

Designing a safe system for vulnerable road users in Inner Melbourne

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Abstract

Road safety policy makers and practitioners subscribe to the safe system. This presentation asks how well the prevailing understanding and application of the safe system serves the needs of vulnerable road users. It will present a conceptual framework for the safe system that puts vulnerable road users first - in practice as well as in theory.

Inner Melbourne has a high and ever growing concentration of pedestrians, cyclists, public transport users and motorcyclists. The number of people accessing the region by these modes for education, employment and entertainment continues to grow strongly. It also has a rapidly increasing residential population. It is a 24 hour city.

While Inner Melbourne has few fatalities, it does have a large representation of pedestrian and cyclist serious injuries.

The presentation will draw on leading practice from RSAGIM member councils in a range of areas including policy, speed reduction, and pedestrian and cyclist supporting infrastructure. It will introduce cultural approaches that support road user safety.

The presentation will conclude with offering a conceptual framework for a safe system for vulnerable road users in Inner Melbourne.

Introduction

Road Safety Action Group Inner Melbourne (RSAGIM) is a registered group of the Victorian Community Road Safety Partnership Program (VCRSPP). RSAGIM is a collaboration of the Cities of Melbourne, Port Phillip, Yarra, Stonnington, community representatives, Victoria Police and other health and road safety focussed organisations. The RSAGIM works actively towards improving the profile and safety of vulnerable road users in recognition of the safe system philosophy. All RSAGIM member councils have strong commitments to active and sustainable transport which translate into significant investment each year in infrastructure to support walking and cycling.

Groups registered under the VCRSPP were invited to identify and respond to local community road safety priorities. RSAGIM resolved to focus on the safety of vulnerable road users in recognition of the strong and ever growing presence of pedestrians and cyclists in the region. RSAGIM also identified a gap in the profile and representation of vulnerable road users in road safety forums and literature. While road safety policy makers and practitioners subscribe to the safe system, at times it can seem to vulnerable road users that the application of the Safe System was devised from behind the steering wheel of a car.

This paper asks how well the prevailing understanding and application of the safe system serves the needs of vulnerable road users in Inner Melbourne.

The context

The road safety issues in Inner Melbourne are unique in Victoria and require a tailored response. The region has high volumes of pedestrians and cyclists, a large number of education and entertainment precincts, and a dense public transport network. Whereas it has few fatalities, it has many serious injury crashes.

There is a growing recognition of the burden of serious injury to society and to the people who experience it. Victoria's Road Safety Strategy 2012 – 2022 (VRSS, 2013) acknowledges the challenges of reducing serious injury which costs Victoria \$2.4 billion a year. The vision of the Strategy is zero deaths and zero serious injuries. The target is to reduce serious injury by 30 percent over the next ten years. The VRSS recognises that these targets cannot be achieved by any one agency or organisation. This paper argues that local governments in Inner Melbourne have a key role to play, based on a strong record of achievement, innovation and commitment in reducing serious injury on their local roads. This paper will draw on some leading practice examples from RSAGIM member councils to illustrate this point. Fine and effective collaboration between local governments with VicRoads is needed to reduce serious injuries on arterial roads in their municipalities.

The approach to vulnerable road users needs to be embedded in both soft and hard infrastructure (Garrard, 2011). Policy and strategy based on strong public consultation provide the framework that drives budget decisions, which in turn lead to implementation of on ground infrastructure and road safety programs. The councils referred to in the discussion below place a very high value on vulnerable road users and prioritise them in their policy. These enabling policy settings have led to increased participation in walking and cycling. While the safety outcomes of some of the treatments discussed need to be observed over a longer period of time, results for both safety and participation appear to be very positive.

The City of Melbourne

The City of Melbourne is the fastest growing municipality in Australia (City of Melbourne, 2014a). Each day 800,000 people travel to the municipality to work, study or visit the city each day, a figure that is anticipated to reach 1 million within 10 years.

