

**Standing Committee on Planning,
Environment and Territory and Municipal
Services**

Inquiry into Vulnerable Road Users

Submission by Martin Miller



The focus of my submission is on international best practice for cycle infrastructure with issues related to pedestrians. I am also available to appear before the committee hearing to expand on the issues raised in this submission.

The terms of reference for this inquiry is as follows:

- *an examination of national and international best practice approaches to protecting and encouraging vulnerable road users, including through regulation, infrastructure, design, education and funding arrangements;*
- *gathering evidence from the community and experts about issues faced by vulnerable road users and potential improvements;*
- *recommending changes to be made in the ACT to better protect and encourage vulnerable road users; and*
- *any other relevant matter.*

I hope that the government agencies and also the relevant ministers responsible for transport/ Road safety will be invited to attend this inquiry to give evidence. While ACT Roads is responsible for delivering infrastructure under Territory and Municipal services (TAMS), The Environment and Sustainable Development Directorate (ESDD) is responsible for transport planning and the Justice and Community Safety Directorate (JCS) looks after road safety policy. It seems ridiculous to have three agencies responsible for the design, construction and implementation of transport functions.

I have always held the view that there needs to be a separate department or directorate in this case that is responsible for transport and infrastructure. This will reduce duplication which does happen across agencies and provide the community with a easier process to contact relevant government officials and be more accountable overall for decision making.

During this committee inquiry process there are plans to review ACT's design guidelines for pedestrian and cycle infrastructure by Roads ACT (TAMS) . The Strategic cycle network is at the second stage of a draft report by Transport for Canberra (ESDD). There is also a ACT road safety action plan draft report by the Justice and community directorate ready for community consultation. The recommendations of this committee inquiry will hopefully provide updated policy outcomes of those plans if adopted by the ACT Government.

There is no doubt the motor vehicles has transformed our cities in terms of the function and layout. People now have the individual freedom of travelling long distances as well as access to range of quality goods and services that come from different areas around the country and the world.

Sadly though this has come at a huge cost to peoples lives not just those that drive and are passengers in motor vehicles but people going about there daily lives either by walking and riding a bike or other human powered wheeled device. It is estimated that every year 1.2 million people are killed in traffic related accidents around the world. Most people accept this as the price of mobility and the freedoms that motor vehicles bring to a modern developed society.

In comparison Air travel today is one of the safest forms of transport even with the increasing amount of flights every year, air crashes remain low. If the figures related to traffic deaths were extrapolated to airplane crashes, we would have at least 10 large passenger jets, for example A380's, crashing every day. Aviation has improved its safety record over the years with new technology, better training and procedures which is focused on safety.

Countries like Sweden and the Netherlands have introduced road safety laws and campaigns to improve road safety like 'Vision Zero' and 'Sustainable Safety' which are seen now as the standard in reducing traffic fatalities. The ACT Government is supposed to be adopting the Vision Zero policy but has yet to introduce its safety recommendations. I will expand on this later.

History

Like many other cities around the world after the second world war the mass production of motor vehicles and the change in our cities to a more suburban model saw a significant decrease in active travel modes and public transport use. Even in the mass cycling countries like the Netherlands and Denmark saw cycling marginalised and along with this came a huge death toll in reaching its peak in the early 1970's. Then road safety started to be taken seriously with first safety measures like seatbelts, drink driving regulations and road safety improvements started to bring the death tolls down.

In the Netherlands during this time, a culmination of events happened with the Saudi Arabia oil embargo which saw world wide oil shortages and the launch of the campaign 'Stop Kindermoord' Stop Child Murder. A campaign to stop the large number of children killed in traffic related accidents as pedestrians and cyclists. This campaign had a profound change in the design of infrastructure, planning and design of cities and the redesign of current cities from car centric to a more people oriented city planning.



The same issues were also seen in Denmark with more and more people owning cars. This is what it looked like in Copenhagen at a protest rally in the 1970's. Regular citizens in their hundreds demonstrating for safer streets and the implementation of bicycle infrastructure.



