

Pedestrian refuges are installed on some wider roads to split the road-crossing task into two simpler tasks. Pedestrian refuges are often very narrow to provide maximum space for vehicles. Some pedestrians using them feel exposed and at risk. In busier pedestrian locations, the refuge can be overcrowded. Access by prams, bicycles and mobility devices, like wheelchairs, is often not allowed for. Pedestrians are exposed to risk if they have to wait on the road before entering the refuge.

In a shared zone, vehicles and pedestrians share the road and vehicles are required to give way to pedestrians. High pedestrian density is often found in the vicinity of strip shopping. Strip shopping is most frequently found on major arterial roads. Shared zones are not appropriate on arterial roads. A

more desirable, but expensive longer-term solution is to locate shops in off-road enclaves, thus separating pedestrian and vehicle traffic.

Pedestrians and vehicles can be separated by using pedestrian overpasses and subways. The extra energy needed to climb the steps and ramps means that many pedestrians will only use overpasses or subways if fencing restricts access to the road. Older and disabled people have difficulty using stairs and ramps. These solutions are expensive and their use will be restricted to areas of extremely high density where escalators or elevators should also be considered.

Fencing is more commonly employed to channel pedestrians to established, pedestrian crossing areas. This solution is unlikely to be successful unless the extra distance to be walked is short and the crossing times and Walk cycles at the crossing are seen to give pedestrians a "fair go".

Questions

- 15. How can local government be encouraged to regularly evaluate pedestrian infrastructure such as surface condition, signal waiting times, pedestrian crossings, and quickly fix any problems?*
- 16. How can land-use guidelines be amended to require shopping facilities in new developments to be separated from vehicular traffic?*
- 17. How can shopping streets in existing areas be made more pedestrian friendly?*
- 18. How can road authorities be encouraged to provide pedestrian refuges that are large and accessible enough to be used by those with mobility devices?*

2.7 Policy Issues

2.7.1 Traffic Law

Pedestrian road law is enforced so rarely that pedestrians do not expect to be stopped by Police while committing an offence.

It is also rare that Police apprehend motorists for failing to give way to pedestrians. Thus the view that pedestrians are second-class road users is encouraged.

Questions

19. Should Local Government by-law officers be given the authority to issue infringement notices for pedestrian offences?

20. How can Police be encouraged to more rigorously protect pedestrians from motorists who fail to give way?

2.7.2 Integrated Design Standards

Road safety standards exist for vehicles. Separate standards outline road safety requirements for pedestrians. However these standards are not integrated and those responsible for design of "road" facilities may overlook the needs of one or more categories of road users. Currently design standards for road construction are being reviewed to ensure that the capabilities of older drivers are catered for.

Question

21. How can we encourage the quick development of a totally integrated road design construction standard that takes account of the needs and capabilities of all road users?

Mobility Aids

Accident statistics are not kept separately for users of mobility aids such as wheelchairs and motorised mobility scooters - these are counted as pedestrian crashes. Crashes involving mobility aids are thought to be rare events. However, as a result of improved design and longer battery life, the speed and distances that can be travelled are increasing rapidly. Assumptions should therefore not be made that the current low crash involvement will continue, particularly as the numbers of these devices increase.

The more modern motorised mobility scooters, resembling golf buggies, may be considered as a car replacement by many people with disabilities,

extending their mobility and access to a whole range of services that are taken for granted by the wider community. Provided they are not capable of speeds exceeding 10 km/h on level ground, these "scooters" do not currently have to be registered and their "drivers" do not require a driver licence.

Motorised mobility aids are quite heavy because of the batteries used to power them. They can turn over whilst going over steps from kerb to road.¹² They can't be used on grass verges and, in areas without footpaths, the road is the sole remaining option.

Mobility devices are not required to comply with standards for vehicles. For example, lights are frequently not fitted, or if fitted are sub-standard and some of the devices are not high enough to be readily seen by car drivers.

Motorised mobility devices give independence and self-respect to those who may be unable to drive. There are already some local government concerns about inappropriate use on 100 km/h highways and in pedestrian precincts.

Independent mobility should be encouraged but there is concern by some that people using mobility aids may not be able to safely use them and they may pose a safety risk for other road users.

Questions

- 22. Should standards controlling lighting, stability and visibility of mobility devices be developed?*
- 23. Should registration at no cost or low cost be considered as a means of encouraging responsible use of mobility devices?*
- 24. Should a Code of Practice be developed to provide guidelines to those selling and leasing mobility devices about the minimum competencies needed to control them?*
- 25. How can better facilities be provided for the safe use of mobility devices?*
- 26. Should we require users of mobility aids to undergo a medical and/or competency test?*

