Submission

No 12

INQUIRY INTO SCHOOL ZONE SAFETY

Organisation: Australasian College of Road Safety

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Date Received: 30/09/2011

UNSW

30 September 2011

Mr Greg Aplin MP
Chair
Inquiry into School Zone Safety
Parliament of New South Wales,
Joint Standing Committee on Road Safety
Macquarie Street
Sydney NSW 2000

Dear Mr Aplin

INQUIRY INTO SCHOOL ZONE SAFETY

Thank you for inviting the NSW (Sydney) Chapter of the Australasian College of Road Safety to make a submission for this Inquiry. I circulated the invitation to our Members and received several responses indicating that several had completed work or research specific to school zones and would detail the findings in individual submissions. The attached reports were also specifically provided and commended:

- Graham A & Sparkes P (2010). *Casualty reductions in NSW associated with the 40 km/h school zone initiative*. Proceedings of the 2010 Australasian Road Safety, Research, Policing and Education Conference, 31 August – 3 September 2010, Canberra, Australian Capital Territory. Analysis by the Roads and Traffic Authority of NSW demonstrating significant reductions in road trauma for school children as well as other road users, following the introduction of 40km/h school zones.
- GTA Consultants (2011). *Walking for travel and recreation in NSW: what the data tells us*. Report to the Premiers' Council for Active Living. Chatswood NSW: GTA Consultants; January.
  Analysis of NSW data sources finding substantial reductions in pedestrian fatalities from 2001 to 2008 (pages 25-28).

An author of the latter report further recommended that consideration should be given to whether school zone times should be extended, following the example of the ACT.

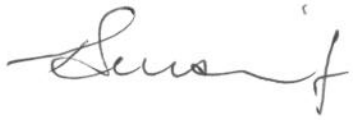
Additional responses related to (f) and (g) in the Terms of Reference on education and other measures. Overall, responses reflected the following:

- Members support the need for specific road safety measures around schools.

- There was concern that NSW was not involved in the *Safe Rotes to Schools* program and that lessons could be learned from VIC and QLD involvement in this initiative.
- A comparison was made to increasing acceptance, from an Occupational Health and Safety perspective, of reductions in speed limits in locations where work is undertaken on the roads. Acceptance of school zones might similarly increase over time.
- No negative comments were provided.

I also draw the Committee's attention to extensive work completed by the WA Government, and subsequently adapted by the NT Government, to document a raft of additional measures in relation to safety around schools for both Local Governments and schools. This work covers a broad range of measures across the spectrum of road users and highlights important issues that impact on the placement of school zones, such as safer locations for school bus and private vehicle parking and drop off areas. While too recently introduced to be able to provide statistical evidence of improvements, the recommendations are based on combined statistics, theoretical grounds and extensive experience. I strongly encourage the Committee to consider generating important guidelines such as these for the NSW context. The two WA volumes of this work, *Guidelines for road safety around schools: Local Government Edition* and *Guidelines for road safety around schools: School Edition,* are also attached.

Yours sincerely



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Casualty reductions in NSW associated with the 40 km/h school zone initiative

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Abstract

The 40 km/h school zone measure was announced in 2001 and implemented for all NSW schools. The intention of the measure was to improve the safety of children around schools. The development of spatial information systems in conjunction with the RTA crash data system overcame previous limitations in the identification of defined school zones in the crash data, thus a study of the impact of the 40 km/h school zone initiative was able to be undertaken. Geo-coded information from the Regional speed management databases and follow up site visits identified a sample of 820 school zones for the crash data analysis. Crash data within these school zones were analysed for the period prior to the 40 km/h hour school zone measure and the period post the measure. The results were analysed with respect to the underlying reductions in road trauma throughout NSW over this period. The introduction of the 40 km/h school zone measure was found to be associated with a significant reduction in child pedestrian trauma in the identified school zones. The analysis found that the 40 km/h school zone measure also benefited other road users.

Keywords

Analysis, School Children, Pedestrians, Speed Limits, School Zones

Introduction

In 2001 the NSW Minister for Roads, Mr Carl Scully, announced that the Government would implement a 40 km/h speed limit which would apply on all roads with direct school / educational facility access. By the end of 2003 the policy development had been completed and 40 km/h posted speed limits were implemented at more than 3,000 schools and educational facilities across the State.

In March 2009, the Audit Office of NSW announced that it was undertaking an inquiry into the reduction of risk for school aged children associated with the introduction of the 40 km/h school zone measure. The following paper details the findings of the RTA analysis of relevant crash and casualty trends for this Audit Office inquiry (1).

Methods

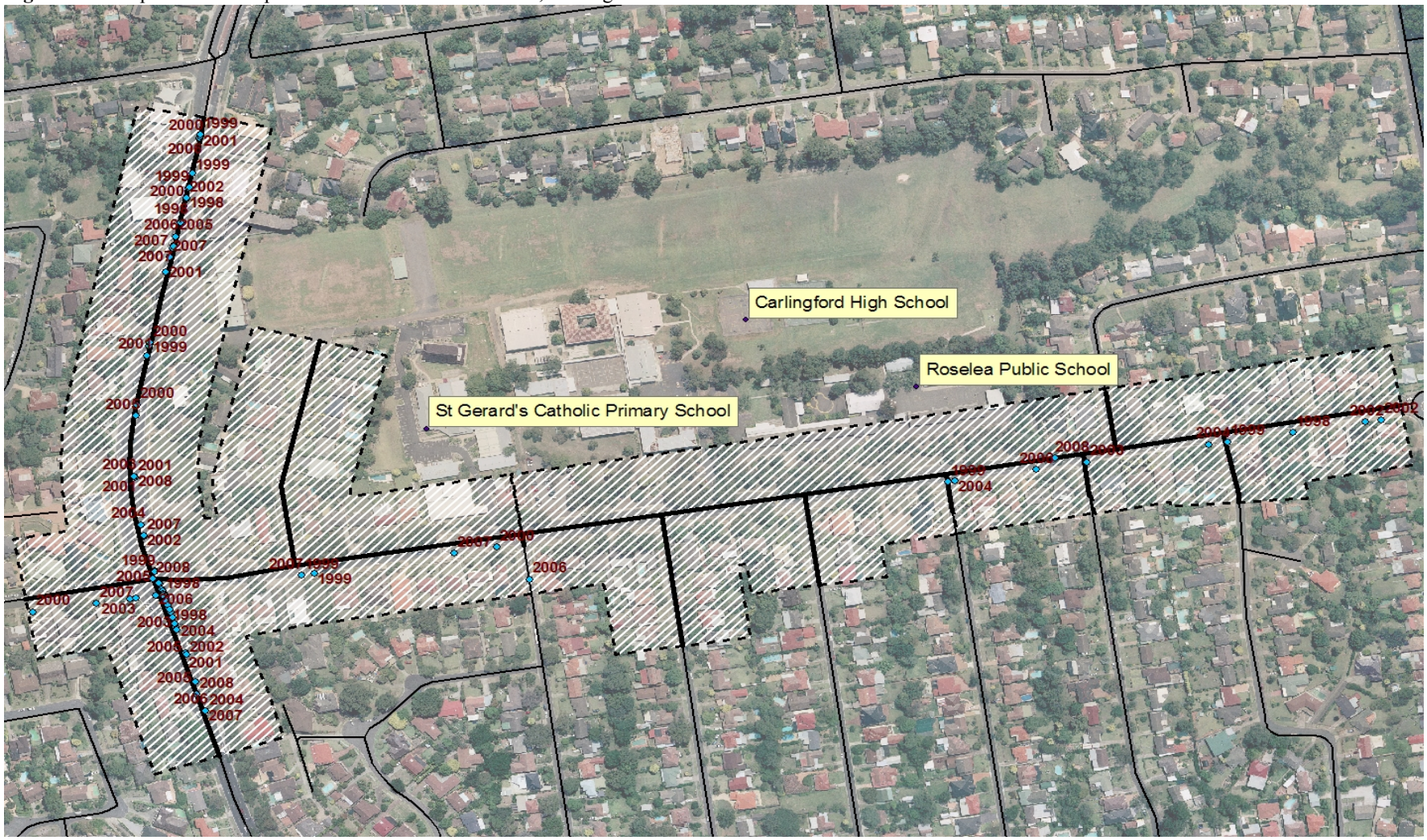
Until 2009 the collation of crash data relevant to the 40 km/h school zone measure was problematic for several reasons. Firstly, the Police reporting of the applicable speed limit for a school zone was generally too unreliable. Secondly, the RTA did not automatically flag defined school zones to match with the crash records in their geocoded crash database.

However, in 2009 the RTA undertook a resource intensive project to spatially identify school zones using available databases, in particular using information derived from separate speed zone spatial information databases. School zones were identified using these regional speed management databases of speed limits, together with information from GIPSICAM for zones located on RTA classified roads. GIPSICAM is a video software program that displays captured images taken every 10 metres on roads in the RTA classified network. Where they were identified, deficiencies in the speed limit database were corrected with site visits.

The spatial information for 40 km/h speed zones were compiled for those RTA regions (South West and Sydney RTA Regions) that were well advanced with the project.

Figure 1 below shows an example of a defined school zone (covering three neighbouring schools) derived from the process, together with plotted crashes recorded in the school zones during 1998 to 2008.

Figure 1: Example of crashes plotted in a defined school zone, Carlingford NSW



However, as this was the first attempt at identifying school zones there were some problems with the initial set of school zone sites. Quality control checking of the data revealed that some school zones included the "school zone 40 k ahead" signs as the start of the zone and not the actual "40 k school zone" sign whilst there were a small number of 40 km/h roadwork zones included. These problems were identified and resolved using software such as GIPSICAM and Google Earth.

At the completion of the process a total of 820 unique school zones were identified in the Sydney and South West RTA regions. This represented approximately 100% coverage of the South West region and the majority of school zones in the Sydney region – approximately one-quarter of all school zones in NSW.