In order to draw attention to the need - and desire - for infrastructure, white crosses were painted on the asphalt where cyclists had been killed. In the late 1960's there were roughly 300 hundred cyclists killed every year in Denmark . That figure has dramatically dropped to 30 in 2011. That was without the introduction of mandatory all age helmet laws.



Canberrans' used the bicycle as their main form of transport during the 1940's and early 1950's until the motor car took over as the preferred mode of travel. Motor cars became more affordable with increased production and higher living standards amongst middle income families during the late 1950's and 1960's.

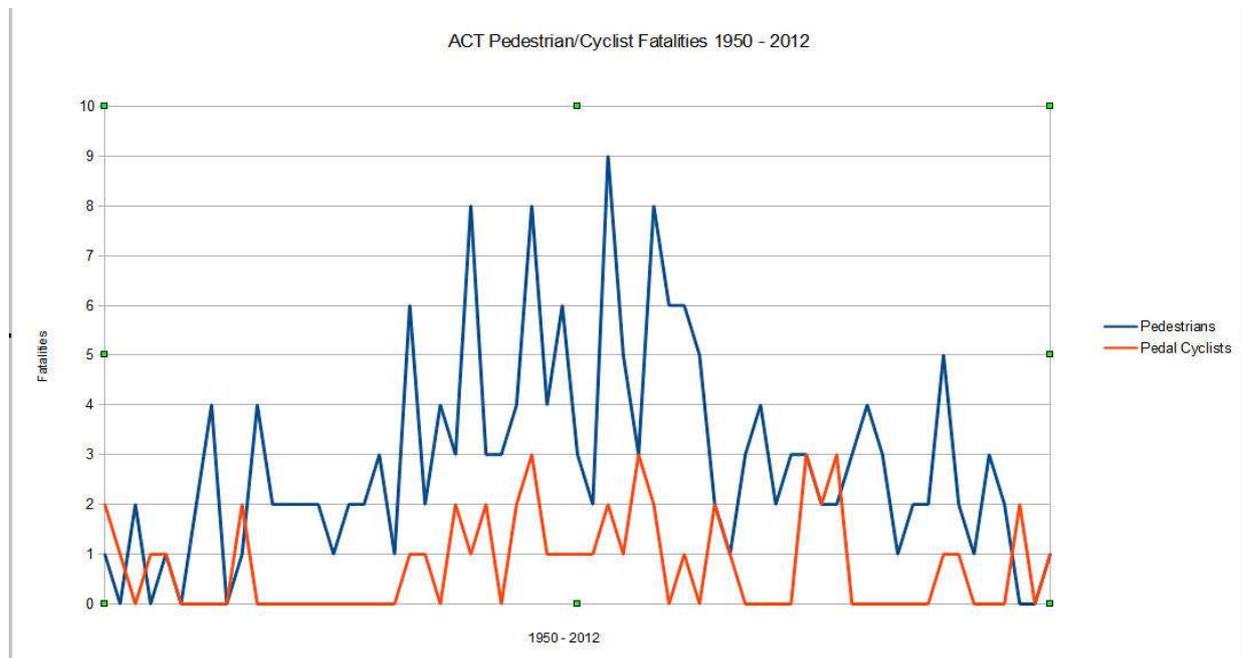


In the 1970's like many other parts of the world, saw protests and rallies for better cycling infrastructure. Like this one in City walk in 1974. This was also the time of the formation of the cyclists advocacy group Pedal Power ACT.

With the increase in motor vehicle transport there was a significant increase in traffic related deaths and injuries. In the 1970 nationally there were a staggering 3798 lives lost. The decade from 1970 to 1980 saw a total of 39 401 lives lost to road traffic related accidents. Of those 12781 were vulnerable road users classed as pedestrians, cyclists and motorcyclists. Thankfully those figures have more that halved today but there is a long way to go to reduce those numbers even further.

Safety in the ACT

In the ACT, while it can be argued that in comparison of Fatalities per 100 000 that the ACT's road fatalities are low, there was still a peak in death from the 1970's which remained high (ACT) until the 1990's. Drivers and passengers made up the majority of road deaths in that period with the number of vulnerable road users varying from year to year. The last decade from 2001 to 2011 has seen a historically low rate of fatalities in comparison to previous decades. The rate of vulnerable road users has reduced also although Motorcyclists are still over represented in those statistics. The long term trend of pedestrians and cyclists continue to vary from year to year though has also reduced in that period.