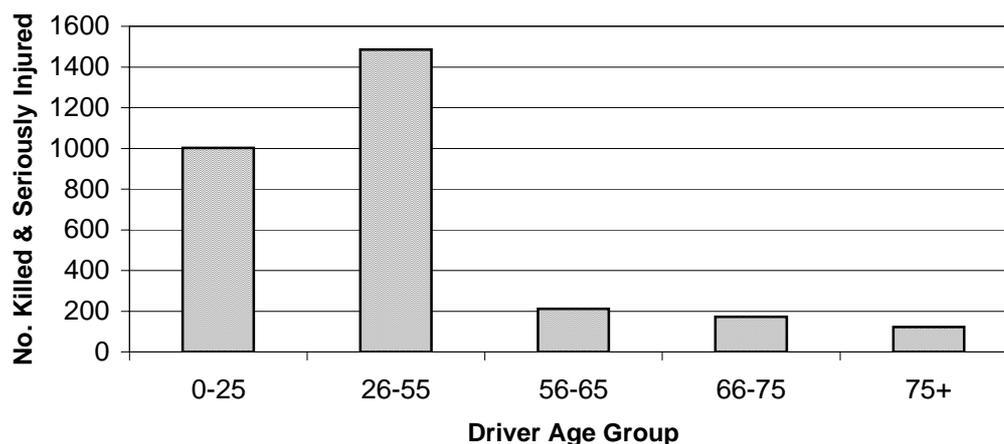
Drivers

3.1 Driver Crash Risk

Figure 8 shows that, in raw numbers, smaller numbers of older drivers are involved in fatal and serious injury crashes than are younger drivers.

Figure 8

Average Annual Number of Drivers Killed and Seriously Injured Victoria, 1990 - 2000



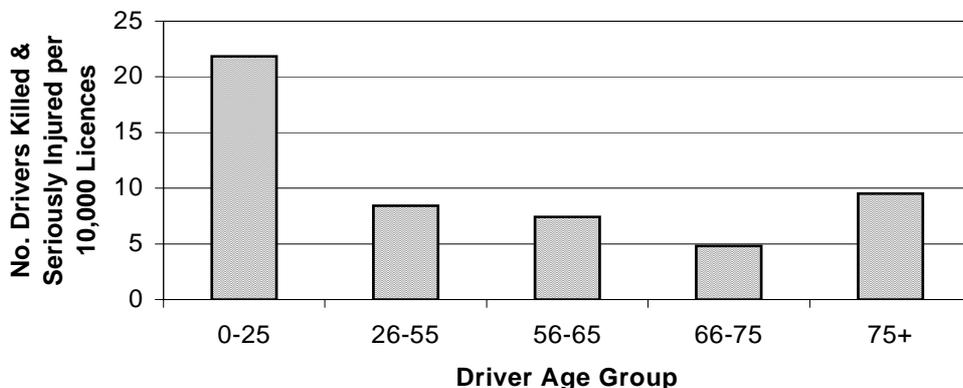
Source: Adapted from data provided by VicRoads Information Services, October 2001.

There is much debate about whether older drivers cause the crashes in which they are involved, with some studies showing older drivers responsible for the crash and others the opposite. The resolution of this issue is likely to show older drivers more responsible in causing certain categories of crashes (for example, failure to observe an oncoming vehicle) and less responsible for crashes where speed or alcohol consumption are factors.

In figure 9 the number of crashes in each age group has been adjusted for the number of driver licences held by members of that age group. As can be seen, drivers aged over 75 have a somewhat higher crash involvement, but much less than that of those aged under 25 years.

Figure 9

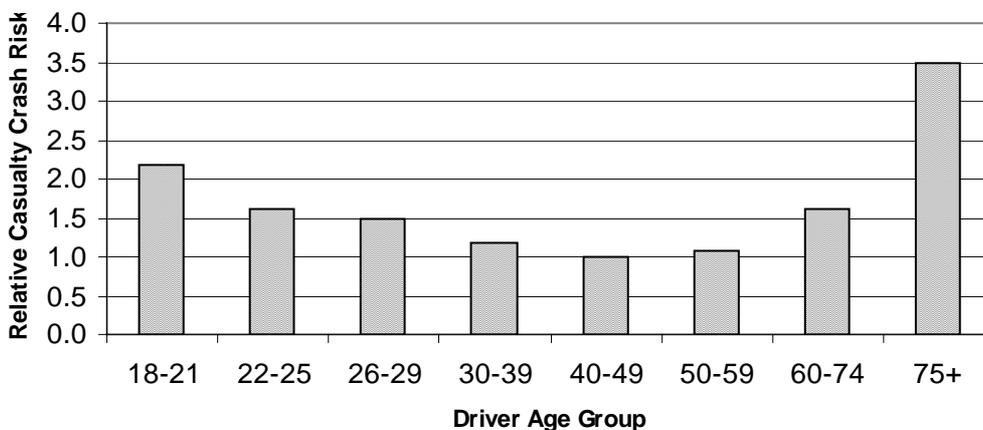
Drivers Killed & Seriously Injured per 10,000 Licences by Driver Age Group, Victoria 1998



Source: Adapted from data provided by VicRoads Information Services, October 2001. Figure 9 shows increased incidence of fatal and serious injury crashes at about 75 years of age. Figure 10 is based on a calculation of the risk of a casualty crash per million kilometres driven. The age group with the lowest crash risk is then set to a value of 1 and scores for all other groups are scaled up accordingly. Figure 10 shows that, if they drove the same distances as 40 to 49-year-old people, drivers aged 18-21 years, would have a crash risk 2.2 times greater. Similarly, drivers aged 75 and over, driving the same distances as 40 to 45-year-olds, would have a crash risk 3.5 times greater.

