

Submission to the

2011 Victorian Speed Limit Review

On behalf of the Safe Speed Interest Group

October 2011

About the Safe Speed Interest Group

The Safe Speed Interest Group (SSIG) is a collaboration of health and local government stakeholders. The group promotes low speed limits (30km/h) in urban environments to create road conditions that encourage and support walking and cycling for transport.

This submission is being made on behalf of the following SSIG members:

- Victoria Walks
- Heart Foundation (Victoria)
- Caulfield Community Health Service
- City of Darebin
- Baw Baw Shire Council
- City of Yarra

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1 Background and Overview

The 2011 Victorian Speed Limit Review has the following objectives:

1. To assist road users to comply with speed limits by improvements to the physical layout which reduce complexity and enhance conspicuity.
2. To increase road users' understanding of speed limits and improve alignment between road users' expectations and speed limits. This may include the use of measures to provide consistent visual cues for similar limits and measures to improve the understanding of the reasons for various speed limits.
3. To ensure that road safety performance is maintained or enhanced.

The Terms of Reference of the Review lists several topics for review. This submission addresses the following topics:

- (i) Routes with large numbers of speed zone changes (in general)
- (ii) Opportunities to reduce the number of speed limit changes
- (iii) School Speed Zones
- (iv) Minimum length of speed zones
- (v) Consistency of speed limits under similar conditions.

This submission focuses on how the three Review Objectives listed above can be achieved in a manner that addresses the needs of the more vulnerable, but somewhat neglected road user groups, particularly pedestrians and cyclists. More than one-fifth of the daily travel trips made by Victorian householders are non-car trips; that is, they are made by foot, bicycle, train, tram or bus, with the latter three public transport modes also involving some walking (as do many car trips) (Department of Transport 2009). Nearly half of young people's trips to education in Victoria are non-car trips (27.5% public transport; 17.4% walking, 2.6% cycling) (Garrard 2010).

Vehicle speed is a major threat to the safety of these road users, and speed management is one of a limited number of safety measures available for their protection (World Health Organization (WHO) 2008). Victoria's Safe System road safety strategy has as its foundation that the road system "needs to be designed, built and *speed limited* so that in the event of a crash, the people involved do not receive fatal or serious injuries" (VicRoads 2010, p. 7-5). This principle is particularly important for people who walk and cycle.

As well as improving health through injury reduction, lower traffic speeds in residential areas and activity centres lead to increased rates of walking and cycling, and consequently, a range of health benefits associated with increased levels of physical activity (Garrard 2008; Giles-Corti et al 2010).

As Victorian cities and towns grow in area, population and diversity, the task of providing safe mobility for all community members becomes more complex. Reducing the speed of motor vehicles is a cost-effective method for improving the safety of all road users and for increasing levels of active transport, but reducing travel speed can lead to increased travel times for drivers. In attempting to achieve a balance between road safety and motorised mobility, a large number of 40 km/h speed zones for schools and shopping strips have been introduced in Victoria. These speed zones have led to lower vehicle speed and fewer traffic

injuries, including for child pedestrians and cyclists in school zones (30% reduction post-implementation) (Garrard 2008; VicRoads 2008).

These reduced speed limits, while effective, have led to concerns among some drivers that multiple speed limit changes are confusing and difficult to comply with. A number of options are available for addressing these concerns. As a basis for responding to these concerns, this submission emphasises the importance of addressing the needs of people using non-motorised forms of travel.

Summary of Recommendations

A key recommendation in this submission is to minimise the number of speed limit changes by extending the length of, and areas covered by 40 km/h zones. At the same time it is acknowledged that 30 km/h is the internationally recommended safe speed limit for areas where vulnerable road users are exposed to vehicular traffic (as defined by the biomechanical tolerance to crash impact forces) (WHO 2008). This submission therefore supports the actions of some inner urban council (eg Melbourne City Council, City of Port Phillip, and City of Yarra) who are conducting community consultation regarding the possibility of introducing 30 km/h zones, in line with world's best practice.