Using these spatially defined school zones the relevant crash data were extracted from the RTA Crashlink database, tabulated and analysed.

Most of the focus of the crash analysis was on child pedestrian casualties aged 5 to 16 years, in school zones during school zone times (SZT). The crash data covers the period 1998 to 2008, with the pre period (1998 to 2000), transition period (2001 to 2003) and the post period (2004 to 2008). Comparisons were made for pedestrian trauma for these periods, particularly for the 5 to 16 year old age group.

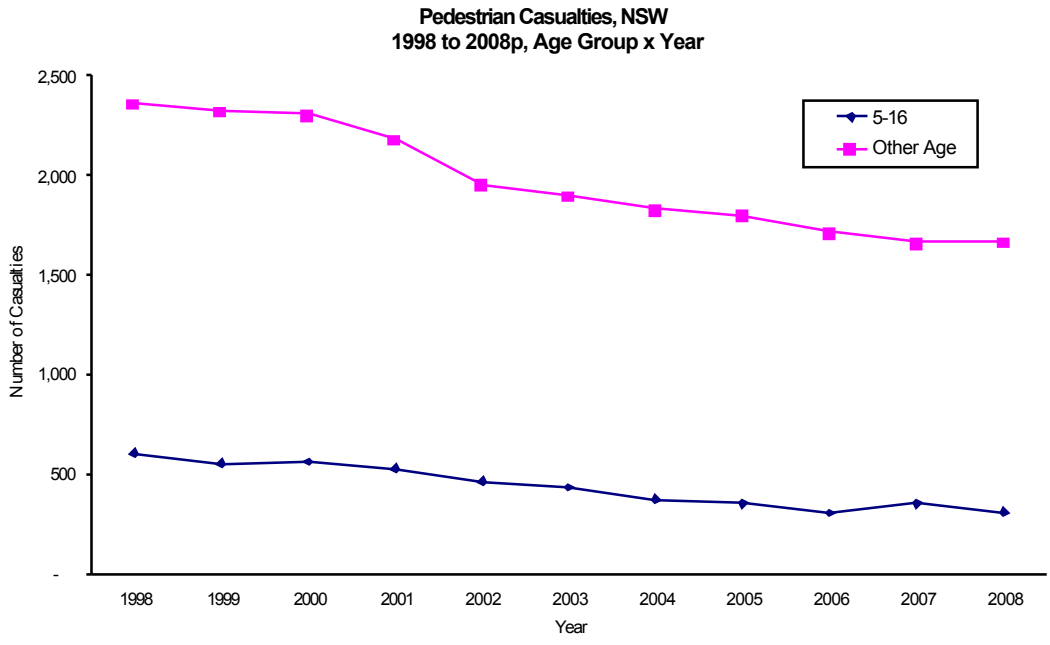
The incidence of speed involvement in crashes in school zones was also investigated, as well as the types of crash occurring in school zones during SZT.

Results

Since reaching a peak of 1,384 fatalities in 1978, NSW has significantly reduced its road toll over the past three decades. In 2008 there were 374 persons killed on NSW roads, the lowest annual total since 1944. This was also the sixth consecutive reduction in the annual road toll, a feat not previously achieved since fatality statistics were first compiled in 1908. Injury reductions have also been impressive – just over 24,000 persons were injured in 2008, the lowest annual total recorded since 1962.

Pedestrians have been one of the major road user classes contributing to the reductions in road trauma in NSW since 1998. Comparing the change from the pre period (1998 to 2000) to the post period (2004 to 2008), total pedestrian casualties in NSW decreased by 29% whilst pedestrian casualties age 5 to 16 years decreased by 41%.

Figure 2:



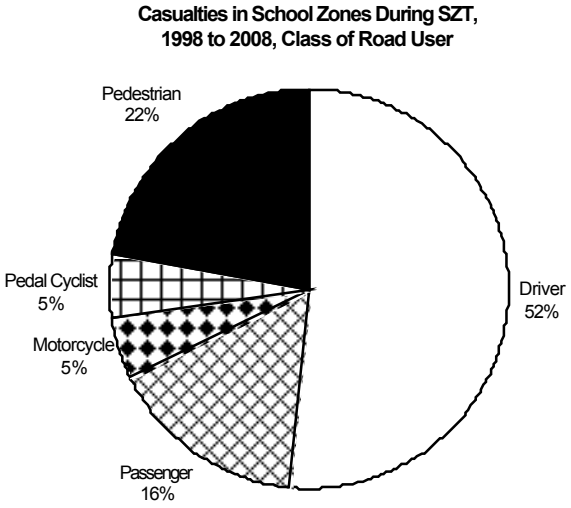
Children aged 5 to 16 years accounted for 17% of all pedestrian casualties over the study period, this percentage being similar to their proportion of the overall NSW population.

The Statewide trends for pedestrian casualties were also experienced in the Sydney and South West RTA Regions – i.e. the RTA Regions from which the sample of school zones were selected. Total pedestrian casualties in these two RTA Regions decreased by 29%, whilst casualties aged 5 to 16 years decreased by 40%.

1) Casualties in Selected School Zones During SZT

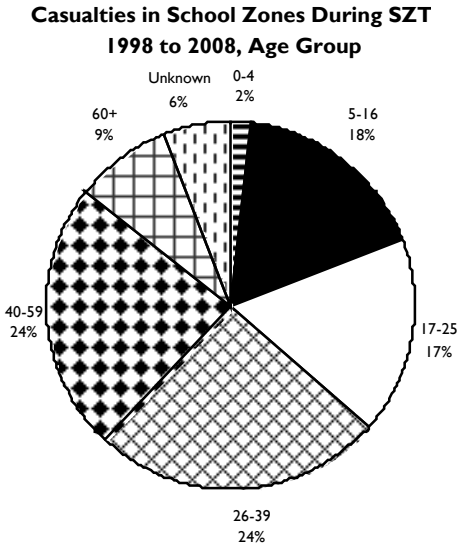
Within the 820 selected school zones, there were a total of 1,594 casualties during SZT over the study period – of which the majority (52%) were drivers. Pedestrians (22%) were the next largest class of road user followed by passengers (16%).

Figure 3:



Of the 1,594 casualties, the 5 to 16 years age group was one of the largest age groups (with 279 casualties, 18% of all casualties), surpassed only by the 26 to 39 years age group (25% of all casualties) and the 40 to 59 years age group (24% of all casualties).

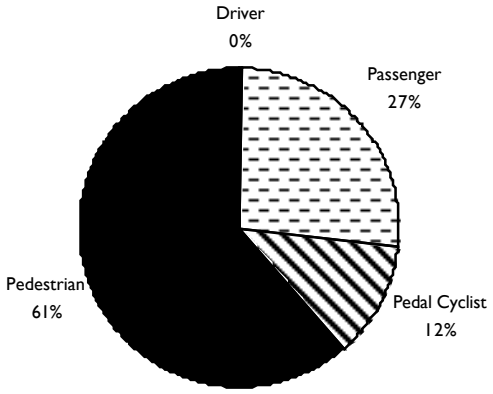
Figure 4:



Of the 279 casualties aged 5 to 16 years occurring in the selected school zones during SZT, pedestrians comprised the majority (171 casualties and 61% of all casualties aged 5 to 16 years) followed by passengers (27%) and pedal cyclists (12%).

Figure 5:

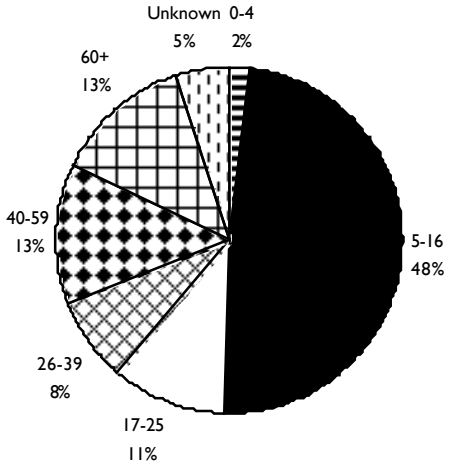
Casualties Aged 5 to 16 Years in School Zones During SZ
1998 to 2008, Class of Road User



Of all pedestrian casualties occurring in selected school zones during SZT (353 casualties), just under half (48%, 171 casualties) were aged 5 to 16 years.

Figure 6:

Pedestrian Casualties in School Zones During SZT, 1998 to 2008, Age Group



Whilst the incidence of pedestrian crashes involving children in school zones during SZT is significant, the actual incidence for an individual school zone is relatively low – less than one in five school zones in

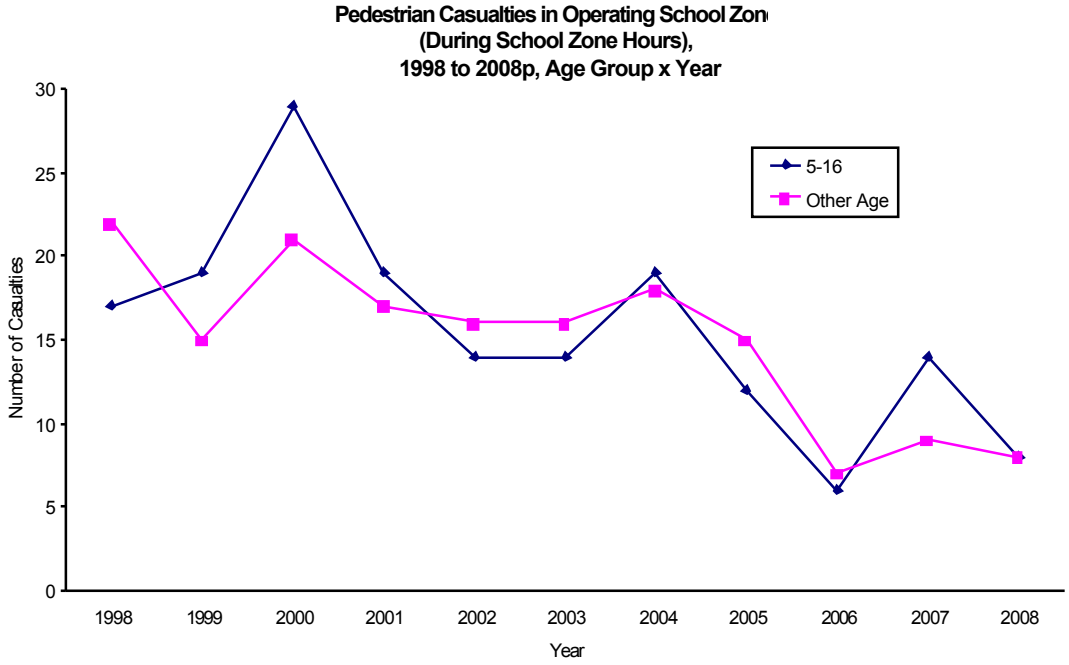
the analysis recorded any pedestrian casualties aged 5 to 16 years during SZT over the entire 11 year study period.