Figure 10

**Relative Casualty Crash Risk
Melbourne Arterial Roads 1990 - 1994**



Source: Diamantopoulou, K., Skalova, M., Dyte, D., Cameron, M., *Crash Risks of Road User Groups in Victoria*, Accident Research Centre Report No 88, Monash University,

It is unclear to what extent the elevated casualty crash risk for older drivers is caused by their greater likelihood of being injured once involved in a crash. Interpretation is a matter for debate amongst international researchers. What is certain is that, with the older population set to increase in the next thirty years, and their likelihood of increased travel, their risk of exposure to a crash will also increase.

3.1.1 Driver Casualty Risks in Rural Victoria

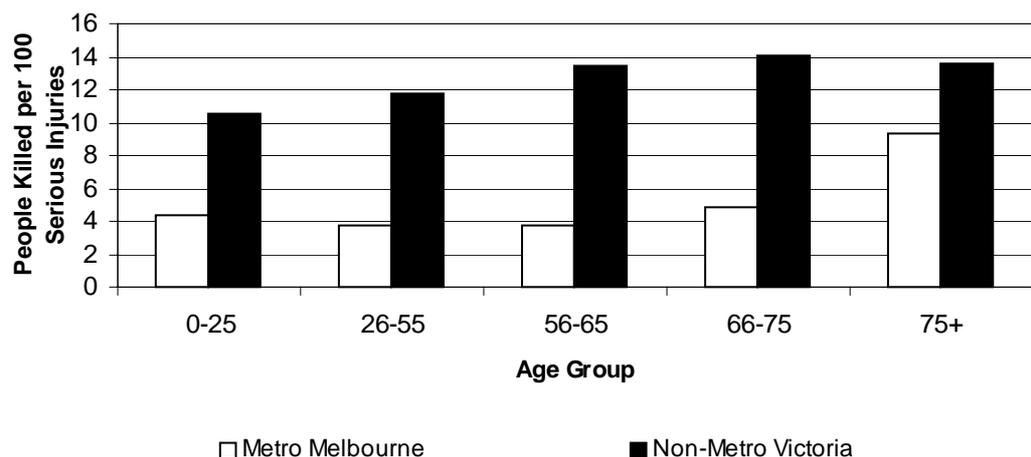
In the event of a crash occurring outside the Melbourne metropolitan area, the outcome is more likely to be fatal. A greater proportion of roads outside the metropolitan area carry higher-speed traffic and apart from the major trunk routes, divided highways are relatively rare.

A major contributor to rural fatal crashes may well be fatigue or travelling too fast for the conditions, as a greater proportion of non-metropolitan crashes involve only a single vehicle.

Figure 11 illustrates two important points. Firstly, regardless of location, the probability of a driver dying if involved in a crash, increases with age. This is most likely a result of increased frailty. Secondly, in non-metropolitan areas, the likelihood of a driver dying in a crash is significantly higher for all groups, but particularly affecting those over 65 years of age.

Figure 11

Persons Killed per 100 Serious Injuries 1990 - 2000 by Age Group for Metro & Non-Metro Areas



Source: Adapted from data provided by VicRoads Information Services, October 2001.

3.2 Older Driver Behaviour

Older drivers are generally cautious and deliberate. They compensate for declining visual acuity and longer decision-making time by driving slowly. They dislike driving on the extreme left because of the dangers posed by parked cars and emerging pedestrians.

Many researchers suggest that older drivers adjust their driving style to suit their reduced abilities. But in order to do so, they must be aware that a problem exists and also be aware of its likely effect. Busy health professionals may not adequately advise their patients of possible side-effects of illnesses and medications.

Since older drivers are more likely to suffer from one or more medical conditions, it may be that 10-year licences are inappropriate.

Behaviour common to some older drivers, such as driving slowly, sometimes causes other drivers to become impatient and act imprudently, however, older drivers appear to rarely be involved in crashes as a result of this behaviour.

Dementias generally, and perhaps especially Alzheimer's Disease, are a cause for worldwide concern. This is particularly so because often several years elapse between the onset of early symptoms and a formal diagnosis of the condition. The nature of dementia is such that patients often lack insight into possible outcomes of behaviours and certainly in more advanced cases, driving is particularly dangerous. Often people suffering with dementia have lucid periods, and they tend to visit their health professionals during these periods. Thus, health professionals may not even be aware that a problem exists until quite late in the progress of the disease. The simpler cognitive tests may not detect a dementia because patients select lucid periods to undertake tests. It may be that a test that probes a little more deeply, but is quick and simple to administer is required.