This submission recommends:

1. As a key principle, rationalising of adjacent speed limits should not involve any increases in speed limits along any section of road.
2. Rationalising variable adjacent speed limits by establishing permanent 40 km/h speed zones in residential areas and within a 2 km radius of schools, shopping strips, parks, and major trip generators such as universities, TAFE colleges, hospitals, and other employment centres.
3. Implementation of a package of measures that assist drivers to comply with speed limits.
4. Developing a communication strategy to improve drivers' acceptance of, and compliance with speed limits.

Table 1: Summary of Review Topics and Recommendations

Topic	Recommendation
Routes with large numbers of speed zone changes	1-4
Opportunities to reduce the number of speed limit changes	1-4
School Speed Zones	2
Minimum length of speed zones	2
Consistency of speed limits under similar conditions	2,3

As a basis for these recommendations, this submission provides a summary of evidence demonstrating that:

1. Personal mobility in Victoria is multi-modal, and the use of active travel modes is increasing.

2. In addition to injury prevention, lower traffic speed has multiple co-benefits associated with increased levels of active transport (ie improved health, cleaner air, less traffic congestion and more liveable cities).
3. Lower speed limits help to create healthier urban environments which are more people-friendly and supportive of multi-modal mobility, including children's independent mobility.
4. Pedestrians and cyclists are increasingly over-represented in road transport serious casualties in Victoria.
5. A Safe System road safety approach requires that transport systems take into account human tolerance to injury by a motor vehicle. Safe speed is a key component of the Safe System model.
6. Minimising the number of speed limit changes should therefore not involve increasing speed limits.
7. Implementation of safer speed limits is constrained by driver misperceptions.
8. Investing in awareness-raising and education is worthwhile.
9. As lower speed limits are being introduced nationally and internationally, the disparity between the relatively high urban speed limits in Victoria and lower speed limits in Europe and North America is increasing.

2 Terms of Reference of the Review

The Terms of Reference of the Review state that:

“The Review will not investigate the general philosophy of speed management (ie. the guiding principles of the safety benefits of raising or lowering speed limits). It is rather an investigation into application and interaction of rules within the Speed Zoning Guidelines.”

However, to the extent that “application and interaction of rules within the Speed Zoning Guidelines” may result in changes to speed limits in some locations (eg in order to minimise the number of speed limit changes) consideration of the road safety impact of raising or lowering speed limits is relevant. Simplification of speed zones is a process, not an end in itself. As outlined in the Review Objectives, increased compliance, understanding, and road safety performance are the desired outcomes of measures adopted as a result of the Review.

Accordingly, this submission includes information about the road safety and other benefits of speed management (including the use of speed limits), as a basis for making recommendations about improving the implementation of speed limits in Victoria.

3 Victoria's diverse road users

As noted above, more than one-fifth of the daily travel trips made by Victorian householders are non-car trips; that is, they are made by foot, bicycle, train, tram or bus (Department of Transport 2009). Use of public transport modes also frequently involves walking. An analysis of South-East Queensland household travel survey data found that there are more than twice as many walk trip stages made to and from public transport than walk-only trips, and that the median total walking distance associated with public transport use (1.1 km) is

greater than the median distance for walk-only trips (0.8 km) (Burke and Brown 2007). An equivalent analysis is not available for Victoria, but the high levels of walking associated with public transport use in Queensland are likely to also occur in Victoria.

In spite of the multi-modal nature of personal mobility in Victoria, there is a tendency for transport and road safety policies to focus on the needs of motorists and to overlook the needs of other road user groups for safe, convenient, non-motorised personal mobility (Garrard et al 2010). This is particularly the case when judgements are made about the trade-off between safety and mobility in the form of travel time for drivers. Different jurisdictions adopt varying stances on this trade-off, with a number of affluent European and Asian countries prioritising pedestrian and cyclist access and safety over motor vehicle flow in residential areas and activity centres. Speed limits in these areas are 30 km/h or less, and traffic crash injury rates are low for all road users (Garrard et al 2010; Pucher and Buehler 2010).