2) Pedestrian Casualties in Selected School Zones

a) During SZT

The data analysis showed that there were impressive reductions in pedestrian casualties, including pedestrians aged 5 to 16 years, since the implementation of school zones.

Figure 7:



Compared with the pre period (1998 to 2000), the average annual pedestrian casualties in the selected school zones decreased by 45% during post period (2004 to 2008). For pedestrians aged 5 to 16 years there was a 46% decrease over the same period. This result suggests that the benefits of school zones (and the lowering of speeds) applied to all pedestrians and not just school aged children.

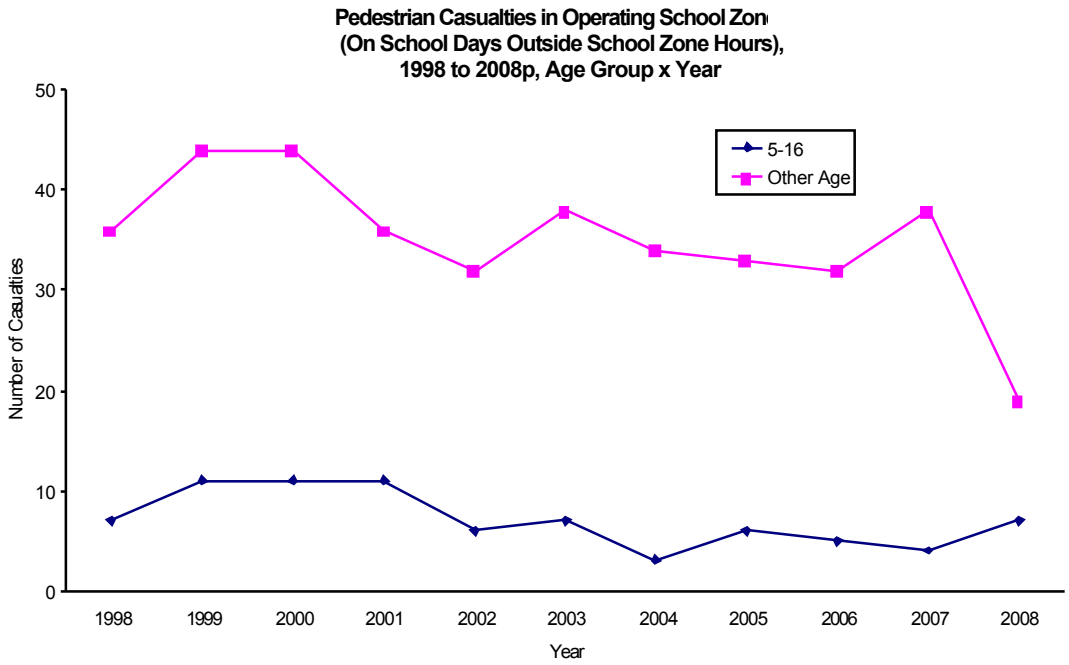
The study also found that this 46% reduction in pedestrian casualties aged 5 to 16 years in school zones during SZT was larger than the reduction in pedestrian casualties aged 5 to 16 years outside the sample school zones during SZT (only 35% reduction).

b) On School Days Outside SZT

As a contrast to the above, data were analysed for pedestrian casualties in the selected zones on school days outside SZT.

Up to 2007, there was a decreasing trend for pedestrian casualties aged 5 to 16 years, whilst pedestrian casualties in other age groups were relatively flat. However, in 2008 pedestrian casualties in the other age group decreased by half (from 38 to 19) whilst pedestrian casualties in the 5 to 16 year age group increased (from 4 to 7). Caution must be exercised with interpreting this result because the single year pedestrian casualty figures are small and subject to large variability.

Figure 8:



Aggregated data for the pre and post school zone periods are somewhat more robust though. These data show that all pedestrian casualties decreased between the pre and post periods by 30% in the selected school zones outside SZT – similar to underlying levels of decrease in all pedestrian casualties in all locations at all times (29%). However, the average annual number of pedestrian casualties aged 5 to 16 years in the selected school zones outside SZT decreased by 48% - slightly above the decrease in pedestrian casualties aged 5 to 16 years in all locations at all times (41%).

3) Trends for Recorded Crashes in Selected School Zones

Like casualties, analysis of the crash data showed that recorded crashes in school zones during SZT decreased by 35%, from the pre period to the post period. Of particular interest were the trends for speed related crashes and "congestion/sudden slowing down" type crashes associated with the 40 km/h school zones.

a) Speed Related Crashes

During the study period (1998 to 2008) speed[(2)] was involved in around 17% of all crashes in NSW, and around 12% in the combined Sydney and South West RTA Regions. In School Zones during SZT speed related crashes are quite rare, involved in around 5% of all crashes, and only 1% of crashes involving a 5 to 16 year old pedestrian (only 2 out of 166 crashes). The number of speed related crashes in school zones during SZT decreased by 20% between the pre and post periods.

b) Congestion / Sudden Slowing Down type crashes

Total crashes decreased by 35% between the pre and post period, with pedestrian (-45%) and vehicle opposing (-47%) crashes improving by the largest degree. Congestion type crashes included crashes involving parking road user movement codes, whilst "sudden slowing down" crashes included rear end type crashes. The analysis of the crash data showed that these types of crashes improved at about the average rate – parking (-37%) and rear end (-35%) crashes.

Discussion

The data suggests that pedestrian casualties amongst the 5 to 16 year old age group have decreased in school zones at a greater rate than at other locations. This would appear to hold true during both SZT and

non SZT. However, during SZT they make up nearly half of all pedestrian casualties. Interestingly, other age groups have experienced large casualty decreases in the school zones during SZT, but not so much outside SZT.

Compared with the whole of the State, speed related crashes in school zones during SZT were relatively uncommon, but improved over the study period. Contrary to popular misconceptions, crashes associated with sudden slowing of vehicles and congestion did not increase but actually decreased from the pre to the post periods.

However, there are a couple of confounding factors with this study of the introduction of the 40 km/h school zones. In recent years, fixed digital speed cameras have been extended and have now been installed in a handful of school zones involved in the study (commencing late 2002). Furthermore, there has been a progressive rollout of flashing lights installed next to the 40 km/h school zone signage (from late 2006). These extra measures may have influenced casualty outcomes for the sample school zones in the later years of the study.

In conclusion, pedestrian casualties, including those aged 5 to 16 years, have been the major beneficiaries as a result of the introduction of school zones with the 40 km/h speed limit applying to school zone times. School aged pedestrian casualties also demonstrated significant reductions in school zones outside SZT, suggesting that the signage of school zones also contributed to a safer road environment at all times of the school day for this vulnerable road user group. Though relatively uncommon in school zones, speed related crashes also decreased during the post implementation period. Finally, the hypothesised increase in congestion / slowing down type crashes associated with the school zone arrangements did not eventuate – crashes of this type actually decreased in line with the reductions for all crash types.

It is hoped that further work on the project to identify all 40 km/h school zones across NSW will allow a more complete analysis of the trends in pedestrian casualties and other crashes associated with the 40 km/h school zone measure.

References

1) AUDITOR-GENERAL'S REPORT PERFORMANCE AUDIT
   Improving Road Safety: School Zones
   www.audit.nsw.gov.au/publications/reports/performance/2010/school_zones/school_zones.pdf
2) ROAD TRAFFIC CRASHES IN NEW SOUTH WALES
   Statistical Statement for the year ended 31 December 2008
   Criteria for determining speed involvement, p14
   www.rta.nsw.gov.au/roadsafety/downloads/accidentstats2008.pdf

Walking for travel and recreation in NSW
What the data tells us

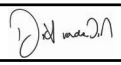
Final report
Prepared for the Premier's Council for Active Living (PCAL)

25 January 2011
JS10570

GTAconsultants

Table of contents

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By
A-Dr	25/10/2010	Draft	Rebecca Lehman	Dick van den Dool	**DRAFT**
B	25/01/2010	Version 2	Rebecca Lehman	Dick van den Dool	

How to use this report

This report complements the previous active travel data studies conducted for the Premier's Council for Active Living.

The format of this report is designed to present, analyse and interpret raw data collected for this study as well as complex data embedded in reports.

The report is self-contained. Raw data utilised to complete the report is available upon request.

Findings:

This box details findings and conclusions, highlighting the issues and challenges to be addressed. Findings are reviewed in the Executive Summary and detailed in the main body of the report.

About the data:

This commentary pertains to datasets and data management. This includes any information regarding:

- data collection
- data storage
- data handling / cleaning / manipulation
- methodology

Relevant data sources:

This provides further information regarding the source of datasets, including relevant data custodians or data embedded in reports or papers.

Supporting reports and articles on walking which complement assumptions and hypotheses advanced in this report are included in this text box, where appropriate.