Questions

- 27. Can use of the left lane be encouraged by banning parking on arterial roads?*
- 28. Will increasing numbers of older drivers slow traffic flows in the future? How can younger drivers be encouraged to tolerate their cautiousness?*
- 29. Should testing of drivers for cognitive function be required?*

3.3 Current Licensing and Testing Policies

3.3.1 Disclosure of Medical Conditions

Victorian car and motorcycle driver licences are issued for ten years. People have the option of a 3-year licence at a proportionately lower fee, but anecdotal evidence suggests they may not be aware of the alternative.

For their initial Victorian licence, drivers are required to complete a declaration form that asks them to indicate if they have any of a number of conditions that might affect their ability to drive safely. The initial licence application also requires a test of static visual acuity (reading an eye chart) and an elementary test for colour blindness. A VicRoads Licence Testing Officer administers the vision test components. In the event of an applicant indicating that he or she has a medical condition, or failure of the vision test, the applicant will be referred to a medical practitioner, optometrist or ophthalmologist for further assessment and report.

No further medical or eyesight evaluation is required by VicRoads unless drivers are reported as being impaired by health professionals, police or concerned citizens. Until recently, drivers had no legal obligation to report a medical condition acquired after they were first licensed. Victorian health professionals have never been legally required to report patients whose health condition might affect their driving, although any person who does so is immune from civil or criminal action.

However, in December 1999, Victoria implemented the national uniform driver licensing law, known as Road Safety (Drivers) Regulations 1999. These regulations place the onus on the individual driver to report any disability that may affect his or her driving. The new regulations do not require health professionals to report a patient's disability. Statute Law continues, however, to provide immunity from civil or criminal action to those who in good faith report someone whose driving may be impaired.

VicRoads, in dealing with drivers who have been reported as suffering from a medical condition, uses as its primary reference, the Austroads publication *Assessing Fitness to Drive*. VicRoads has also distributed this booklet to all Victorian medical practitioners, optometrists and occupational therapists specialising in driver evaluation. The booklet sets out clearly those conditions that may affect driving and indicates that a health practitioner should seriously consider reporting a patient whose condition makes him or her a driving risk and who fails to comply with professional advice about continued driving.

Questions

30. *Should the 10 year driver licence be replaced by a shorter licence period? Should a lesser period licence be made the universal standard? Alternatively, at what age should a shorter licence validity period commence?*
31. *Should medical practitioners be required to report those drivers who they consider should no longer be driving?*
32. *How can health professionals be encouraged to advise patients about road safety implications of medical conditions and the medications prescribed to treat them?*

3.3.2 Medical Tests for Renewing a Driver Licence

In Australasia, only Victoria and the Northern Territory do not require some form of medical evaluation of drivers at a certain age.

Various experts have advocated requiring a medical check-up before renewing a driver licence beyond a certain age. However, Australian and international research and emerging driver licensing trials show that there is little evidence that currently available health evaluation of older drivers is effective in reducing their crash risk. It imposes a burden on the older community without commensurate road safety benefit.

Were the range of medical and optical tests effective, one would expect States and Territories not imposing such tests to have a comparatively higher number of crashes. This does not appear to be the case.¹³

Both the United States National Highway Traffic Safety Administration and Australia's Austroads are currently funding research aimed at developing an economical test that might be used to assess the medical competency of drivers. In each case the research has some way to go before it could be possible to assess the tests for future application in Victoria. It should be noted that both the Austroads test and the United States test have been structured so the test could be targeted at all drivers in a certain age group or only those that come to the attention of road authorities.

The cost of requiring evaluation by health professionals is high and a commensurate road safety benefit is needed to justify the process. A Victorian study in the 1980s concluded that the costs of such a scheme, at that time, outweighed the benefits.¹⁴

Questions

33. *Should requiring eyesight and medical checks be reconsidered in light of the changing age structure of the population?*
34. *Should some other form of medical testing be considered to determine those older drivers who are at-risk?*

3.3.3 Road Law and Driving Tests on Licence Renewal

Neither the Australian¹⁵ nor international research indicates that a pass in the theory or drive test can predict future crash involvement. Some driver licensing authorities in Australia require these tests on licence renewal, but the tendency has been to increase the minimum age at which they are required. The State of California in the United States has permitted persons without traffic offences during the currency of their expiring licence to renew without sitting for road law tests and have not observed any increase in crashes as a result.

In order to minimise time and costs and maximise road safety benefit, the most desirable solution is a computer-based test that requires a minimum of supervision. Such a test would serve the function of identifying those who may need professional assessment. Tests of this type are currently in the development stage.

Questions

35. *Should some or all drivers have their driving skills tested in some way before licence renewal?*
36. *Should there be more stringent tests for drivers of commercial vehicles such as taxis or hire cars?*

3.4 Existing Programs Aimed to Assist Older Drivers

Older driver programs in Victoria have been used to alleviate the concern of older drivers for their own safety and that of other road users. A number of older driver education programs exist and most have technical input from VicRoads. Evaluations of VicRoads' *SafeDrive* program indicate that it promotes self-assessment of driving ability and an awareness of restrictions that may accompany the ageing process.

In addition to education programs, a number of driver education organizations provide in-car driver assessment with a view to drawing attention to bad driving habits that may have developed over the years.