Increasing numbers of Victorians are walking and cycling to work. Population census data for the journey to work in Victoria indicate that the incidence of walking and cycling to work increased between 2001 and 2006 (Bartley Consulting Pty Ltd 2008), including a 43 per cent increase in cycling to work in Melbourne (Bauman et al 2008). Numerous policies across several sectors and levels of government in Australia now recommend measures aimed at further increasing utilitarian walking and cycling (Department of Infrastructure and Transport 2011). These policies recognise the potential for a win-win-win-win scenario. More active transport trips mean more health, cleaner air, less traffic congestion and more liveable cities; and, with appropriate road safety policies, fewer road traffic injuries.

4 Multiple co-benefits of reduced area-wide speed limits

In addition to the well-established safety benefits of reduced traffic speed, speed reduction contributes to increased walking and cycling for transport (Garrard 2008). The multiple, cross-sectoral benefits of active transport are also well-established (Giles-Corti et al 2010), and include:

- **Health:** increased physical activity and reduced obesity, type 2 diabetes, cardiovascular disease, and cancer.
- **Environment:** reduced air, noise and visual pollution, and climate change.
- **Transport:** more efficient use of finite road space.
- **Community liveability:** people-friendly urban environments.

Hazardous traffic conditions are the main constraint on the use of active transport modes, including for children. Adverse traffic conditions are a key reason why parents drive their children to school despite most children and many parents preferring walking or cycling to school (Carver et al 2008; Garrard et al 2009).

A 2011 survey of the Australian population found that the top four reasons why Australians do not cycle for transport are:

- Unsafe road conditions (46%)
- Speed/volume of traffic (42%)
- Don't feel safe riding (41%)
- Lack of bicycle lanes/trails (35%)

(Cycling Promotion Fund and National Heart Foundation 2011)

Improving safety for pedestrians and cyclists increases active travel mode share (Jacobsen et al 2009), which, in turn, leads to the multiple health and societal benefits summarised in Table 2. The monetized health benefits of active transport have been estimated to be NZ\$4.27 per km of walking and NZ\$2.14 per km of cycling for all new walkers and cyclists (Genter et al 2008).

A rapidly increasing number of cities and towns in Victoria, Australia and internationally are reaping these benefits. The current Review provides an opportunity to assist a larger number of Victorians, and Victoria as a whole, to experience these benefits.

Table 2: Benefits of active travel and sustainable growth

(Source: Litman and Doherty 2009)

Planning objectives	Expand roadways	Efficient and alternate fuel vehicles	Active travel and smart growth
Reduce traffic congestion	✓		✓
Roadway cost savings			✓
Parking cost savings			✓
Consumer cost savings			✓
Improve mobility options			✓
Improve traffic safety			✓
Energy conservation		✓	✓
Pollution reduction		✓	✓
Efficient land use			✓
Public health and fitness			✓

5 People-friendly urban environments

It is important to recognise that streets are social spaces that people use differently depending on their age and the purpose of their journeys. In countries with high levels of walking and cycling for transport, active travel is *prioritised* over car travel for the multiple short to medium distance trips that characterise urban living. This is achieved through an integrated package of transport planning, urban design, and traffic safety measures.

Safe road design in these countries distinguishes between a *flow* function for cars which provides for high-volume, high-speed travel between population centres; and an *access* function in urban areas where people live, work, shop, and move around their

neighbourhoods. These areas are generally accessible by car, but the focus is on access and safety for cyclists and pedestrians, and speed limits are 30 km/h or less.

6 Pedestrian and cyclist road traffic injuries in Victoria

Victoria prides itself on having achieved a relatively low traffic crash fatality rate of 5.9 fatalities per 100,000 population (Transport Accident Commission 2011). World's best practice (3.8 fatalities per 100,000 population) is not that far away, and we aspire to achieve it. However, to date, Victoria's road safety improvements have not been equitably distributed across all road users. Cyclist fatality and serious injury rates are several times higher than world's best practice (see Table 3), and increasing. The current Review provides an opportunity to reduce the injury disparities between motorised and non-motorised road users.