Pedestrians fatalities were higher than pedal cyclists overall with many fatalities occurring on roads with speed limits between 50 – 60 km/h.

The rate of injury and accidents for cyclists in some instances are under reported in the ACT which has been highlighted in comparisons with Police and hospital data.

A report called the 2012 ACT Pedal Study, which was conducted through a grant issued by the NRMA Road safety trust suggested that cyclists were safer on cycle lanes next to road traffic as opposed to cycle paths. This conclusion was based on the number of adults who presented to the hospital emergency within a six month period between 2009 – 2010. It was assumed that because there was a higher number of injuries recorded in the hospital data on cycle paths than in cycle lanes that it is safer to cycle on cycle lanes next to high speed high volume traffic. What the data comparison doesn't take into account is that the number of people cycling on cycle-paths is at a much higher rate than on cycle lanes. This is a fundamental error in that study.

GTA consultants also conducted a study through a grant also provided by the NRMA road safety trust. They sourced police and hospital data from 2005 – 2009, 2001 – 2003, and 2006 – 2007 respectively. The Police data shows overwhelmingly the cycling accidents occur between cyclists and motor-vehicles due to the nature of reporting a traffic accident. Several of those accidents occurring at intersections and approaching intersections. The Hospital Data also showed significant accidents in the on road environment though due to the reporting many bicycle accidents off road were not considered due to lack of information regarding location. The GTA study also included cordon counts of cyclists on road and off road. In 2007 the number of cyclists counted on cycle paths were 10973 on a weekday average compared to the number of cyclists on road was 4324. This is not surprising given that cycle-paths or shared paths as they are termed in the ACT are for all cyclists of all ages. The on road environment particularly on arterial roads are for experienced cyclists either sports or commuting.

Canberra's Two Network Approach.

Canberra, locally has been described as a 'cycle friendly city' but when you look closely at the infrastructure, and compare this to other international cities with a higher level of everyday cycling, you see a different story.

The first cycle paths were built in the 1973 which is known today as the Sullivans creek shared path. It was built under the NCDC pilot scheme for 'cycle-paths'. In subsequent years more paths were constructed and were included in all new subdivisions there after. The cycling rate in the ACT between 1976 and 1981 effecting doubled during that period. No over Australian city has seen such an increase then or since.

Due to the retrofit nature of these paths at the time, many were built away from major arterial roads and as such were not direct as compared to the arterial roads. They were also narrow, with sharp bends, steep entrances and exits at road intersections, built to close to trees, with no lighting, they were not dedicated cycle paths as could be shared with pedestrians and were seen and recreational routes rather than for commuting. Many cyclists continued to cycle on roads as a consequence.

Dr Robert Care former Director of the infrastructure department in 1989 said that providing cycle paths along arterial roads would be expensive particularly at bridges and said that it would be virtually impossible to eliminate conflicts at intersections.

Though it wasn't long and the release of the Canberra bicycle 2000 (1995) strategy that the first cycle lane in Canberra was opened in 1995 on Adelaide ave. This did not go all the way to Civic

from Woden and was very narrow. Cycle lanes were favoured over cycle tracks or cycle-paths next to roads as they were seen as too costly. The cycle lanes from Woden to Dickson were later completed by 2004 and today there are over 400km of single lane on road cycle lanes mostly on arterial roads. These were designed to minimum Austroad Guideline standards .