The City of Melbourne Road Safety Plan 2013-17 is expressed in a very positive language. The goal of the plan is to

‘Create a safe, comfortable and richly engaging urban environment where pedestrians, cyclists and motorcyclists are welcomed and supported through world leading road safety practices.

The City of Melbourne has a range of connected and mutually reinforcing strategies and policies including the Road Safety Plan 2013-17, Bicycle Plan 2012-16 and draft Walking Plan 2014-17.

66 percent of all trips within the City of Melbourne are undertaken by pedestrians. The City of Melbourne has the highest rates of pedestrian death and injury in the state. In the City of Melbourne, a pedestrian is killed or sustains a serious or other injury every two days. There were 956 pedestrians injured or killed in the five years to 2011 (City of Melbourne, 2014b). The draft Walking Plan proposes a series of actions to make walking safer for the burgeoning numbers of walkers.

The City of Melbourne also aims to become known as a cycling city. To realise that goal, cycling must become safer. It is a goal that cannot be achieved in isolation from the other goals of the plan which include connecting the cycling network, providing quality routes and increasing cycling participation (City of Melbourne, 2012).

Princes Bridge is a key pedestrian route across the Yarra River, connecting some of Melbourne's most significant pedestrian destinations including Flinders Street Railway Station, Federation Square and the arts precinct. Princes Bridge is used by approximately 30,000 pedestrians per day. Between 5 and 6pm an average 3,178 people walk across the bridge, more than the number who cross by car (2,166) and bicycle (909) combined. The mix of pedestrians and cyclists on the Bridge exceeded VicRoads guidelines for shared paths and was an unsatisfactory, and unsafe, environment for both groups of road users (Victoria Walks, 2013).

During the five year period from 2007 to 2011, there were thirteen reported collisions involving a city bound cyclist being 'car doored' on Princes Bridge. Car dooring is the unexpected opening of car doors into the path of cyclists.

On 19 June 2013, the City of Melbourne installed a 2.2 metre separated bike lane on the western side of Princes Bridge for cyclists travelling north into the city for a three month trial.

Since that time, total on-road city bound bike volumes have increased by over 40 percent during the peak periods (accounting for seasonalisation factors). While VicRoads' crashstats website has not yet been updated to include data from the three month trial period, Victoria Police stated that they were unaware of any 'car dooring' crashes during the bike lane trial. Apprehensions about significant travel time delay were not realised (City of Melbourne, 2013). The project has had great benefits for both pedestrians and cyclists. Victoria Walks noted the positive impact of the project on walking. 'The northbound bike lane has enabled full use of the footpath to be returned to walkers.' (Victoria Walks, 2013)

La Trobe Street

Between 2008 and 2012, there were 36 recorded casualty crashes on La Trobe Street involving cyclists, a rate of 7.2 crashes per year. These incidents primarily comprised car door (driver's side) and turning vehicles interactions.

The La Trobe Street separated bicycle lane was installed in 2013 to provide a high quality east west connection across the north of the city. Cyclist numbers were monitored in a series of surveys, and have been steadily increasing since the lane was installed. A comparison from February 2012 to February 2014 confirms that cycling numbers have doubled in the AM peak hour and tripled in the PM peak hour following the installation of the bike lanes. The cyclist mode share increased from 9 percent to 22 percent of trips in the peak periods. Two-way cyclist volumes in February 2014 were approximately 380 in the AM peak hour and 335 in the PM peak hour (City of Melbourne, 2013).

Since installation, between July 2013 and January 2014, police reports indicate the occurrence of 9 casualty crashes involving cyclists in 7 months. Only one of these has involved car doors, and that was on the passenger side. While the cyclist casualty crash rate per year appears to have increased, the higher rate is consistent with the doubling and tripling of cyclist volumes observed on La Trobe Street, and the result of increased exposure. Ongoing refinements to the lane have been made. The incidence of injury related to 'car

doorings' on the driver side has been eliminated. This treatment illustrates a safe system approach. Should a car driver experience a lapse of attention, or be unaware of her responsibility to avoid creating a hazard by opening the car door, no injury ensues. In addition, since the bicycle lane is protected from vehicular traffic, there is no danger of being thrown into the path of an oncoming vehicle.