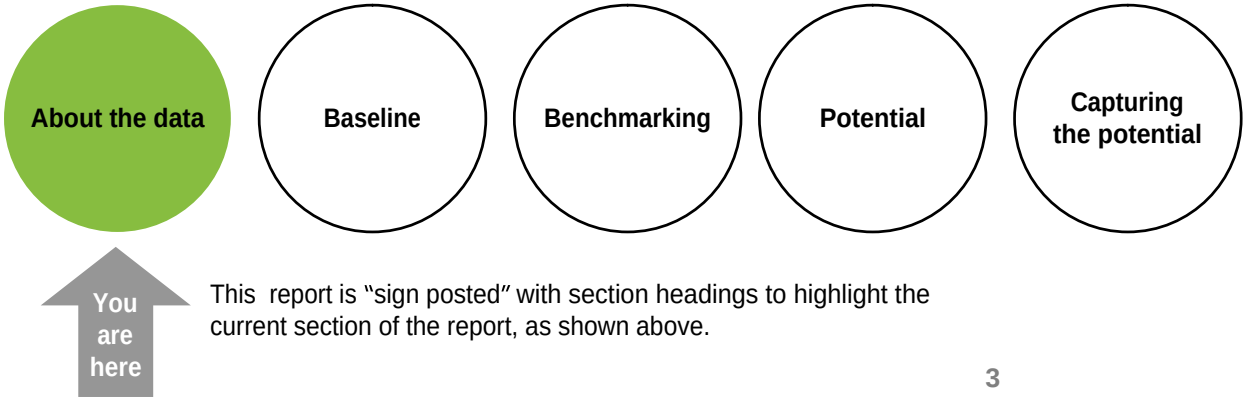
Notes on the data:

This box is used for commentary on the data collated by GTA for this project.

Any data with significant gaps or processing is annotated in this way.

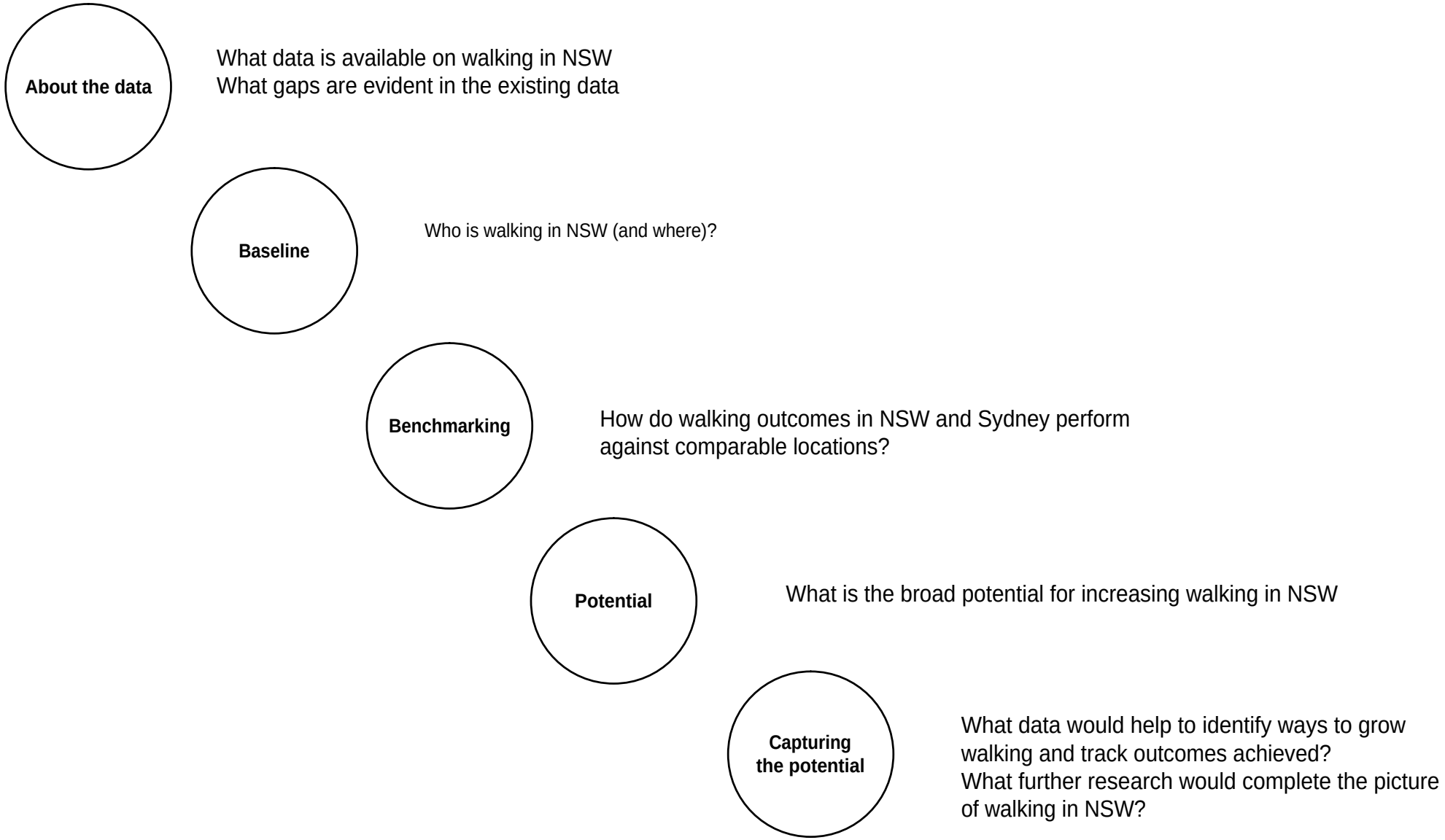
For further study:

This box indicates where further work is needed to develop appropriate understanding of collected data.



This report is "sign posted" with section headings to highlight the current section of the report, as shown above.

Executive Summary



Executive Summary

About this report:

Walking is widespread, healthy and environmentally friendly. Walking is one of the first recommendations made by physicians – and accepted by patients – to improve health.

Walking is an individual activity. It is free and easy-to-do. Walkers may do so without registration, as is the case in operating a motor vehicle, and without a ticket, as is the case in travelling on public transport. This makes walking a simple and convenient transport choice for short trips, but also makes it difficult to measure.

Walking for travel and recreation is largely overlooked next to more costly travel modes or "big ticket" activities. For all the known benefits, walking is so incidental and walkers are so passive about having walked (cycling enthusiasts are vocal, but walkers just exist) that only sporadic data is collected about the activity.

This data study is the first step in exploring a state-wide strategy for walking. At the inception of this project, it was anticipated that data collection would establish the data required to develop a base case overview of walking in NSW and identify any potential for increasing walking for travel and recreation.

To collect the available data, state agencies and organisations were approached by phone and email and all 152 local councils were contacted to participate in a short questionnaire about any walking infrastructure, policies and programs within the jurisdiction.

This report reviews the extent and quality of the available walking data, analyses this data and attempts to benchmark NSW against other international walking indicators. Where walking data is not collected for international walking indicators, may indicate reporting on the provision of walking infrastructure or walking programs is not a priority.

Each section notes findings based on the available data and analyses. Throughout the report, any relevant projects, papers, reports and raw data are noted as are potential avenues for further study.

Commentary:

There is no clear mandate for walking in policy or practice, nor is there one agency with the responsibility, funding or mandate to enforce such a policy.

The walking data that is captured gives transport planners little to go on to secure funding and forward plan infrastructure programs and walking initiatives, under-counting instances of walking in favour of motorised transport. Other transport modes regularly and rigorously monitor and report network and operational data. There are gaps in these standard indicators for walking: total network kilometres, network connectivity, kilometres travelled, travel time and delay. In fact, just one permanent pedestrian counter is employed by the NSW Roads and Traffic Authority to count walkers.

Whilst some indicators may be estimated in health surveys and the Australian Sports Commission's annual Exercise, Recreation and Sport Survey (ERaSS) found walking was the most popular form of recreation across NSW, the gaps in walking network and operational performance data are barriers to funding walking for travel or recreational activity.

Without a clear mandate for walking nor a target for participation in walking, walking must be monitored closely, and regularly. The resulting data must develop walking targets and an effective business case to plan, fund and maintain connected walking networks and programs to encourage more walking.

The footpath and walking network could be operated, maintained and evaluated. A holistic change to the traffic assessment process could reprioritise walking and alter the consideration given to pedestrians during the process, providing priority to active travel and changing the emphasis from the continuous movement of vehicles to the continuous movement of people.

This change requires a completely different terminology: a shift from a Traffic Impact Assessment to a single, holistic "Transport Impact Assessment " assessed against multi-modal level of service, with priority or at least equal weight to walking for travel.

There is a real opportunity for NSW to shift existing short trips to walking and to generate more walking trips by planning, or retrofitting, built environments conducive to walking for pleasure and for travel to our everyday destinations.

Basis for this study

Call to action:

Just over half of all New South Wales (NSW) adult residents obtain the recommended, health-enhancing, 30 minutes of physical activity per day. Walking is a nearly universal physical activity to reach this target.

In a February 2009 article for the Journal of Preventive Medicine, *Are messages about lifestyle walking being heard? Trends in walking for all purposes in New South Wales, Australia,* authors found that more than 80% of NSW residents walked for exercise, recreation or to get to destinations at least once in the past week. However, only 36% walked 30 minutes a day on most days of the week, the minimum recommended amount for health.

The purpose of this report is to review available walking and pedestrian data.

About the types of walking

There are three types of walking :

- Walking for travel (A-to-B)
- Walking to access public or private transport (A-to-B-to-C)
- Walking for pleasure / recreation (loop)

All three types of walking have a potential health benefit. Environmental benefits are realised in the first two trips: walking for travel and walking to public transport. The walking that has the greatest decongestion benefit is the first type, walking for travel.