Table 3: Cyclist injury rates, Melbourne, Sydney and internationally
(Source: Garrard et al 2010)

Country (city)	Cyclist injuries (per 10 million km)
The Netherlands	1.4 (KSI)
Denmark	1.7
Germany	4.7
UK	6.0
USA	37.5
Melbourne	12.4 (police data), 31.5 (hospital data)
Sydney	55.7 (police data, includes minor injuries)

In Victoria, for the 10-year period from 2001 to 2010, the total number of road users killed or seriously injured showed a downward trend, as did the number of pedestrians killed or seriously injured. However, there has been an upward trend in the number of cyclists killed or seriously injured (VicRoads CrashStats).

In terms of the breakdown of fatalities and serious injuries for different road user groups, there has been a slight upward trend from 2001 to 2010 in the proportion of killed or seriously injured road users who are pedestrians, and a marked upward trend for cyclists. Cyclists comprised 4.2 per cent of people killed or seriously injured in 2001 and 7.4 per cent in 2010 (see Figure 1). It should also be noted that cyclist road transport injuries are substantially under-reported in police injury datasets such as CrashStats (Sikic et al 2009).

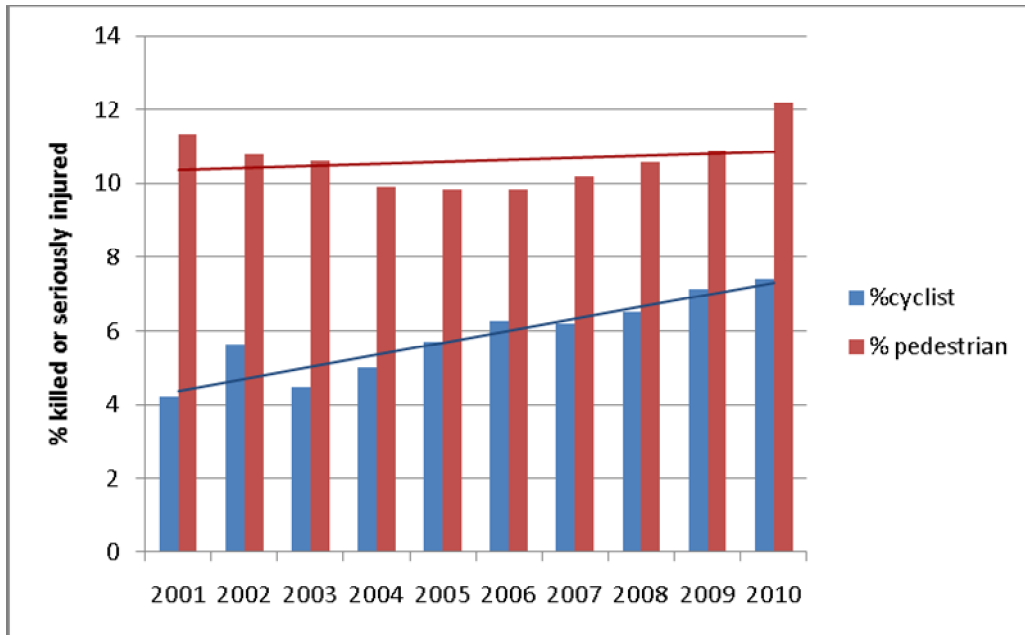


Figure 1: Proportion of total killed or seriously injured who are pedestrians and cyclists, Victoria, 2001-2010
(Source: VicRoads CrashStats)

While pedestrians and cyclists are inherently at greater risk of injury from motor vehicles, international comparative data demonstrate that the risk disparity between pedestrians, cyclists and car occupants can be much lower than it currently is in Australia and Victoria. Countries with low pedestrian and cyclist injury rates have implemented a wide range of road safety measures aimed at reducing pedestrian and cyclist injuries, including lower speed limits (Pucher and Buehler 2008; Pucher et al 2010).