VicRoads funds a seminar for health professionals aiming to increase their awareness of aspects of driving and ageing. The seminar, *SafeDrive Medical*, aims to cover most of the different divisions of General Practice throughout Victoria each year.

Question

37. Should attendance at driver education seminars be compulsory for older drivers as a licence renewal requirement?

3.5 Vehicle Design for Older Driver Safety

3.5.1 Seat Belts

Research on road crashes suggests that some older drivers fail to fasten their seat belt. A number of cars have seat belt warning alarms fitted as standard and some models in the United States have seat belts so configured that they automatically restrain the passenger when the car door is closed.

Given the frailty of older people, the use of seat belts and air bags together could reasonably be expected to reduce injuries for both drivers and passengers.

Questions

38. Should Australian Vehicle Design Rules be amended to require automatic fastening of seat belts and audible seat belt alarms?

39. Should air bags be fitted to all seating positions of all new cars?

3.5.2 Side Impacts

Modern cars provide good protection for occupants in the event of a head-on crash, but are less effective in providing protection in side impact crashes. An Australian Design Rule introduced in 1999 specifies injury criteria which must be met by vehicle manufacturers to minimise the likelihood of occupant injuries in side impact crashes. One of the methods which can be used is airbags.

Question

40. *Should Australian Vehicle Design Rules require airbags be fitted in new vehicles to provide additional protection in the event of a side impact crash?*

3.6 Infrastructure for Older Driver Safety**3.6.1 Road Signs**

Road signs specify required behaviours – for example Stop or Give Way. Others warn motorists of hazards ahead. It is obviously critical that motorists can see them and understand what they mean.

United States research suggests that, for ageing drivers, road signs need to be about one third larger than the current standard size. They need to be visible at night and this requires that they be constructed of reflective material and that accumulated grime is not permitted to decrease their visibility.

Placement of road signs is also important. A person's field of view decreases with ageing. Therefore signage must be placed so that it can be seen when it is close enough to be read. The placement of "Hook Turn" signs on overhead tram wiring in Melbourne, for example, will not be within the field of view of many older drivers.

"Information clutter", where irrelevant signage or advertising is permitted in the vicinity of critical road signs, reduces the probability of the sign being seen and complied with.

This may also occur with signage obstructed by vegetation and not seen, or misunderstood, when only part of the message is visible.

Questions

41. *Do signage size, placement and reflectivity standards need to be reviewed?*

42. *Should superfluous signs be removed?*

3.6.2 Traffic Signals

It is not uncommon to find intersections where a traffic light is not visible from the "stop" line. Drivers with some perception difficulties may be confused or misled unless a signal is placed so as to be clearly visible. In

Sweden, small repeater lights are placed at eye level on the traffic light poles to overcome this problem.

The human eye more easily perceives the colour green than red. Discolouration of the lens of the eye accompanying age exacerbates this factor. Where two sets of traffic lights are close together, the nearest on red and the further on green, the nearer, and more critical red light can be overlooked. More careful angling of traffic lights to overcome this problem is required.

The more certainty that can be provided by traffic signals, the less stress is placed on an individual performing the complex task of driving. It may be useful to consider installing red arrows in all situations where green and yellow arrow lights are installed.

Question

- 43. Is it feasible to install traffic lights with 'turn arrows' in all situations where currently only green and yellow arrow displays are used?*

3.6.3 Line Marking

Line marking provides valuable information to enable proper positioning of vehicles on the road. An ageing driver is less able to see faded line marking, especially at night or in wet weather. Maintenance programs for line marking will require review to ensure that minimum visibility standards are met.

"Tactile" line marking is currently employed as edge marking on some highways. When a vehicle's wheels run over the tactile marking, a sound is produced that gives a warning to the driver. Providing both visual and audible cues alerts the driver in time to take corrective action. Tactile line marking might also be considered on the approach side of Stop and Give Way lines to ensure awareness of the need to stop or slow down.

Questions

- 44. Should line marking standards specify minimum visibility for night and wet roads?*
- 45. Should tactile line marking be used before Stop and Give Way lines?*

3.6.4 Intersections

Well over half of injury crashes occur at intersections. This is hardly surprising, as the driver needs to monitor traffic from multiple directions,

evaluate speed and distance of traffic from each direction and calculate if there is time to clear the intersection before other vehicles arrive. Older people have some difficulty in estimating speed and distance. It is therefore critical that the task of negotiating an intersection be simplified.

Older drivers are less able to rely on peripheral vision and may also have some restriction of neck movement. Intersections requiring the driver to be able to see more than 90° to either side will therefore increase the risk of a collision. Where it is not possible to redesign intersections so that drivers do not have to turn the head more than 90° , the installation of traffic signals may be desirable.

Questions

46. Is it possible to teach older drivers to improve their estimations of speed and distance?

47. Should traffic lights be required at all intersections where the angle of the intersecting roads exceeds 90° ?

3.7 Improved Technology

The term Intelligent Transport Systems is readily associated with satellite controlled global positioning systems with associated in-car map displays to assist navigation. Perhaps more useful for safety are less complex devices, many of which have already been developed, such as ABS braking that operates without driver knowledge or intervention. Victoria has the oldest car fleet in Australia, with an average age of almost 11 years, so decisions made now about required equipment would not have a great effect for more than a decade.