About walking for travel

In a 2007 presentation to the Walk 21 conference in Toronto, Adrian Bell presented Transport for London's business case for walking for travel. Mr Bell reported that, as a transport mode, walking is an efficient use of space. Without a bulky vehicle, walking for travel can move *three times* more people per minute per metre width allowing for more commuters including:

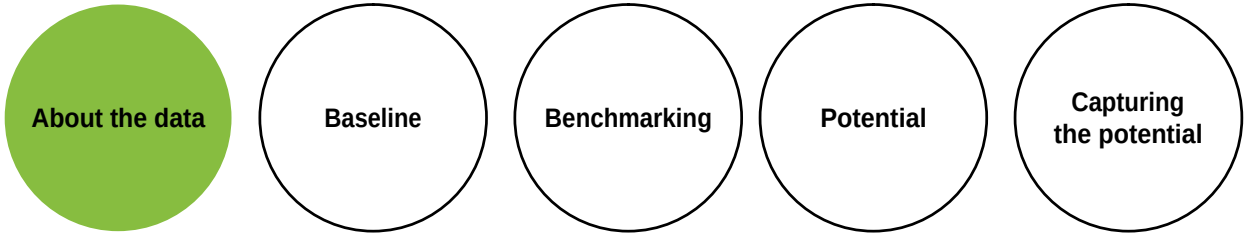
- 75 walkers
- 28 cyclists
- 24 bus passengers
- 4 car/ taxi passengers

Walking and cycling are distinct to other forms of travel, with a proportion of trips conducted "just for fun", fitness or recreation.

Photo courtesy of Dick van den Dool

Photo courtesy of Dick van den Dool

About the data



What data is available on walking in NSW?
What gaps are evident in the existing data?

Walking data can be categorised according to infrastructure, pedestrian characteristics, safety and security. These categories form the basis of walking indicators. Transport planners rely on mode share, the percentage of walk trips compared to all other travel modes. Health practitioners rely on participation rates and time indicators, including the proportion of people walking at least 10 minutes. A review of NSW walking data sets shows:

- Walking data categorisations include infrastructure, pedestrian characteristics and safety
- A range of walking data sources are available in NSW
- The extent and quality of walking data collected varies across NSW
- Pedestrian data may be managed by different departments and staff
- The extent and quality of the walking network is unknown
- Land use and urban design affect pedestrian accessibility
- Walking data collection and measurement could be improved
- Moderate and minor injuries to pedestrians may be both under reported and double counted

Walking data can be categorised according to infrastructure, pedestrian characteristics and safety

Category	Infrastructure	Pedestrian Characteristics		Safety and security
Fundamental data	**Network** Total kilometres Connectivity & permeability	**Infrastructure use** Total trips Trips per day Level of service	**Walk purpose** Origin and destination Transport Recreation	**Injury / morbidity** Fatalities Injuries (major and minor) Crashes
	Change room facilities Lockers, showers and change rooms provided Use of end-of-trip facilities	**Walking participation** Proportion of all travel Regular participation	**Demographics** Age Gender Ethnicity	**Infringements** Total citations Total fines
	Aesthetic Variety & quality of destinations Proximity to parks Total lighting Greenery	**Walk duration, walk length** Travel time Trip distance Walking intensity Delay		**Security** Incidence of violence CCTV cameras Perceptions of safety

Relevant reports:

This table of indicators is adapted from the 2000 *Cycling Data and Indicator Guidelines* by the Federal Department of Health and Aged Care and the Australian Bicycle Council; the 2008 PCAL report *Cycling in NSW – what the data tells us* and the 2010 *Bicycling and Walking in the United States 2010 Benchmarking Report* by the Alliance for Biking and Walking.

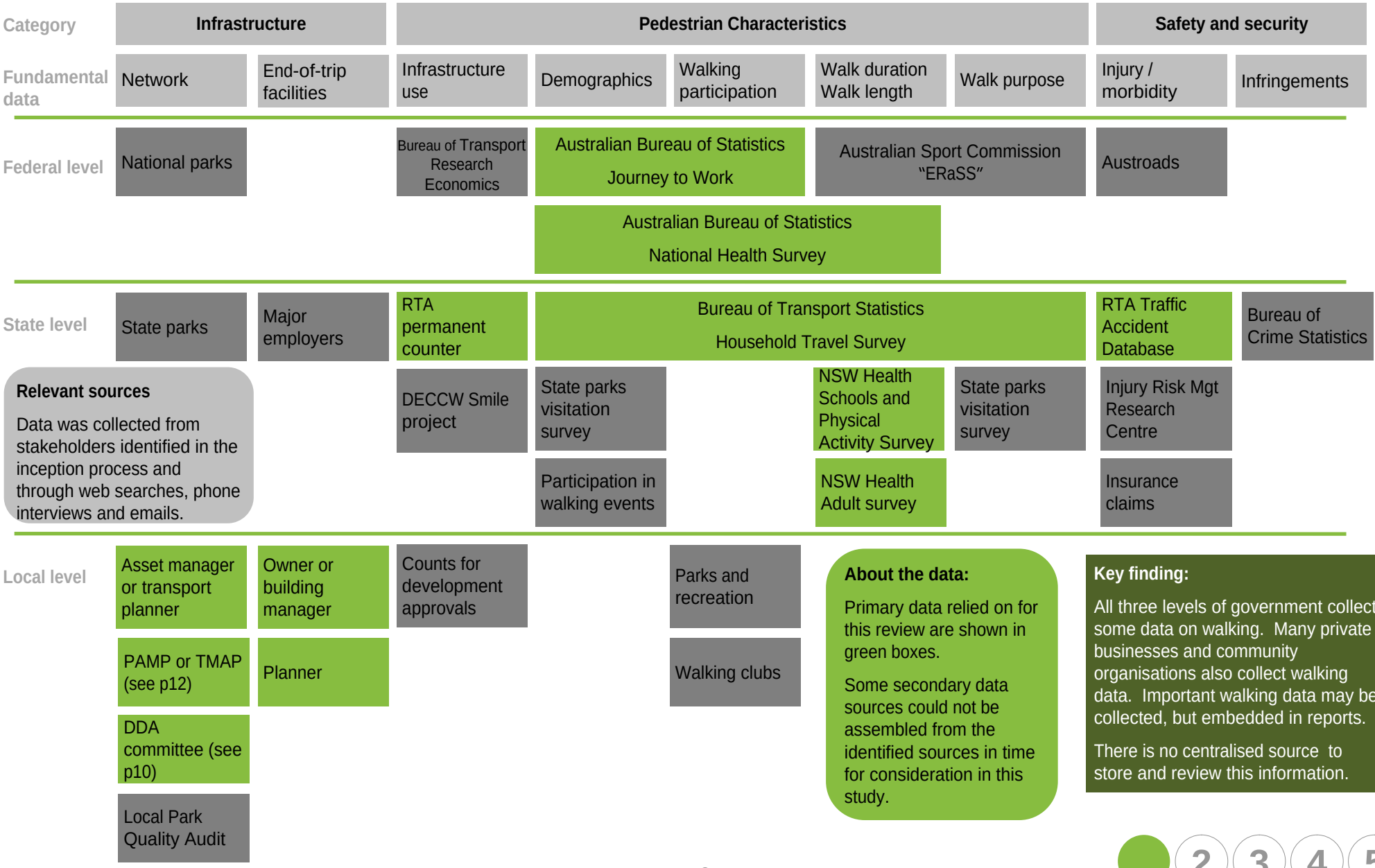
Further study:

Assembling walking data in categories provides the basis for walking indicators, often expressed as rates or proportions.

Responses to the European environmental questionnaire *ALPHA* have linked an individual's physical activity to the perceived quality of the neighbourhood walking environment.

Collecting data for the "aesthetic" indicator in NSW, would help quantify this indicator.

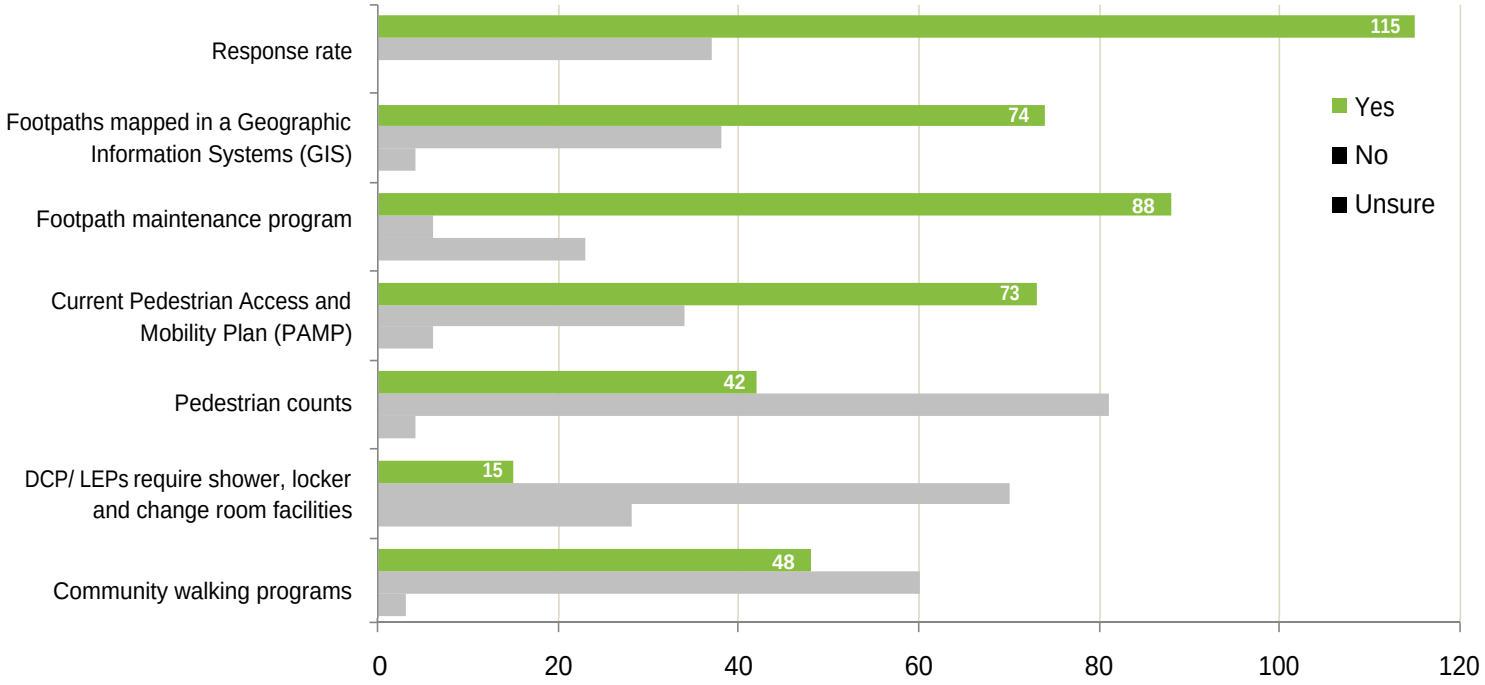
A range of walking data sources are available in NSW



The extent and quality of walking data collected varies across NSW Local Councils

Local councils play a role in the delivery of pedestrian policy, programs and infrastructure.