7 Victoria’s Safe System road safety approach

Victoria’s road safety strategy “*Arrive Alive 2008-2017*” is based on the Safe System approach originally developed as part of Sweden’s Vision Zero road safety strategy (Swedish Road Administration 2000). The Safe System approach is based on the premise that the protection of human life and health takes priority in the trade-off between the benefits of mobility and the human and economic costs of death and injury. Road traffic injuries are preventable through reduced traffic speed, and the transport system should adopt speeds that offer mobility without compromising safety (World Health Organisation 2008).

Within the Safe System approach, safe speed limits are defined by the biomechanical tolerance to crash impact forces; for example, 30 km/h for roads where vulnerable road users are exposed to vehicular traffic (World Health Organisation 2008). Victoria could lead the nation in implementing truly safe speeds consistent with this approach, and the current Review provides an opportunity to move in this direction.

Victoria’s road safety strategy also acknowledges that the road transport system must allow for human error through ‘passive’ safety measures such as improved vehicle design. Vehicle

speed is one of the few available protections for pedestrians and cyclists who share the road space with motor vehicles, and occasionally, like drivers, make errors.

8 Rationalisation of multiple adjacent speed limits should not involve increasing speed limits

The current recommendation in Victoria's Speed Zoning Guidelines (VicRoads 2010) is that "rationalising of multiple adjacent speed limits should not involve increasing speed limits". This recommendation is strongly supported in this submission. Due to the strong, consistent evidence that increases in speed lead to increases in serious crash casualties and also create unpleasant urban environments, there is a trend within Victoria, Australia and in most developed countries, towards lower speed limits in built-up areas (see Section 9). It would be unfortunate if Victorian speed policies moved counter to this trend.

Increased speed limits will also constrain active transport (Garrard 2008). Consequently, as discussed in Section 4, individuals and the Victorian community in general will forego the numerous co-benefits of replacing short to medium-distance car trips with active trips (Giles-Corti et al 2010).

9 The importance of addressing misperceptions

Implementation of the key Safe System measure of speed management in Victoria is constrained by misperceptions among some members of the public. Misperceptions include that:

1. Victoria's speed limits are low by international standards.
2. It is safe to drive over the speed limit.
3. Victoria's speed camera program is more about revenue-raising than safety.
4. Lowering speed limits substantially increases drivers' travel time.
5. Mobility for car drivers is more important than for pedestrians and cyclists.

These beliefs, some of which are widespread, are incorrect, and should be addressed as part of a strategy to minimise the number of speed limit changes by extending 40 km/h speed zones in built-up areas in Victoria. Evidence-based responses to these beliefs are as follows.

1. "*Victoria's speed limits are low by international standards.*"

International comparative data in Table 4 demonstrate that, for nearly all road types, speed limits in Australia are relatively *high* (Fildes et al 2005).

Table 4: International and Australasian speed limits

(Source: Fildes et al 2005)

Road type	Europe (mainly)	Australasia (mainly)
School areas	30 km/h	40 km/h
Residential areas	30 km/h	50-60 km/h
Built-up areas	60 km/h	70-80 km/h
Urban roads	60-70 km/h	80 km/h or higher
Rural roads	80-90 km/h	100 km/h
'Motor' roads	100 km/h	100 km/h
Motorways	120 km/h	110 km/h

2. *“It is safe to drive over the speed limit”*

There is widespread community acceptance, in general terms, that increased vehicle speeds lead to more accidents and injuries (Australian Transport Safety Bureau 2006). However, the public hold mixed beliefs about what constitutes ‘speeding’ and also mixed attitudes to a range of circumstances under which speeding is considered acceptable (Daly 2011). The widely held belief (79% of Victorians) that *“Speeding is driving too fast to be safe given your ability as a driver, the weather conditions, the state of the road and the condition of your car”* (Daly 2011) is of particular concern for the safety of cyclists and pedestrians. Drivers’ perceptions of a safe speed are often car-centric, and fail to take into account the risks to unprotected road users.