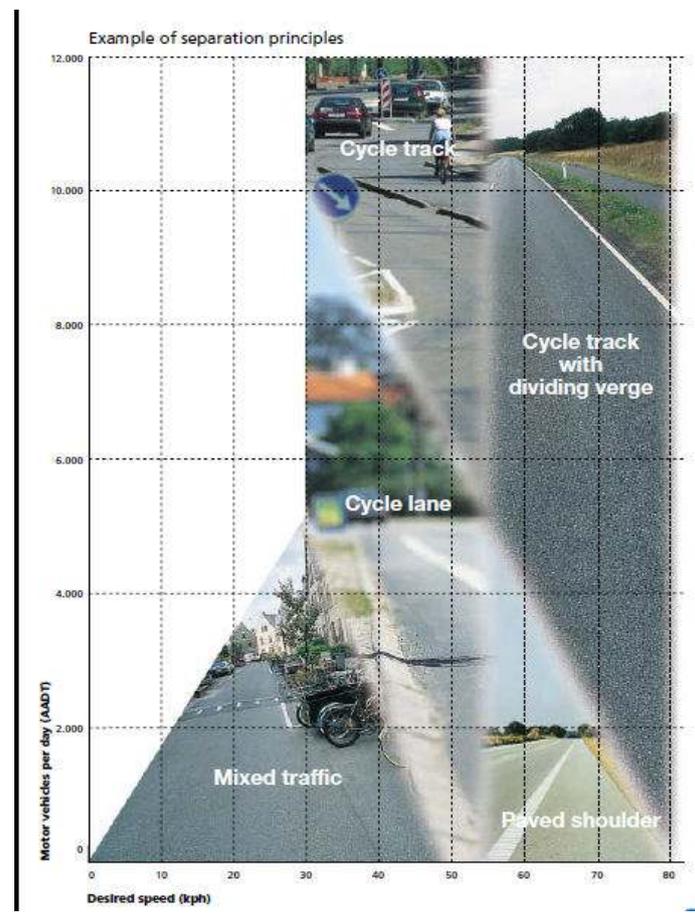
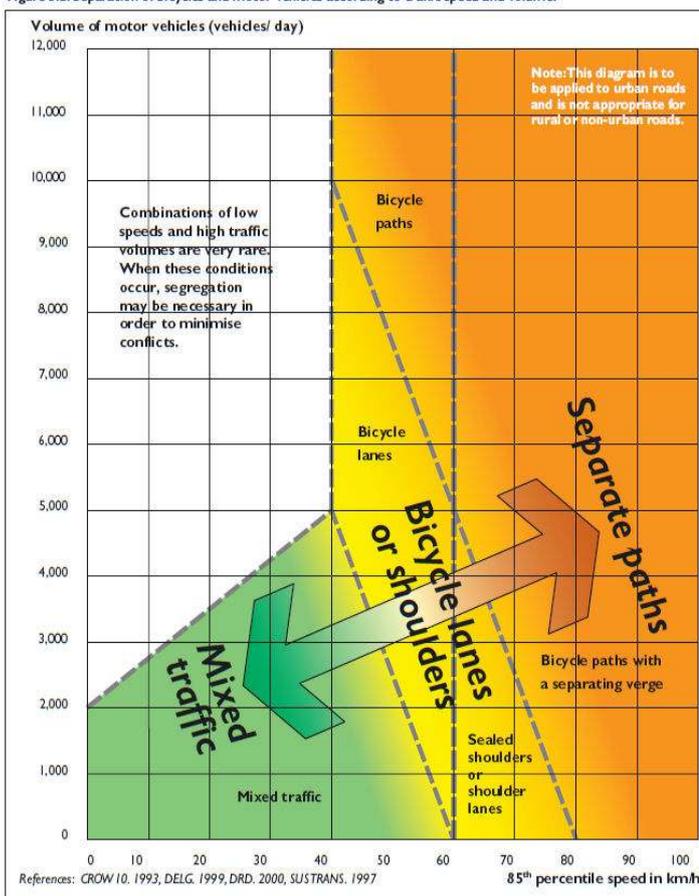
The release of Canberra's Design standards for Urban Infrastructure 13 Pedestrians and Cyclists in 2007 included an interesting statement in it's introduction 13.1.3 ACT context :

'Canberra is a planned city and has a good network of shared paths. However, for faster moving more experienced cyclists who may require a more direct route free of pedestrians and loss of right of way at road crossings, provision of on-road cycling options may be preferred. Due to topography and through design, Canberra does not have a grid or radial street pattern as in other Australian cities and arterial roads are generally the only roads to provide these direct routes. These roads generally have speed limits up to 80km/h and are designed to a high standard generally with controlled access, clearly defined intersections, good sight distances and a much lower volume of heavy vehicles compared to similar roads in other jurisdictions. This is not consistent with the NSW context and Figure 3.2 of the NSW Bicycle Guidelines does not apply in the ACT.'