Systems exist which are able to detect an obstruction ahead and warn the driver, by audible or visual alarm, or automatically apply the brakes to slow the vehicle.

The use of directional radio in association with traffic lights or even Stop and Give Way signs might readily warn the driver of these traffic controls ahead and automatically reduce the speed of the vehicle.

Several systems have also been developed that function to maintain a vehicle within a single lane of traffic.

There exist several devices that monitor the fatigue levels of drivers. These might prove useful in the foreseeable future particularly in reducing single vehicle crashes in rural areas.

Questions

48. Might audible or visual alarms add to the complexity of driving and tend to confuse older drivers?

49. Will in-car navigation systems also add to the complexity of driving for older drivers?

3.8 Passengers

Older passengers have about the same level of risk of death or serious injury as older drivers, if involved in a crash. Older passenger injury severity will benefit from actions designed to decrease older driver injury.

There is some evidence that older people are more susceptible than younger people to injury and death when the vehicle in which they are travelling is struck from the side.¹⁶ As discussed earlier in chapter 3, the strengthening of vehicles against side impacts would also reduce fatalities and serious injuries.¹⁷

Cyclists and Motorcyclists

Cyclists and motorcyclists of all ages are at considerable risk of death or serious injury in the event of a crash. Bicycle-riding provides exercise and has health benefits and these need to be weighed against road safety considerations. Riding a motorcycle is extremely dangerous at any age.

4.1 Existing Bicycle and Motorcycle Programs

The State Government maintains ongoing and formal consultation with stakeholders involved with cycling and motorcycling on issues relating to road safety.

VicRoads has assisted local government in undertaking roadwork designed to widen the distance and improve clearance between cycles and other vehicles on narrower and winding roads.

A large network of off-road bicycle paths exists around the Melbourne Metropolitan area and in some non-metropolitan municipalities around the State. Ideally, bicycle paths completely separate cyclists from other road traffic throughout the entire journey. However, this is not practical in inner city areas, where cyclists may have to migrate from protected bicycle paths to less safe bicycle lanes on the road network. Completely protected, such as off-road bicycle paths, may be more common in outer metropolitan areas and in some rural locations. These bicycle paths may be more suited to occasional riding for exercise than travel on a daily basis.

4.2 Health Issues and Bicycle and Motorcycle Safety

Two-wheeled vehicles require the user to maintain balance, which can be difficult, especially at low speeds. This additional task occupies time that might otherwise be used in monitoring traffic. Lack of balance is more common in older people, so riding bicycles and motorcycles in traffic is not something that most older people should be encouraged to do.

Older people are likely to have some eyesight restrictions to visual capacity.¹⁸ Exposure to slipstream and to dust and fumes may further reduce their view of traffic.

As mentioned earlier, older people also tend to have restricted peripheral vision. In the case of motorcycles, the helmet worn may further reduce vision to the sides and above, increasing the risk of a crash.

Question

50. Should licensing of older motorcyclists require special evaluations of balance and vision?

4.3 Infrastructure and Bicycles and Motorcycles

In peak periods, major metropolitan roads approach their maximum capacity. Motorists become impatient with slower moving cyclists and often fail to respect their right to use a traffic lane.

Bicycle lanes have been established on a number of arterial roads and indeed, cyclists are permitted to use emergency stopping lanes on some freeways. Evidence from the Netherlands suggests that these bicycle lanes on arterial roads provide little protection to cyclists. Bicycle lanes may be mere tokenism, leading the cyclist to a hazard, not leading him or her through it³ – typically bicycle lanes end 30 metres before significant intersections, often without warning and generally without alternate provisions being made.

Some municipalities have introduced intermittent bicycle lane markings and it is questionable whether this practice provides even less protection for cyclists than the fully marked lane.

A recent study of fatal motorcycle accidents in Victoria reported that elements of road infrastructure posed a considerable risk for motorcyclists. Unfriendly infrastructure included tram tracks, lane markings that became very slippery when wet and edges of road furniture that protruded into the line of travel of motorcycles, for example at roundabouts. The same concerns would be expected to affect cyclists.

Questions

51. How can bicycle lanes be configured to reduce risks posed by left- turning traffic and cars emerging from driveways?

52. Is available space best used by widening footpaths to create a shared zone for pedestrians and cyclists or by creating a bicycle lane on the road?

4.4 Traffic Law, Bicycles and Motorcycles

Bicycle law is rarely enforced by Police and it is common to see cyclists failing to stop at red lights; failing to give way to passengers at tram stops; failing to give way to pedestrians on crossings.

Motorcyclists are often seen lane-sharing with cars in an attempt to overtake. This practise is unlawful and extremely dangerous.

Question

53. Are Victoria Police able to put additional resources into more consistent and widespread enforcement of road law for motorcyclists and cyclists? If not, should this task be given to local government?