3. *“Victoria’s speed camera program is more about revenue-raising than safety.”*

The Victorian Auditor-General’s report into the Victorian road safety camera program stated that:

“A 2009 survey of Victorians by the then Australian Department of Infrastructure, Transport, Regional Development and Local Government found that 59 per cent of respondents believed that ‘fines for speeding are mainly intended to raise revenue’.”

(Victorian Auditor-General 2011)

The Auditor-General’s report found that this was not the case, and that the program’s aim and outcome is injury reduction through enforcement of speed limits. The Auditor-General also stated that *“the management of negative public perceptions has not been effective”* and recommended that *“The Department of Justice should expedite the implementation of its communication strategy with a particular emphasis on addressing misconceptions about the program.”* This recommendation is consistent with the broader recommendation in this submission for the implementation of a communication strategy that improves drivers’ acceptance of, and compliance with extended areas of lower speed limits (see Section 12).

4. *“Lowering speed limits substantially increases drivers’ travel time.”*

Consistent empirical data demonstrate that lowering speed limits in built-up urban areas has a minimal impact on drivers’ travel time (Fildes et al 2005).

Traffic flow in built-up urban areas is more dependent on the number of intersections, roadway capacity and congestion than on the speed limit of the road (Fildes et al 2005). For the VicRoads urban monitored network, the average actual travel speed on undivided arterial roads (the road type most commonly used) in inner areas (within an approximate 10 km radius of the Melbourne CBD) in the AM peak in 2009/2010 was 22.2 km/h (VicRoads 2011). Reducing speed limits from 60 km/h to 50 or 40 km/h in built-up areas typically increases drivers’ travel time by 10 seconds/km or less (Herrstedt 1992).

5. *“Mobility for car drivers is more important than for pedestrians and cyclists.”*

While not stated explicitly, this is the assumption that underlies much road transport planning in Australia and Victoria. Urban and transport planning policies are car-oriented and improved access and travel times for pedestrians and cyclists are rarely considered. For example, the impact of traffic speed on pedestrians’ and cyclists’ mobility and travel time is largely ignored, as the focus is on drivers’ mobility and travel time as discussed in 4. above.

In contrast, high-cycling countries such as the Netherlands have consistently implemented a range of transport, traffic safety and urban planning measures that systematically prioritise cycling over car travel for short to medium distance trips in urban areas. As in Australia, motorways and arterial roads provide for high-speed, high-volume motorised travel between major population centres. However, transport, urban planning and road safety measures make cycling faster and more convenient than car travel within cities, towns and suburbs (Ministry of Transport Public Works and Water Management 2009). These measures have widespread community support.

10 Investing in awareness-raising is worthwhile

Australia has implemented a number of very successful and cost-effective public health strategies in areas including road safety, tobacco control, prevention of HIV/AIDS and immunization (Applied Economics 2003). Successful strategies invariably incorporate public awareness-raising, education, creating supportive environments, regulation and enforcement. These components are inter-dependent. The public is unlikely to accept regulatory measures if they are unaware of, or confused about, the relationship between the measure being introduced (eg bans on smoking in public places) and health (eg lung disease due to passive smoking).

It is therefore important to address public misperceptions about traffic speed, injury risk (particularly for unprotected, less common road users such as pedestrians and cyclists) and travel time, as a basis for implementing effective speed management measures.

Measures to improve public health by preventing disease and injury, while highly effective and cost-effective, are often controversial and difficult to implement. Opposition from interest

groups is common, and the introduction of regulatory measures is dependent on public support. Public education and awareness-raising is crucial for gaining support for regulatory and enforcement measures.