Each council has different departments responsible for the footpaths and walking programs. During the delivery of the questionnaire, our team frequently began the questionnaire with the Road Safety Officer (RSO), though the RSO is not responsible for any paths through parks.



Key finding:

The 1992 Disability Discrimination Act (DDA) legislation are the only mandates for a minimum standard of pedestrian environment. This includes a footpath width of 1.2 metres in regional areas and at least 1.5 metres in urban areas – sufficient for two wheelchairs to pass.

Also, Section 117 of the *Environmental Planning & Assessment Act* requires local councils to address Integrated Land use and Transport Policy when preparing Local Environmental Plans. Visit:
http://www.transport.nsw.gov.au/abouttrans/planners-land-use.html

Notes on the data:

At regional or rural local councils, providing pedestrian facilities and encouraging walking may be impractical given the large geographic size or small population within a walk-able area.

About the data:

A telephone survey of all NSW local councils was conducted to develop a picture of pedestrian infrastructure data held by all 152 local councils.

The questionnaire transcripts and any local footpath and pedestrian data collected during this study, are available upon request.

About the data:

There is no clear position that defines the management of footpaths across local councils Departments which may have a role in footpaths include:

- Asset management
- Transport or traffic engineering
- Planning
- Parks and recreation
- Sustainability
- Accessibility and disabled access

Further departments may be involved in developing walking encouragement programs or conducting walking events.

At the local level, pedestrian data may be managed by different departments and staff

Due to the many types of walking and varied walking outcomes, a local council may fund some extent of footpath or pathway infrastructure or walking programs through different departments.

The local council questionnaire revealed limited mandate and funding to upgrade poor quality footpath pavements, widen footpaths or audit networks for connectivity and accessibility.

About the Road Safety Officer

The Road Safety Officer (RSO) is one of the chief instruments of pedestrian policy and programs at a local level. The staff in these positions are the link between local governments and the state-wide roads agency.

The NSW Roads and Traffic Authority (RTA) funds 50% of the RSO position. Where a local council is unable to match the funding for the role, or where the road safety matters in the area do not warrant a full-time staffed position, this may be a part time role or the RSO may be shared between another local council.

About the Asset Manager:

Some councils have a staffed Asset Manager position, which tracks the councils' physical infrastructure. In this capacity the Asset Manager may know more about the extent of the entire walkable network, both recreational walking pathways and footpaths adjacent to the road network.

About the Town Planner

In the development application process for new urban developments, the assessing officer may be a Town Planner. There is some overlap between the responsibility of assessing the footpath as part of the public realm or as part of the transport network.

About the Traffic Engineer/ Transport Planner

This role varies between local councils – with the Traffic Engineer largely focused on the performance of the motor vehicle network and on-street car parking. Transport Planners may have the additional responsibilities for bus stops and bicycle parking.

About the Parks and Recreation (or Sport and Recreation) team

This team manages the community parks, sports fields and associated facilities. The pathway network linking these recreational spaces are overlooked as part of a functional walking transport network. This team may know the most about car parking problems and short car trips at recreational facilities and open spaces.

About the Office Manager

The Office Manager may have a degree of knowledge about staff active travel patterns. Many local councils have shower and change room facilities. In inner urban areas these facilities may be for end-of-trip facilities for staff using active travel to work– whilst regional offices may be integrated with the works depot (for depot staff). Several noted that lockers were over subscribed, with new participants unable to get a locker.

Key finding:

The questionnaire identified that there was fragmentation of walking-related responsibilities across the responding local councils.

There are opportunities for departments to work together in mutual efforts to collect walking data and close some gaps in the data collection.

This could achieve synergies in the use of existing funding and staff time, particularly if the council sets a target to increase walking for short trips and pursues a walking encouragement program.

Further study:

Walking events or promotional programs sometimes bounce between departments (Events, Community Services, Parks and Recreation etc).

Walk to Work Day was the most reported walking promotional program. This program was conducted at the beginning of October, 2010. Data is not available yet on rates of participation nor the cost per walk trip.

Further study would establish whether this program or other 'one off' events contribute widely to an increase in walking trips.

The extent and quality of the walking network is unknown

The footpaths and pathways comprise the walking network. This data is not collected at a state level. At a local level, information about the walking network can be found in a local council's Pedestrian Access and Mobility Plans (PAMPs) or in a Geographic Information System (GIS).

About Pedestrian Access and Mobility Plans (PAMPs)

PAMPs are prepared with partial funding from the NSW Roads and Traffic Authority. PAMPs often have static or embedded maps of the local footpaths and locations of pedestrian crashes. PAMP maps are up-to-date at the time of publication, but are sporadically updated.

About Transport Management and Accessibility Plans (TMAPs)

TMAPs are prepared by the proponent of major urban development sites, to assess transport demand at the new development. Static maps are used to identify a package of infrastructure, services and initiatives required to manage travel demand, and in particular, reduce travel by private car and commercial vehicle to and from the development.

About Geographic Information Systems

A Geographic Information Systems (GIS) is a powerful tool for managing spatial data, including infrastructure assets like footpaths and pathways. Other spatial data, including residential data or crash information can also be stored and managed using a GIS. When used with use and crash data, spatial data is used by planners to identify missing links, hot spots, obstacles and opportunities.

During the questionnaire, half of local councis in NSW reported that footpaths and crossings are mapped in a Geographic Information System (GIS). However, the breadth and depth of coverage varies between local councils. Whilst a GIS is more dynamic than a PAMP, the quality of the data in either location relies on regular updates, which requires funding, time and interest.

Infrastructure indicators are an integral part of measuring transport performance

Across motorised transport modes in NSW, planners use GIS to track the performance of the transport network. The first reported indicator is network length, measured in kilometres. Indicators of use, performance, exposure and risk are often reported against network kilometres. Not knowing the extent of the footpath and pathway network is an unexpected oversight – considering that the footpath network could comprise up to 10% of a road corridor!

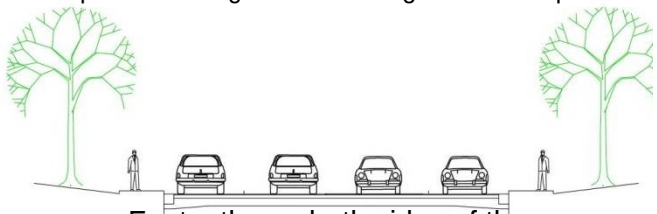
Key finding:

There is no state-wide database of the walking network or other assets pertaining to or placed in the walking network. This is a significant barrier to a statewide assessment of walking and walkability using the footpath network.

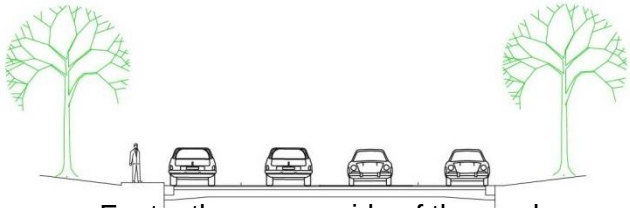
A state-wide database would establish the total kilometres of walking network. At a policy level, the database could be used by Road Safety Officers, Transport Planners, Asset Managers and the Sport and Recreation team, forming the base network for pedestrian crash analysis, future network planning, DDA compliance reporting and maintenance prioritisation.

The database could also form the basis of a walking trip planner or allow residents to report hazards on the footpath network.

For further study:
Other spatial factors of walking can also be tracked in a GIS. In the *International Physical Activity Prevalence Study SELF-ADMINISTERED ENVIRONMENTAL MODULE*, trained auditors establish the quality of the walking environment. The spatial components of these factors are managed in a GIS.



Footpaths on both sides of the road (10% paved corridor)



Footpaths on one side of the road (5% paved corridor)

No footpaths

Land use and urban design affect pedestrian accessibility

Current NSW planning guidance notes the importance of a permeable, connected pedestrian network. Without collecting and reporting on the total footpath and pathway provision or the routes chosen by pedestrians, it is difficult to know the permeability or connectivity of the network.

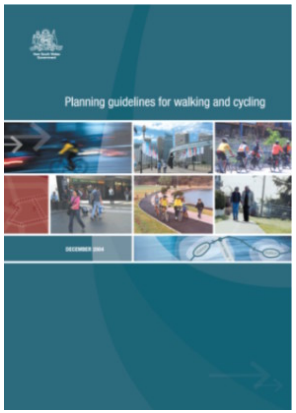
In the maps of Green Valley **Fig 1:** (south western Sydney) and Eastwood **Fig 2:** (north western) Sydney below, from the 2004 *Planning Guidelines for Walking and Cycling (p19)*, the inner red circle illustrates the notional "crow flies" 400 metre walking catchments.

The shaded land uses indicate the permeability of the walking network near the rail station, by shading the actual land uses accessible by walking.

The Eastwood network **Fig 2**, has short blocks with connected streets. As a result, 51% of the notional walking catchment is accessible in a five minute walk.

The Green Valley network **Fig 1**, is a physical network that accommodates the needs of motor vehicles. Just 12% of the notional walking catchment is actually accessible in a five minute walk.