Public Transport

It is not possible to consider safety for older road users without considering how those who opt, or are forced, to give up using the private car are to maintain their mobility.

United States research evidence suggests that older people have little knowledge of public transport routes, frequency of service, where to buy a ticket or what ticket to buy.¹⁹ It is probable the same will be true of those becoming old in Australia over the next several decades. Many believe that public transport exposes them to physical danger. They perceive it as dirty, unreliable and uncomfortable. Changing these ingrained attitudes will require both education and improved public transport services.

5.1 The Frail and Public Transport

In the low-density suburbs of many of our towns and cities, just walking to the station or bus or tram stop creates a major difficulty in itself. Having made the journey, some will have difficulty climbing the steps into the vehicle.

A number of those physically incapable of using public transport will be eligible for a fifty percent taxi subsidy. With an ageing society, the numbers of people needing this form of assistance will increase, as will the cost of the service. It is in the economic and welfare interest of the community to ensure that public transport meets the needs and matches the abilities of as many as possible. Door-to-door services exist where a person is picked up from home and driven to their destination. These vehicles will pick-up other passengers along the way. Perhaps there is scope for these services to be more efficiently restructured.

5.2 Public Transport Infrastructure

Possibly the most significant recent development in Melbourne public transport has been the Met ticketing system that allows a single ticket to be used on multiple forms of public transport.

The great advantage of a single, multi-modal ticketing system has been adversely affected by the closure of ticket offices at many rail stations and the removal of conductors from trams. The ticketing machines intended to replace human ticket sellers are complex – they assume knowledge of routes and fares that many passengers do not have. They assume a

manual dexterity that some of the aged do not possess. The absence of station staff, train guards and tram conductors means that the old or disabled are often unable to obtain assistance in boarding vehicles. This absence also increases the perception of vulnerability to physical attack.

Several bus companies are in the process of introducing low floor and “kneeling” buses that are designed to improve access for the walking frail and for users of mobility aids. Melbourne’s tram companies are also upgrading to low floor trams with the same purpose in mind. Selected railway station platforms are being resurfaced to remove the need to step into the train. However, a complete upgrade of public transport rolling stock is expensive and will take perhaps twenty years to complete.

Most tram and train routes in Melbourne run radially from the central business district, so travelling distance to tram or train stops increases, the further one is from the central business district. Half a century ago government closed the inner and outer ring rail lines encircling Melbourne. Redevelopment of ring-route rail services now would be extremely expensive.

Tram tracks have been placed on median strips of several divided arterial roads with considerable time savings. This approach could be extended.

Bus services are the only means for many, particularly in the outer suburbs, to access rail stations. Public transport is notoriously unable to provide reliable connections for those changing from one service to another.

Outside the major regional cities access to public transport typically requires the use of a car. The closure of a number of passenger rail lines, on the grounds of economic viability, increased the distance that may need to be travelled by car. In more remote rural areas, buses are the only option and their frequency is sometimes measured in terms of days, rather than hours.

Questions

- 54. While low-floor vehicles will improve access in the longer term, what short-term changes to infrastructure can assist the elderly and infirm to use public transport?*
- 55. Should shelters to protect from the weather be provided at all tram and bus stops?*
- 56. How can security be improved at stops and stations, especially at night?*
- 57. Can real-time computer scheduling enable flexible bus route services and even door-to-door services in less densely populated areas?*

58. *Can we make more use of existing infrastructure, like median strips to make bus and tram services more frequent and reliable?*
59. *Should large print timetables be displayed at bus and tram stops?*
60. *Can textured pavement surfacing assist the unsure and visually impaired in finding their way to the correct stop and, from there, to the vehicle?*
61. *Should all public transport vehicles provide audible information about the next stop?*
62. *What can be done to improve public transport services in rural areas?*

5.3 Enforcing Public Transport Priorities

Trams and buses share the roads with other vehicles and in peak hours journey times become much longer. Bus lanes and the tram "fairway" system - fully or partly reserving traffic lanes for public transport vehicles - have had limited success due to inadequate enforcement of parking restrictions and use by unauthorised vehicles.

Passengers boarding or alighting from trams have to cross the road to reach the safety of the footpath. The prohibition on passing a stationary tram is difficult to enforce by Police. The new low-floor trams have not been equipped with "stop" signs that fold out to warn passing vehicles to stop.

Questions

63. *When will new low-floor trams have folding stop signs fitted to doors?*
64. *Should cameras be more widely used to detect vehicles driving or parking in bus lanes or unlawfully occupying fairway lanes?*

5.4 Personalised Public Transport

For the more frail or disabled, more personalised transport such as community buses or volunteers who drive "people movers" will continue to be required. This sort of service is demanding of human and physical resources and it is costly.

Many Local, State and Commonwealth government departments, hospitals, service organizations and charities run such services already. In some cases, vehicles such as mini-buses, and drivers are used at less than their full potential.

Outside the metropolitan area and the regional cities, these services would be less available. Even at fifty per cent discount, taxi fares become prohibitive because of the distances involved. Moreover, with rural populations ageing more quickly than urban ones, it may not be possible to call upon a neighbour for help to travel to a destination.