A well-designed communication strategy aimed at countering the misperceptions listed in Section 9 will assist in establishing support for speed limit changes (World Health Organisation 2008). A similar communication/education strategy has been recommended by the Victorian Auditor-General to reduce misperceptions about Victoria's road safety camera program (Victorian Auditor-General 2011).

11 Consistent, area-wide speed reduction with minimal speed limit changes is part of local, national and worldwide trends

In an acceleration of a trend that commenced in some developed countries in the 1960s, an increasing number of cities, towns and suburbs are now lowering speed limits to reduce traffic injuries and improve health, transport efficiency, the environment and community liveability.

In Victoria, in response to local community concerns, speed limits are also trending downwards. Examples include:

- 80-90% of residential areas in the City of Yarra are now 40km/h.
- City centres in some rural cities and towns are now 40 km/h (eg Warrnambool and Warragul).
- An increasing number of strip shopping centres in Melbourne are 40 km/h, and further reductions in speed limits are being considered by a number of inner city councils including the Melbourne City Council.
- Castlemaine has a school zone and walking/cycling zone with a 2km radius, which improves amenity for tourists as well as residents.

There is an opportunity, through the current Review, to improve safety and amenity, and establish consistency in the Victorian road network.

Several other Australian cities are implementing extended 40 km/h speed limits in residential areas, shopping strips and activity centres. The CBDs of Brisbane and Perth are now 40 km/h and Sydney, like Melbourne, is attempting to establish 40 km/h speed limits in the CBD.

Internationally, the UK Department for Transport recently recommended that highway authorities, over time, introduce 20 mph (32 km/h) zones or limits into streets that are primarily residential in nature, or other areas where pedestrian and cyclist movements are high (for example around schools or markets) and which are not part of any major through route (Department for Transport 2009). In September 2011 the UK Transport Minister announced changes in signage requirements which make it easier and cheaper for local authorities to implement area-wide 20mph limits for cities, towns and villages. Twenty-five cities, towns and local government areas in the UK covering 6.9 million people have already introduced or are planning to introduce 20 mph speed limits in these areas (<http://www.20splentyforus.org.uk/>).

The European Union has also taken steps to implement 30km/h speed limits across its member states. On 27th September 2011 the European Parliament adopted a resolution in which it “strongly recommends the responsible authorities to introduce speed limits of 30 km/h in all residential areas and on single-lane roads in urban areas which have no separate cycle lanes.” This resolution is part of a wide range of measures to halve Europe’s 31,000 annual road fatalities by 2020 (European Cyclists’ Federation, 2011).

The International Transport Forum at the OECD (of which Australia is a member) recently released the report “*Pedestrian Safety, Urban Space and Health*” which acknowledges the importance of walking as an integral part of the transport system and provides guidelines for developing a safe environment conducive to walking. Recommendations include:

Implement traffic-calming policies and generalise 30 km/h zones in city centres, residential areas and other high pedestrian activity areas. This should be based on a functional classification of urban spaces, streets and road networks, supported by appropriate infrastructure design criteria to create low-risk and amenable urban environments for non-motorised road users. To be fully effective, best-practice education, communication and enforcement programmes are needed. The development of intelligent speed adaptation systems is also recommended. (OECD/ITF 2011)

The International Transport Forum at the OECD is an intergovernmental organisation with 52 member countries including Australia. It acts as a strategic think tank with the objective of helping shape the transport policy agenda on a global level and ensuring that it contributes to economic growth, environmental protection, social inclusion and the preservation of human life and well-being.

Other international organisations which recommend 30 km/h speed limits in urban areas include: the (UK) National Institute for Health and Clinical Excellence, EU Committee on Transportation and Tourism, and the World Health Organisation.

12 Recommendations

1. As a general principle, rationalising of adjacent speed limits should not involve any increases in speed limits.

This principle is based on strong and consistent evidence that an increase in speed limits will result in increased traffic injuries and therefore detract from Victoria’s goal of reducing serious traffic casualties by at least 30%. Increased speed limits are also likely to inhibit walking and cycling, and reduce children’s and adults’ access to public space.