The maps demonstrate that permeability impacts the station's walking catchment. The operations of the road network may further affect the catchment.



Key finding:

In NSW, the *Planning Guidelines for Walking and Cycling* are scheduled for review in 2011. This is an opportunity to strengthen, and possibly mandate, the assessment of pedestrian connectivity and amenity in new urban development, similar to the current evaluation of traffic generating developments in NSW.

In green field developments, this would ensure an appropriate walking network was established from the beginning.

In urban renewal locations, this would provide an opportunity to retrofit existing urban areas which may have less permeable networks.

The 2010 Premier's Council for Active Living (PCAL) *Development and Active Living Resource* provides detailed guidance on how to provide for walking as part of project design and within the assessment and approval process. An accompanying developer's checklist is slated for release in 2011.

Fig 1: Green Valley, outer south western Sydney

Fig 2: Eastwood, north western Sydney

Additional guidance:

The 2010 UK *Manual for Streets 2: Wider Application of the Principles* by the Chartered Institution of Highways & Transportation (CIHT) is a framework to remove unnecessary signs and advertising in the footpath network and public realm.

The report identifies 'de-cluttering' the pedestrian environment will make walking more palatable to residents.

Notes on walking environments:

In 2008, the *Pedestrians' Quality Needs (PQN) Benchmarking and 20 pedestrian-friendly cities* paper acknowledged that people choose to walk more when the walking environment is:
Connected
Convivial
Conspicuous
Comfortable
Convenient
This is not currently part of the assessment criteria.

Walking data collection and measurement could be improved

The nationwide benchmark for transport is the Australian Bureau of Statistics (ABS) five-yearly Census Journey to Work (JTW). The Census is a 100% sample, which increases the importance of the JTW benchmarks in the allocation of funding and forward planning. However, walking is such an essential component of trips by all travel modes, that the ABS must differentiate walking for the entire trip (marked as "walk-only"). In trips using two or more modes, walking is not reported. This diminishes the importance walking to and from the other transport modes and could result in serious undercounting of walk trips. To try to fill this gap, estimates are conducted to calculate the total walk component of these trips.

Another issue with the JTW holding such importance, is that people travel substantially more than just their journey to work. The next reliable data source is the NSW Bureau of Transport Statistics' Household Travel Survey (HTS), which measures all types of travel in a small, representative sample size of the Greater Sydney Metropolitan Area. This survey shows a much higher degree of walking when all types of travel and multi-modal trips are considered.

Total trips, trip length and travel time are standard measurements in transport planning or planning recreational walking pathways. To arrive at indicators of the walk's purpose or the walker's destination, this may be calculated from other existing data sources, usually the HTS for transport. The Australian Sports Commission's annual Exercise, Recreation and Sport Survey (ERaSS) does not allow for this type of factoring, merely surveying *whether* people walked for recreation, rather than *where* recreational walking took place.

When considering walking in a health context, frequency and duration of the walking trip is an important factor when assessing whether a bout of walking is "health enhancing" – contributing to an individual's recommended 30 minutes of physical activity per day. Data for these indicators is collected in NSW as part of the NSW Adult Health Survey or the Schools Physical Activity and Nutrition Survey (SPANS), both conducted by NSW Health.

Whilst these data sets can be used together to give a general picture of walking trends, travel time and frequency, the information about where the walking trip was actually conducted is not available. This can seriously under-report walking and does not provide any information about the actual route for the walk.

Key finding:

In a 2006 Walk 21 paper *Walking and public transport – a natural partnership*, Garry Glazebrook found that "roughly half of the kilometres walked were associated with a public transport trip". By downplaying the importance of walking to other transport modes, nearly half of all kilometres walked are not factored into transport planning.

About the data:

To measure trip length, travel time and intensity, the measurement tool (or tools) have to travel with the walker. Unlike cars and public transport vehicles, walkers do not have inbuilt speed0metres.

Measuring of travel time and speed on the road and public transport network is an unobtrusive process, using counters embedded in the road network or counters in the ticket barriers.

Measuring the same factors for pedestrians can be invasive and intrusive, particularly when coupled with measurements of trip purpose and travel time.

These are critical factors in measuring bouts of walking for health benefits.

Relevant data sources:

The 2010 *Measuring Active Travel* project (on-going) is trialling a more robust picture of active travel for the Greater Sydney Metropolitan Area. The data from this survey is not currently available.

For this information to become a useful tool for practitioners and policy-makers, this data collection must be regularly updated in order to identify trends in the data.

Serious, moderate and minor injuries to pedestrians may be both under reported and double counted

Double-counting and under-reporting the rate of injuries may result in a distorted picture of the risk of injury whilst walking. An iceberg is a metaphor for the problem: all fatalities are known, the tip of the iceberg above the surface, whilst the degree and extent of injuries are not well understood, the part of the iceberg below the surface.

More severe pedestrian injuries have the potential to be counted twice. Data "cleaning" for compliance with privacy laws, creates the potential for the same pedestrian injury to be counted three times, by:

RTA Traffic Accident Database System (TADs)

This database tracks 100% of pedestrian fatalities where a motor vehicle is involved. The database also contains pedestrian crashes resulting in at least $500 worth of damage and the involvement of the NSW Police.

NSW Health and the Injury Risk Management Research Centre (IRMRC)

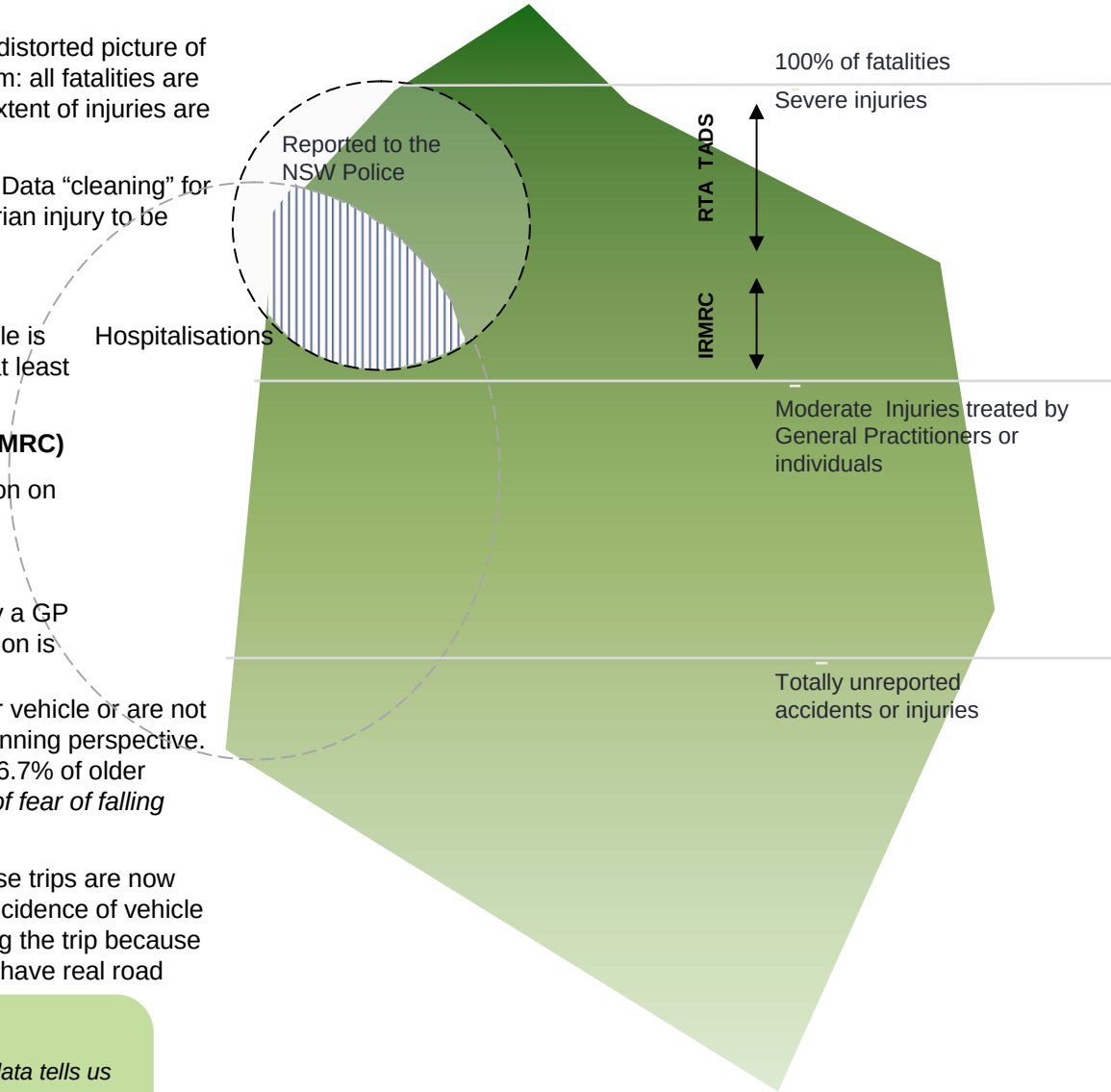
NSW Health collects hospital separation data which provides information on hospital stays relating to injury, including pedestrian related injuries.

Insurance claims

Claims for minor accidents and falls, where a patient may be treated by a GP only, could be counted from insurance claims. Accessing this information is fairly difficult due to privacy constraints.

Moderate and minor injuries to pedestrians which do not involve a motor vehicle or are not reported to the NSW Police are not well understood from a transport planning perspective. However, in the 2010 NSW Health *Falls Prevention Baseline Survey ,* 26.7% of older Australians, aged 65 and older, reported limiting their walking *because of fear of falling* whilst walking over rough or uneven surfaces, steps or stairs.

Where these trips could have been conducted ordinarily by walking, these trips are now conducted on other modes – often as a vehicle passenger. Given the incidence of vehicle trips conducted only to "serve passenger" (e.g. the driver is only making the trip because the passenger must travel, not because they are travelling). These trips have real road congestion implications.