Coordination of existing services, and sharing of commitments between organizations would provide a more reliable and efficient service to a greater number of those in need. The process of coordination would also identify areas where there are unmet transport needs.

Commercial services such as taxis and buses, have identifiable peak periods, and vehicles may well have spare capacity during off-peak hours. It should be possible to come to some arrangement between service providers and commercial services that maximises vehicle utilisation and minimises costs over their fleets as a whole.

Door-to-door bus services have been trialled in Melbourne and exist elsewhere. However, variations are possible that might make them more efficient. For example, longer trips could be done on public transport with door-to-door services picking up and delivering from each end of the public transport journey.

A major consideration for the future will be older volunteer drivers. Many volunteers are fully or partly retired. If the voluntary work increases the distance they drive, their crash risk will also rise. Their passengers may also be injured. In the interests of their passengers and community road safety, ongoing training and evaluation may be necessary.

Questions

65. How can taxi companies better provide for the elderly? Can substantial discounts on Taxi Licences be given to owners who contract to provide discount services for the elderly during off-peak periods?

66. In rural areas, could local government initiate a scheme whereby organisations such as Australia Post and the like could assist in transporting people to the nearest town?

67. What training and evaluation would ensure that older volunteer drivers would not be endangering the safety of their passengers?

Land Use Planning

To effect lasting reductions in numbers killed and injured on our roads, we need to look further than the design of roads and the provision of infrastructure. To change transport choices, we need to address the way we use the land around us.

Decisions about where residential developments are to be located must be guided by the ability to provide the best possible safety outcomes for vehicles and pedestrians.

Roads, footpaths and road reserves occupy a substantial amount of land themselves. And, in a culture as dependent on the car as ours, the placement of major roads has tended to dictate the locations of residential developments.

Inevitably, the greater the distance people have to travel, the greater is their danger of being involved in a crash. The relationship between distance travelled and crash risk is stronger for older drivers.

Although decisions about how we will plan in the future are important, we also need to consider what can be done to advance road user safety in existing areas.

6.1 Existing Areas

Melbourne's suburbs and Victoria's regional centres occupy vast areas and have low population densities. There is a large road network and away from the arterial roads, volumes of pedestrian and vehicular traffic are low. Applying world's best practice across this entire network would be extremely expensive.

A process exists that can identify crash locations that need prompt attention. The Black Spot Program analyses crash locations to identify specific points or lengths of road on which a number of crashes have occurred. It provides a reliable means, not only of identifying, but also of prioritising work to try to rectify problems that are causing the crashes.

A shortcoming of the Black Spot approach to planning for road user safety is that it relies on crashes having occurred, been reported to Police and people having been injured or killed. Fortunately an alternative exists in the road safety review. The road safety review is an evaluation by an

independent expert of a location or length of road from the point of view of the road user. It allows accumulated experience and newer appreciations of the ways in which people use roads to be taken into account. A road safety review concludes with recommendations for changes to improve safety.

Question

68. Do road safety reviews adequately address the safety needs of older road users?

6.2 New Building Developments and Redevelopments

Older people may move into new developments for a number of reasons. Perhaps they are already living with other family members who are relocating; perhaps they are taking the opportunity to live close to younger family members; perhaps they are investing in better housing.

New developments occur mainly on the outskirts of cities and towns and it is rare in these areas that public transport is adequate. This further increases reliance on the car.

But new developments follow new roads only because our town planners allow it to happen.

Were we, as a community, to link new developments to the presence of public transport, we would promote higher public transport patronage, thus allowing services to be further improved. At the same time, we would be decreasing the exposure to risk of all road users, particularly the elderly.

In the case of both new developments and redevelopments closer to a city centre, the focus is most frequently a commercial zone. Professional Services will be located in this zone. Local transport will usually terminate in this area and taxis are likely to be available. In addition to being the local focus of community activities and services the commercial area in most new developments is well set up for pedestrian activity with even paving and good signage. As an added bonus, there is frequently a security presence, perhaps with video surveillance.

Living in proximity to shops, doctors and social activities clearly reduces reliance on the car for those who do not have to travel to work. When it is necessary to travel to the central business district, public transport is within easy walking distance.

New developments and urban redevelopments require land use permits. If these permits were conditional upon the availability or provision of public transport, it is probable that there would be changes.

Some of these changes would require the State to redefine its role as a provider of transport infrastructure, putting greater effort into public

transport and less into the road network. The State may need to provide economic incentives to older home buyers to relocate closer to public transport.

The success of these developments would depend considerably on their pedestrian-friendliness. The commercial centres might be pedestrian malls and perhaps shared zones. Certainly they would be subject to road safety reviews in which pedestrian activity would be the primary focus.

Questions

69. Should we consider requiring that new developments and redevelopments of existing urban areas have adequate public transport in place before issuing a permit?

70. Should all permits for development and redevelopment be dependent on obtaining preliminary and final road safety reviews or audits?

71. Should the State provide financial incentives for older people to relocate to areas close to reliable public transport?

Endnotes

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