This is an extraordinary statement to make and one that ignores worlds best practice for cycling infrastructure.

The figure 3.2 in the NSW bicycle guidelines that this statement refers to is the Chart below. The reference for this chart is based on international best practice using Dutch design manual CROW Sign up for the bicycle, Danish Collection of Cycle concepts , UK Sustrans 1997 The National Cycle Network, and Dublin ,Ireland Provision of Cycle Facilities.

Figure 3.2: Separation of bicycles and motor vehicles according to traffic speed and volume.



International Best practice.

It is widely known that the Netherlands and Denmark are the best and safest countries to cycle in. Its journey from everyday cycling to car centric polices then back to a more cycle friendly and people centric planning is a model for all cities and countries to follow. It is reported that nearly 30% of all journeys in the Netherlands are by bike today. Some cities have cycle rates at 50% like the city of Gronigen. In Copenhagen, Denmark its cycle rate for journeys to work and education is around 35%.

The Dutch have been at the forefront of designing cycling infrastructure and also road safety policies like 'Sustainable Safety which s similar to Swedens Vision Zero. The ACT road safety action plan is supposed to be based on 'Vision Zero', which enforces grater separation of cyclists on high speed high volume roads but this has not happened. The new Netherlands traffic engineering CROW design manual for bicycle traffic 2007 which replaces the 1996 Sign up for the bike , goes further beyond than the separation guide chart and includes other sustainable safety policy measures. Like Vision Zero the core of these policies is to recognise the human element of the road user and the unpredictability of individuals. Rather than the term 'road safety is everyone’s responsibility'. It also focuses of the road environment/infrastructure and vehicle safety performance and design. There are five basic principle behind Sustainable safety which include:



Sustainable Safety Principle	Description
<i>Functionality of roads</i>	Monofunctionality of roads as either through roads, distributor roads, or access roads in a hierarchically structured road network
<i>Homogeneity of mass and/or speed and direction</i>	Equality of speed, direction, and mass at moderate and high speeds
<i>Forgivingness of the environment and of road users</i>	Injury limitation through a forgiving road environment and anticipation of road user behaviour
<i>Predictability of road course and road user behaviour by a recognizable road design</i>	Road environment and road user behaviour that support road user expectations through consistency and continuity of road design
<i>State awareness by the road user</i>	Ability to assess one's capacity to handle the driving task

This also has included speed reductions in urban areas and the redesign of roads which is not too dissimilar the ACT's Road hierarchy. This makes it possible to adopt theses speeds which will have a significant impact on reducing the number of severe injuries and fatalities.

Table 1. Possible long term maximum travel speeds related to the infrastructure, given best practice in vehicle design and 100% restraint use.

Type of infrastructure and traffic	Possible travel speed (km/h)
Locations with possible conflicts between pedestrians and cars	30
Intersections with possible side impacts between cars	50
Roads with possible frontal impacts between cars	70
Roads with no possibility of a side impact or frontal impact (only impact with the infrastructure)	100+

While it is commendable that the ACT Government has introduced 40km/r speed zones in ACT's five town centres, evidence shows that we need to go even further. The majority of pedestrian fatalities in Australia do happen on urban roads with 50 – 60km speed limits.

Table 11 Deaths of pedestrians in road traffic crashes, Australia, 2001–10: speed limit at crash site by age groups

Speed limit at crash site (km / hour)	Age groups					Total
	Unknown age	0–4 years	5–14 years	15–64 years	65+ years	
Unknown	0	1	3	36	17	57
10	0	0	0	3	0	3
20	0	2	0	1	0	3
25	0	0	0	1	0	1
30	0	1	0	0	0	1
40	0	2	8	6	7	23
50	0	29	23	233	169	454
60	0	20	46	447	334	847
70	0	1	5	130	58	194
80	1	3	13	179	42	238
90	0	0	0	28	3	31
100	1	3	14	195	20	233
110	0	0	1	90	8	99
130	0	0	0	1	0	1
Unlimited	0	0	0	14	3	17
Total deaths	2	62	113	1 364	661	2 202
Per cent of deaths on roads where limit ≤ 60 ^(a)		88.5	70.0	52.0	79.2	62.1

(a) Per cent based on total deaths minus cases where speed limit was unknown. Note also that 'Road traffic crashes' means any kind of road vehicle (car, truck, motorcycle, pedal cycle, tram etc) could have collided with the pedestrian. Table 12 shows that four-wheeled motor vehicles are most commonly involved.