2. Rationalise variable adjacent speed limits by establishing permanent 40 km/h speed zones within a 2 km radius of schools, shopping strips, public transport hubs, parks and major trip generators such as universities, TAFE colleges, and employment centres.

The current School Speed Zones are too limited to adequately protect children walking and cycling to school. In Victoria the median trip distance for young people walking or cycling to school is 1 km (Department of Transport 2009). Consequently, School Speed Zones offer protection for only about a quarter of the average walking or cycling trip to school. It is important to recognise the need for improved safety across the wider school catchment area, and not just in the last 250m of children’s journey to school.

Creating uniform slower speed limits within designated areas will provide safety and consistency. Mapping school zones, residential zones, shopping strip zones, and major trip generators will enable identification of the 40 km/h priority areas.

3. Implement a package of measures that assist drivers to comply with speed limits.

Austrroads Speed Zoning Guidelines list a number of measures to maximise the effectiveness of lower speed limits (Traffic Engineering Manual Vol 1, Chapter 7, p.7-13).

In addition, the concept of 'self-explaining roads', which originated in the Netherlands, is being used increasingly as a means of slowing traffic in residential areas and activity centres (Mackie 2010). Self-explaining roads encouraged drivers to naturally adopt behaviour consistent with road design and function. Different classes of roads are distinctive, and within each class, features such as road width, road markings, signage, and use of street lighting are consistent throughout the route. Drivers perceive the type of road they are entering and travelling along, and "instinctively" know how to behave. The environment effectively provides a "label" for the particular type of road, and there is less need for separate traffic control devices such as additional traffic signs to regulate traffic behaviour (*Self-explaining roads*, European Commission Road Safety, available at: http://ec.europa.eu/transport/road_safety/specialist/knowledge/road/designing_for_road_function/self_explaining_roads.htm).

4. Develop a communication strategy to improve drivers' acceptance of, and compliance with speed limits.

The strategy should target drivers' knowledge, attitudes and behaviours including:

- (i) The relationship between speed and injury, particularly for pedestrians and cyclists; and for children, older adults and people with a disability.
- (ii) How to interact safely with pedestrians and cyclists.
- (iii) The small impact of reduced speed limits on driver travel time.
- (iv) The mismatch between drivers' *perceptions* of a safe speed (based on being in a protective car), and actual safe speed, particularly for unprotected people walking or cycling.

These recommendations are consistent with:

- Victoria's Safe System road safety strategy which includes safe speed as a major component, and incorporates the principle of minimising harm in the event of road user error.
- Australia's (and Victoria's) Speed Zoning Guidelines, which state that "any rationalising of adjacent speed limits should not involve increasing speed limits" (Chapter 7, p. 13, 2010)
- The Victorian Transport Integration Act 2010, which recognises that transport can affect broader social, environmental and economic outcomes. Key aspects of the framework relate to health and the built environment; including, reducing the need for private motor vehicle transport and the extent of travel [section 11(2)(c)], facilitating better access to, and greater mobility within, local communities [section 11(2)(d)];

and promoting forms of transport and the use of forms of energy which have the greatest benefit for, and least negative impact on, health and wellbeing [section 13(c)].

13 Conclusions

This submission provides evidence-based recommendations for rationalising adjacent speed limits in built-up areas in Victoria by increasing the range and time of operation of 40 km/h speed zones, and by improving driver acceptance of and compliance with 40 km/h speed limits.

From a holistic social policy perspective, these recommendations are also consistent with increasing the mode share of active transport in Victoria. Investing in improving the safety of motor vehicle occupants has substantial benefits for injury prevention; but, as demonstrated in this submission, investing in improved safety for pedestrians and cyclists has a wide range of injury prevention, health, transport efficiency, environmental sustainability and community liveability benefits. Speed management, including rationalisation of multiple speed limit changes, is a key component of such an investment strategy, with potential to improve multi-modal mobility, health, wellbeing and liveability for Victorians.

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