These two examples show that when safe infrastructure is provided, there is a dramatic increase in cycling participation.

City of Port Phillip

In 2002, the City of Port Phillip formally adopted a road user hierarchy into the Road User Safety Strategy 2002 – 2007. The Strategy introduced a priority to transport modes in this order: walking, bike riding, public transport, freight, multiple occupancy vehicles, single occupancy vehicles. The word 'user' was introduced into that strategy, putting people at the centre of the strategy, rather than roads. The commitment to reducing serious injuries has been sustained and strengthened since that time. The Council's updated strategy, Safer Streets 2013 to 2020, notes the achievements of the earlier strategy in reducing serious injuries by 45 percent between 2007 and 2011. Pedestrian serious injuries decreased by 57 percent over this period. (City of Port Phillip, 2013)

The Cecil Street/Coventry Street intersection in South Melbourne provides access to the regional attraction of the South Melbourne Market which attracts over 300,000 visits a year. The intersection was recognised as a local blackspot that had 5 pedestrian injury collisions recorded between mid-1999 and 2004. To improve pedestrian safety and priority, in February 2005, the Council installed four raised pavement pedestrian crossings which require vehicles to give way to pedestrians wishing to cross. This unique roundabout layout, which introduces raised crosswalks directly at the roundabout entrance, as opposed to at a car length back, aims at improving safety and convenience for pedestrians.

In the eight year period post installation there have been zero personal injury collisions at this location. A preliminary study of the crossings suggests that they have not only been successful in giving priority and convenience for pedestrians, but have also significantly reduced vehicle speed on the approach to the crossings which reduces the risk of serious injury to pedestrians. Compliance with the use of the crossings has also increased dramatically from half to 90 percent (Candappa & Stephan et al, 2013)

Since that first crossing was installed in 2005, the City of Port Phillip has installed thirteen further raised pedestrian crossings, several of them on routes to primary schools.

Safe Speed

The City of Yarra had an estimated residential population of 80,688 in June 2012. The City of Yarra aims to become the most bicycle friendly city in Australia. It also wants to increase the number of people walking in Yarra. To realise these goals, the Council determined to work on speed because of the well understood impact of vehicle speed on the outcomes for pedestrians and in collisions. A pedestrian or cyclist hit by a vehicle travelling at 50 km/h is four times more likely to be killed or seriously injured than if hit at 40 km/h (VRSS, 2013) and as shown in the Figure below (after Corben, D'Elia and Healy, 2006)

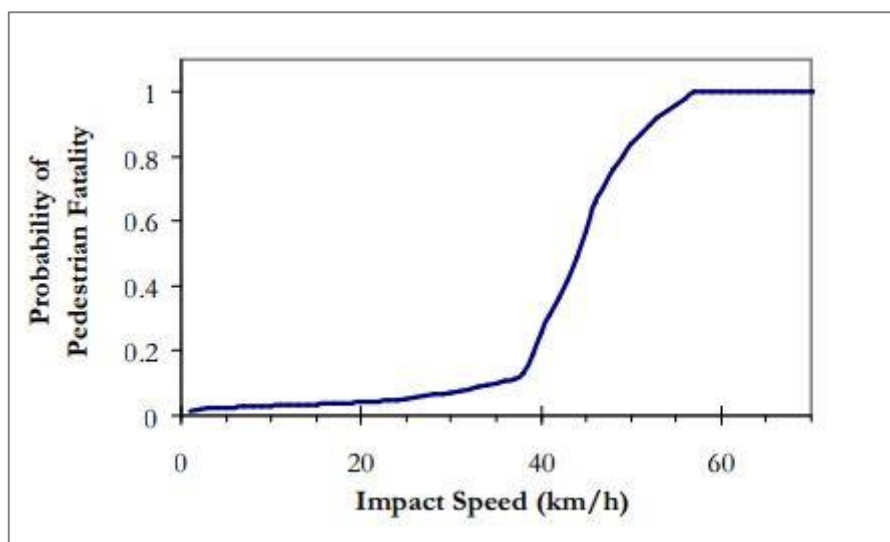


Figure 1 Relationship between probability of a pedestrian fatality and impact speed