Source: BITRE, using data from the Australian Road Deaths Database.

As this graph points out roads at 50kmh have high proportion of fatalities and that is dramatically reduce when speeds are reduced to 40 - 30km. The question has to be asked Why are or urban streets in Suburbs have the default speed limit of 50km/h? Given that there is an an nearly an 85% risk of dying when a pedestrian or cyclist is hit by a motor-vehicle. The rate would be at least 100% for children and the elderly.

This is a major concern given that many of ACT's older suburbs still do not have footpaths. People are required to walk or cycle of the road. That would be Ok if speed limit were 30km/h or less but the default speed limit in 50km/h.

No through roads or Cul – de - sacs should become shared zones or what is termed Home zones based on the Dutch word 'woonerf'.

This would be a cheaper solution than installing separate paths on every road. This also removes the priority of the road space for cars and improves respect for other road users.



Infrastructure

There has been a debate in some cycling circles about the suggestion of separate cycle facilities with some believing that for cyclists it is safer in mixed traffic (known as vehicular cycling) than on dedicated paths or lanes. Though this depends on the type of road and speed limit.

While statistics have shown that there are just as many injuries occurring on separate paths as on roads it is impossible to compare given the number of cyclists vary and also the different type of cyclists.

Statistically intersections are the major concern with the majority of accidents happening there. It is clear also that in the ACT that's where the majority of accidents are occurring.

By separating transport modes removes the risk of pedestrians and cyclists from a fatal collision with motor vehicles. This is the standard in all European cycling countries that have significant rates of cycling. They don't have two networks for fast and slow cyclists, you are not allowed to cycle on motorways, free-ways or highways.

It is important for the committee that they are familiar with the type of infrastructure that is used for reference and the nature and location where they are used.

- **Shared space/ Home Zone (Woonerf)** – A road that is shared between all road users. This could be a pedestrian priority street and is a low speed environment with maximum speeds of 5km/h, 10km/h up to 20km/h.



- **Mixed traffic streets** – This road will be shared between motor vehicles and bicycles. Pedestrians will be separated. Speed limits will be 30km/h up to 40km/h. (In AUS and ACT that is roads 50km/h to 60km/h low volume of traffic)



- **Bicycle priority Street** – In this type of street the bicycle has priority over motor-vehicles ,pedestrians are separated. The speed limits are usually low 30km/h to 40km/h. Not seen in Australia



- **Bike boulevards, cycle streets** - Usually a residential street with advisory bicycle symbols or a broken cycle lane. Bicycles will share the road space or use the cycle lane. Speed limits are generally low although speed limits in the US and AUS are the default speed limit.



- **Footpaths** – Are generally for pedestrians separated from the road by a verge of curb vary widths between 1m to 2m.
- **Shared paths** – Are paths that shared between cyclists and pedestrians. They are separated from the road by a verge or a curb vary in widths from 1.5m to 3m. This is the standard in the ACT.



- **Cycle lanes** – A cycle lane is a solid painted lane on existing roads marked with bicycle symbol at various intervals. Cycle lanes is part of the road exclusively reserved for cyclists. Motor vehicles are not allowed to drive or park on them. Cycle lane widths vary between 1.5m up to 2.5m and a single directional. In Europe cycle lanes are used on low traffic roads with speeds at 50km/h to 60km/h maximum. Here in the ACT they are used on major arterial roads and parkways speed ranging from 60km/h to 100km/h.