The City of Yarra is the first municipality in Australia to achieve 40 kph on local streets, an achievement for which they recently received a commendation at the TAC Towards Zero Road Safety Awards. This achievement is the result of sustained, detailed and thorough work and commitment since 2006. The Council developed and continually refined a systematic approach to Local Area Traffic Management (LATM) that combined an analysis of the existing conditions in the neighbourhood under consideration including traffic speed and volume, through traffic, road safety, and the presence of heavy vehicles. Each LATM was initiated through detailed community consultation and with stakeholder involvement. The preferred approaches were translated into Traffic Management Plans which are reviewed for safety and effectiveness after 12 months. The City of Yarra achieved a virtuous cycle where a positive community response led to more budget being allocated to LATMs. The lowered speed limits encourage more active engagement between pedestrians, cyclists and car drivers. Between 2006 and 2011 the number of people cycling to work in Yarra has increased by 49.45 percent from 2,443 to 3,652 (City of Yarra, 2014).

Safety and perceptions of safety

Improving cycling safety is a key factor for increasing everyday cycling. (Garrard, 2011) Cycling safety and cycling participation go hand in hand as the examples given above suggest. Concerns about safety are a major barrier to cycling in Australia, and a greater barrier for women than men. The perception of risk puts many women off cycling. Debate in the media about cycling is often aggressive and contributes to an environment that makes some women reluctant to ride.

The City of Port has added an additional 'E' to the traditional trio of education, enforcement and engineering – encouragement - in its Safe Streets Road User Safety Strategy 2013 to 2020. Recognising that safety was a barrier to increasing the number of women riding, the Council in partnership with several other organisations, presented 'She Spoke', a three-month programme of workshops dedicated to promoting women's participation in bike riding through building skills, confidence, knowledge and support to get back on their bikes and ride for transport. The programme was tailored to women of all ages and life stages. The sessions were designed to be enjoyable and promote social connectedness. In the opening session, women identified a range of safety related concerns using words such as 'scared, lost, not

confident, be capable, basic skills, casual rider, beginner, want to be assertive, concern about safety' (J. Cerjero, personal communication August 7th, 2014). Over 225 people participated in the sessions. The programme is currently being evaluated. Supporting, encouraging behaviour change programs such as this are an antidote to fear based campaigns and are likely to be more effective in increasing women's participation in cycling.

Discussion

Inner Melbourne will continue to grow and densify. This will be accompanied by acceleration in walking and cycling. Innovative treatments to accommodate this uptake will be needed. The City of Melbourne has identified pedestrian congestion as a growing safety concern in the Draft Walking Plan. Safety for pedestrians and cyclists needs to be built into urban renewal projects to achieve the pedestrian and cycling friendly environments painted in vision documents.

The few examples discussed above from Inner Melbourne suggest that the application of the safe system needs to move beyond a narrow road safety focus to broader considerations of health, environment, urban design, and land use planning. RSAGIM supports the conclusion reached by the Victorian Road Safety Committee Inquiry into Serious Injury that 'if Victoria is to address existing and new road safety challenges, road safety policy must be integrated with other policy areas such as health, justice, planning and education (Parliament of Victoria 2014). This view is supported by the Global Status Report on Road Safety 2013 which states that 'Countries that can effectively reduce private motorized vehicle use, increase the appeal of walking and cycling and make associated infrastructure improvements to protect pedestrians and cyclists can reduce the risk of road traffic injuries. Additional co-benefits can also result from such policies, including reduced air pollution and greenhouse gas emissions, reductions in traffic congestion, and beneficial health outcomes associated with increased physical activity from walking and cycling.' (WHO, 2013)

Local governments are well placed to enable such integrated and holistic objectives for the health and wellbeing of their communities which also deliver greater safety for walking and cycling. RSAGIM member councils demonstrate the multiple co-benefits that can be achieved through investment in infrastructure that prioritises vulnerable road users such as more active people, greater social interaction, and pleasanter urban environments. As Rodney Tolley, the walking advocate has observed, ugly streets stop walking. Local governments are not included as partners in Victoria's Road Safety Strategy and yet they have the greatest potential to influence safety outcomes on local streets.

The phrase 'vulnerable road users' is widely used in road safety literature to recognise that pedestrians and cyclists do not have external protection. Health promoting organisations including Councils prefer to speak of 'active transport' or 'unprotected road users' to overcome the connotation of passivity which 'vulnerable' can suggest. RSAGIM member councils actively facilitate, encourage and promote walking, cycling and public transport. The road safety discussion and the public health discussion seem to proceed on parallel tracks. Were they to merge or intersect more effectively, greater safety as well as participation in walking and cycling could be achieved. The safe system has a moral and ethical foundation which is concerned with the safety of all road users. At present, vulnerable road users seem to be largely absent in the presentation of the safe system. For example, recent VicRoad promotion of common road rules does not include one theme that explicitly relates to road

rules that support pedestrians and cyclists. It illustrates a world devoid of pedestrians and cyclists. (VicRoads)

Safer vehicles often denote safer cars. There is great optimism and in road safety circles about the role technology will play in making the occupants of cars safer. Safety within a vehicle should never be achieved at the expense of vulnerable road users. Practices such as tinting car windows which inhibit cyclist and pedestrian interaction with car drivers should not be supported.

The application of the safe system would enable and facilitate processes that support the safety of vulnerable road users based on principles, evidence and contemporary challenges, rather than on outdated rule books. Council objectives expressed in adopted road safety strategies that have undergone extensive community consultation should be given weight and consideration when interventions in favour of vulnerable road users are proposed. At present, this is not always the case. For example, the warrants required to supporting pedestrian crossings are hard to achieve. The Victorian Speed Limit Review 2011 to 2012 is an example of moving towards a different approach. The review involved a public consultation process and resulted in a series of eligibility criteria for 40 kph zones which are delivering tangible benefits to communities. Opportunities should be taken to create similar principle and evidence based approaches to support walking and cycling. Such evidence based approaches grounded in safe system thinking would be willing to support even lower speed limits where high volumes of pedestrians interact with motor vehicles.

To date, vulnerable road users have been neglected in transport and planning policy (Chan, 2013). Vulnerable road users are legitimate road users in the safe system. Not only are they legitimate road users, they contribute to a healthier society and form a growing proportion of road users in Inner Melbourne. Vulnerable road users seek fair representation of their concerns in road safety discussion. Pedestrians and cyclists also seek leadership and support from road safety practitioners subscribing to the safe system in public forums and the media when interventions in favour of vulnerable road users are proposed.. The world must now increase its focus on making walking and cycling safer, and protecting these road users from high-speed traffic.'

More detailed case studies from local governments would support recommendation 41 of the Victorian Inquiry into Serious Injury of developing resources to share best practice examples from Victorian municipalities, other jurisdictions and overseas.

Conclusion

The moral and technical basis for Safe System is widely recognised and has almost certainly contributed to the ongoing improvement in road safety outcomes in Australia over recent years. The Safe System approach recognises that reducing the injury burden on the road network requires a multifaceted strategy. Furthermore, it recognises the inherent limitations of human decision making – that all of us, no matter how skilled or conscientious, make errors on the roads (whether as motorists, pedestrians or bicycle riders). It is morally unacceptable that these errors should result in serious injury to us or to other road users. A forgiving and equitable road network that is compatible with Safe System requires vehicle speeds of 30 – 40 km/h where pedestrians and riders interact with motorists, and separation of the modes where these speeds cannot be achieved. As road safety practitioners we cannot claim to be compliant with the ideals of Safe System where vulnerable road users have to interact with motorists in high speed environments.