- **Cycle tracks / Protected cycle lanes** – Cycle tracks are physically separated from motor-vehicle traffic either on the road by a barrier or parked cars, a raised curb or a verge. Cycle tracks are single directional follow the same direction as motor-vehicle traffic . Cycle tracks are used where road speed limits are higher and traffic volumes are high also. The Civic cycle loop is an example of cycle tracks.



- **Cycle-paths** – are dedicated paths for cyclists that are separated from pedestrians and motor-vehicles . They are bidirectional with widths ranging from 2m to 4m.



Recommendations:

1. I would strongly recommend if possible that all or at least some of the committee members take a study tour of the Netherlands and or Denmark, to look at worlds best practice fro cycling and pedestrian infrastructure. The group would include government officials from TAMS and ESDD. While is it easy for me to make recommendations to the committee on polices in those countries. Unless you see it for yourself it is hard to compare.
2. The most important recommendation for this committee is to physically separate cyclists on 'high speed high volume roads' as is the case in all European countries with high cycling rates. This will either be by installing cycle tracks on arterial roads and busy streets, wide bidirectional cycle paths along parkways and free-ways where they are most needed.
3. As part of the New ACT Road Safety Action plan recommend introducing Vision Zero safe speed limits and infrastructure upgrades.
4. In 2014/15 pilot suburbs with safe speed limits, one existing and one new suburbs. Which will include 30km/h access streets and School Zones, 10hkm/h shared zone speeds for Cul de Sacs and no through roads, and 50km/h for major Collector streets with cycle lanes where needed .
5. Purchase cleaning vehicles for shared paths. Maintaining paths just like roads is important factor for safety and in reducing injures. There is no maintenance program for shared paths presently.
6. Shared paths : Recommend install lighting on shared paths by 2025 as part of TAMS works program. This is important for social safety, people feel unsafe and vulnerable in unlit areas particularly women and children. Improve the directness , turning geometry and gradients of shared paths. Many paths have poor gradients compared to roads which effect the control and stability of people on bicycles.
7. Separate pedestrians and cyclist on major cycle routes within urban areas and in busy pedestrian areas around ACT lakes. Pedestrians and cyclists move at different speeds and need to be separated for safety.
8. Construct traffic training centres for school children in each major district/town centre. These are miniature environments for children to improve road safety and road traffic laws. The ACT originally had two of these traffic centres, one in Belconnen and Deakin before they were closed.
9. Recommend a cycle proficiency test for all yr 6 students in the ACT. This will be in two parts a written test and practical test. This is a requirement in the Netherlands for all year 6 students before they start Secondary school.
10. Recommend a review of traffic laws related to vulnerable road users and make recommendations that better protect them when involved in accidents. This may include more motor-vehicle responsibility when driving near pedestrians and cyclists.

Other Relevant matter

Bicycle Helmets

While Bicycle helmets aren't a consideration for the terms of reference for this committee, I would like to comment on the statement CARRS has made in their submission to this inquiry and that is :

'the requirement for cyclists to wear helmets when riding both on- and off-road is an important safety measure that is international best practice in reducing head injuries among cyclists'.

There is no doubt that in a single bicycle accident where the head is involved the reduction of injury to the head is reduced by 20 % to 30%. There is little protection when a bicycle is involved in a collision with a motor vehicle. Australia and New Zealand are the only countries to have mandatory all age bicycle helmet laws. Many countries have not introduced helmet laws because of the experience in Australia at the time when laws were introduced that cycle rates had decreased.

I personally would like to see the laws repealed for adults and teenagers but mandatory for children up to 12 years of age. The focus should be more on cycle education and infrastructure.

Pedestrian Crossing Solutions

The requirement of cyclists to dismount and walk across a pedestrian crossing could be argued as the number one issue in the so called 'bike vs car' wars in the ACT. While I am both a bicycle rider and car driver I do not see the issue, I do not usually dismount while cycling but wait till the driver has stopped to wave me across. As a driver I just give way to pedestrians and cyclists on the crossing.

The solution is to install more shared path crossings like the one in Deburgh St in Lyneham. In other countries cycle lanes are painted next to the crossing or as the case in the Netherlands, bicycles at minor roads get their own crossing. Why can't these solutions be used in the ACT?



References

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CROW – National information and Technology platform for infrastructure, traffic, transport and public space