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References

Candappa, N., K. Stephan et al (2013). Raised Crosswalks on Entrance to the Roundabout - A Case Study on Effectiveness of Treatment on Pedestrian Safety and Convenience Traffic Injury Prevention

City of Melbourne (2012). Bicycle Plan 2012-2016
http://www.melbourne.vic.gov.au/AboutCouncil/PlansandPublications/strategies/Documents/Bicycle_Plan_2012-16.pdf Retrieved 10 August 2014

City of Melbourne (2013a). Road Safety Plan 2013-2017
<http://www.melbourne.vic.gov.au/AboutCouncil/Meetings/Lists/CouncilMeetingAgendaItems/Attachments/10855/JUL13%20FMC1%206.4%20ROAD%20SAFETY%20PLAN%202013-2017.pdf> Retrieved 10 August 2014

City of Melbourne (2013b) Princes Bridge Northbound Bike Lane – Review of Three Month Trial Report to the Future Melbourne (Transport) Committee

City of Melbourne (2014a). Homes for people: Draft Housing Strategy 2014-18 (<http://www.melbourne.vic.gov.au/BuildingandPlanning/FutureGrowth/Pages/DraftHousingStrategy.aspx>) Retrieved 10 August 2014

City of Melbourne (2014b) Draft Walking Plan 2014-17
(<http://www.melbourne.vic.gov.au/AboutCouncil/Meetings/Lists/CouncilMeetingAgendaItems/Attachments/11550/JUN14%20FMC1%20AGENDA%20ITEM%206.5%20DRAFT%20WALKING%20PLAN%20REPORT.pdf>) Retrieved 8 August 2014

City of Port Phillip (2013). Safer Streets 2013-2020 The Road User Safety Strategy
<http://www.portphillip.vic.gov.au/safer-streets-road-user-safety-strategy.htm> Retrieved 10 August 2014

City of Yarra (2014). Successful implementation of 40 km/h Zones for Local Roads presentation to Institute of Public Works Engineering Australasia

Garrard, J (2011a). “Its not just about bike lanes” ABC Environment
<http://www.abc.net.au/environment/articles/2011/09/08/3312420.htm> Retrieved 10 August 2014

Garrard, J (2011b). “Bikes as transport: getting Australian women along for the ride” The Conversation
<http://theconversation.com/bikes-as-transport-getting-australian-women-along-for-the-ride-2157> Retrieved 8 August 2014

Parliament of Victoria (2014). Road Safety Committee Inquiry into Serious Injury

State Government of Victoria (2013). Victoria’s Road Safety Strategy 2013-2022
<http://www.roadsafety.vic.gov.au> Retrieved 8 August 2014

VicRoads (2012) 2011 – 2012 Speed Limit Review
http://www.vicroads.vic.gov.au/NR/rdonlyres/0A8A96C6-AB1F-4797-B7D9-51FA19079797/0/20112012Victorian_Speed_Limit_Review.pdf Retrieved 8 August 2014

VicRoads (2014). Common Road Rules

<http://www.vicroads.vic.gov.au/Home/SafetyAndRules/RoadRules/CommonRoadRules.htm> Retrieved 8 August 2014

Victoria Walks (2013). Submission to the Future Melbourne (Transport) Committee Princes Bridge Northbound Bike Lane

http://www.victoriawalks.org.au/Assets/Files/Princes_Bridge_Submission4Oct13.pdf Retrieved 10 August 2014

World Health Organization (2013). Global status report on road safety 2013: Supporting a decade of action

http://www.who.int/violence_injury_prevention/road_safety_status/2013/report/en/ Retrieved 7 August 2014