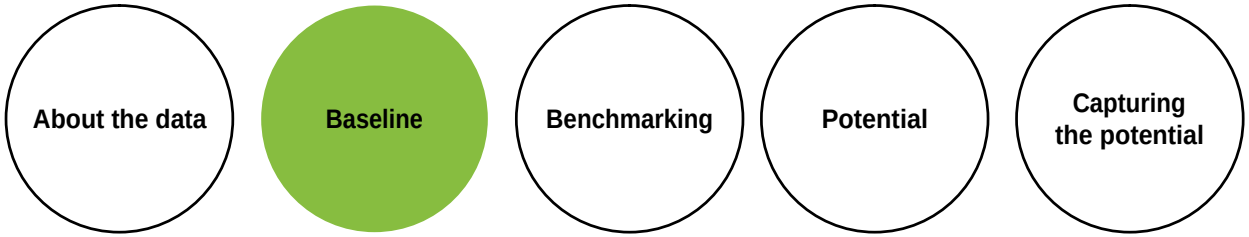
Relevant data sources:

The 2008 *Cycling in NSW – what the data tells us*

The 2010 NSW Health *Falls Prevention Baseline Survey*

The NSW *Traffic Accident Database*

Baseline



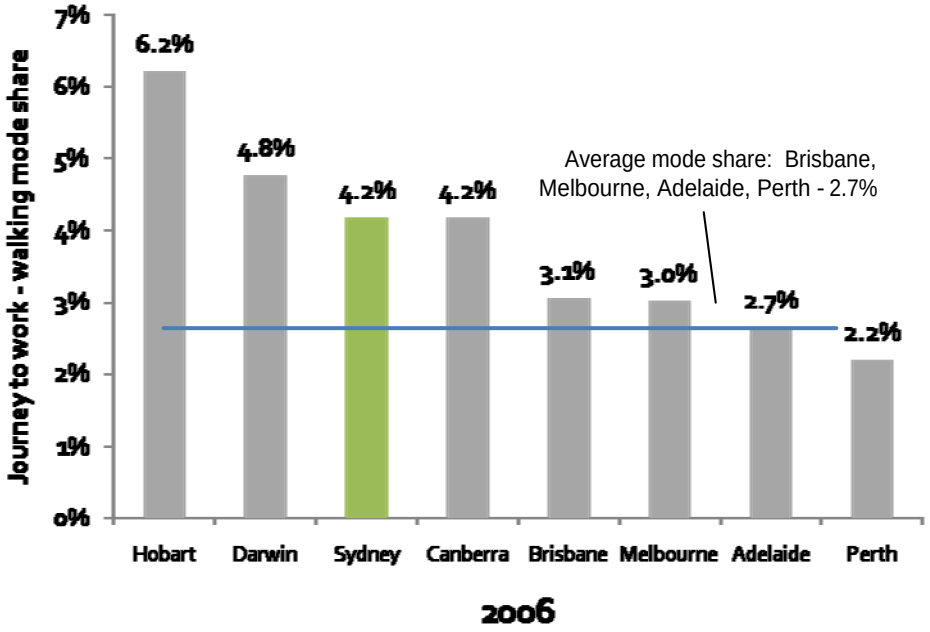
Who is walking in NSW (and where)?

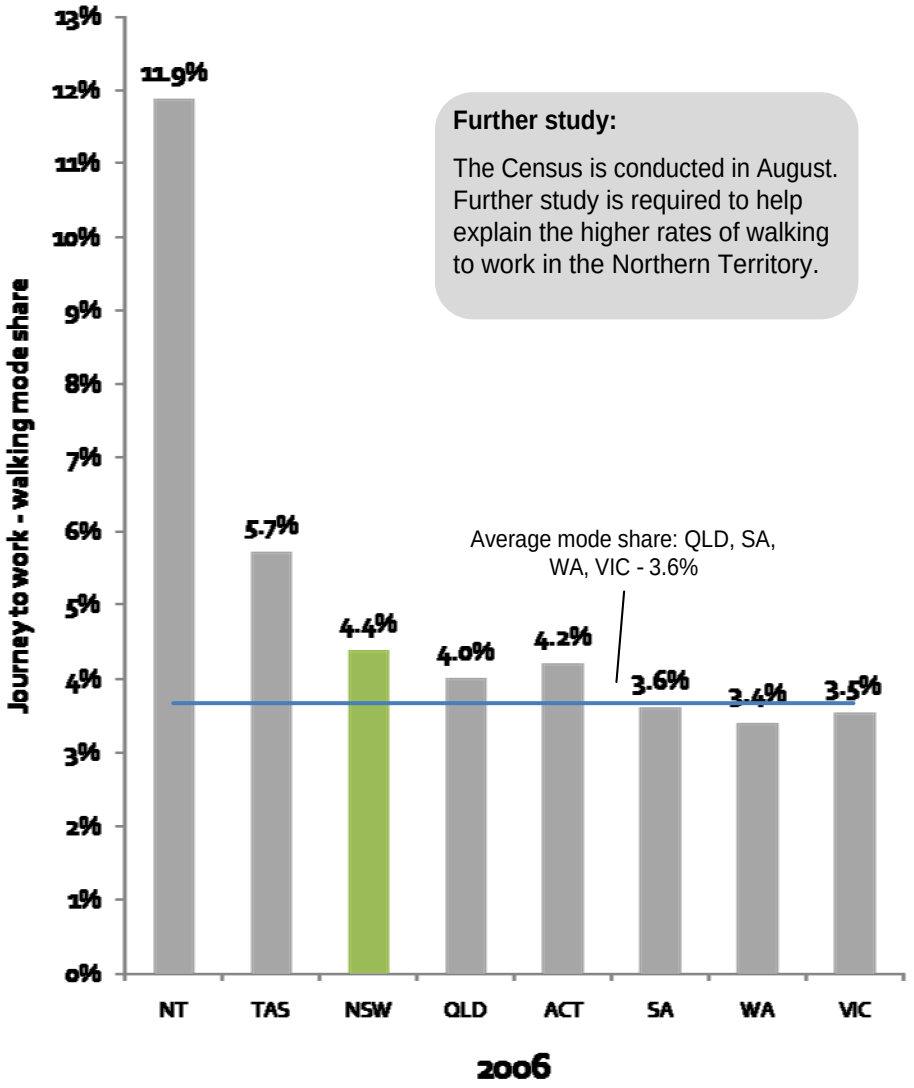
The walking data that is collected across NSW is used to establish the baseline of walking. Analysing the data indicates:

- Rates of walking to work in Sydney and NSW are on par with other capital cities, states and territories
- Rates of metropolitan walking have increased over time
- Walking for travel is more common in denser, inner urban areas
- Walking is the most popular recreational activity – but people are less likely to walk regularly (at least three times per week)
- School children are walking less and being driven more
- Highest rates of fatal pedestrian crashes are in urban centres
- Pedestrians experience a poor quality of walking environment (and low level of service) in Sydney

Rates of walking to work in Sydney and NSW are on par with other capital cities, states and territories

- In 2006, the rates of walking in Sydney were on par with other capital cities and tied with Canberra
- For the same year, the rates of walking in NSW were slightly higher than Canberra
- The state-wide rate for walking to work in NSW was slightly higher than the Sydney rate of walking to work.
- The rates of walking do not include trips which involved walking and one other mode (e.g. walking from public transport or parked cars).





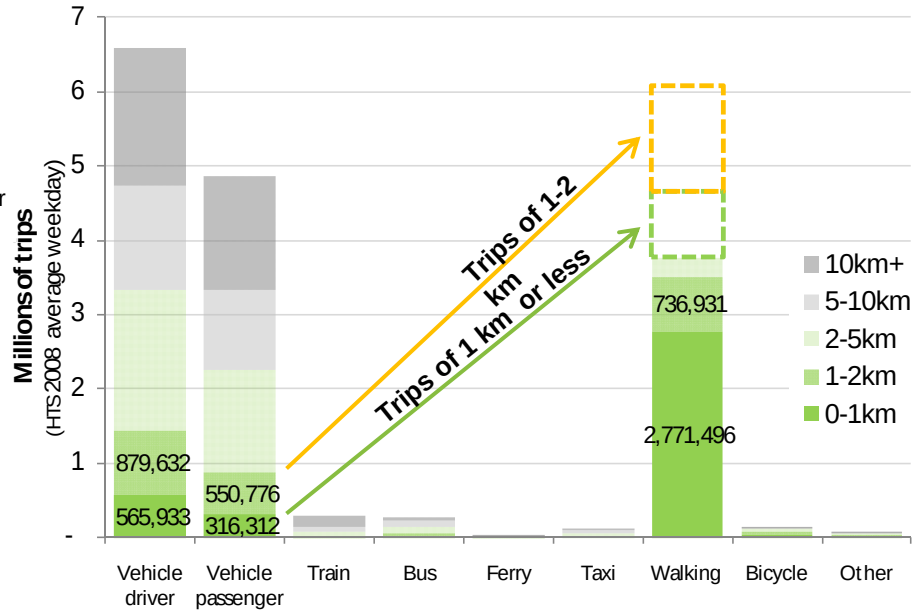
Further study:

The Census is conducted in August. Further study is required to help explain the higher rates of walking to work in the Northern Territory.

Rates of metropolitan walking have increased over time

Rates of walking for travel
(all trips, average weekday, 1999-2008 Household Travel Survey)

Total trips by trip distance, by travel mode, on an average weekday
(2008 Household Travel Survey)



Findings:

Converting complete short car trips and serve passenger trips to walking – or adding to or increasing the walking component of longer car trips – contributes to the bouts of physical activity recommended by health practitioners and has a decongestion benefit for the local neighbourhood road transport network.

Relevant reports:

The charts on this page were prepared using the Sydney *Household Travel Survey* data from *1999-2008*, conducted by the Transport NSW, Bureau of Transport Statistics and the 2010, *NSW Metropolitan Transport Plan.*

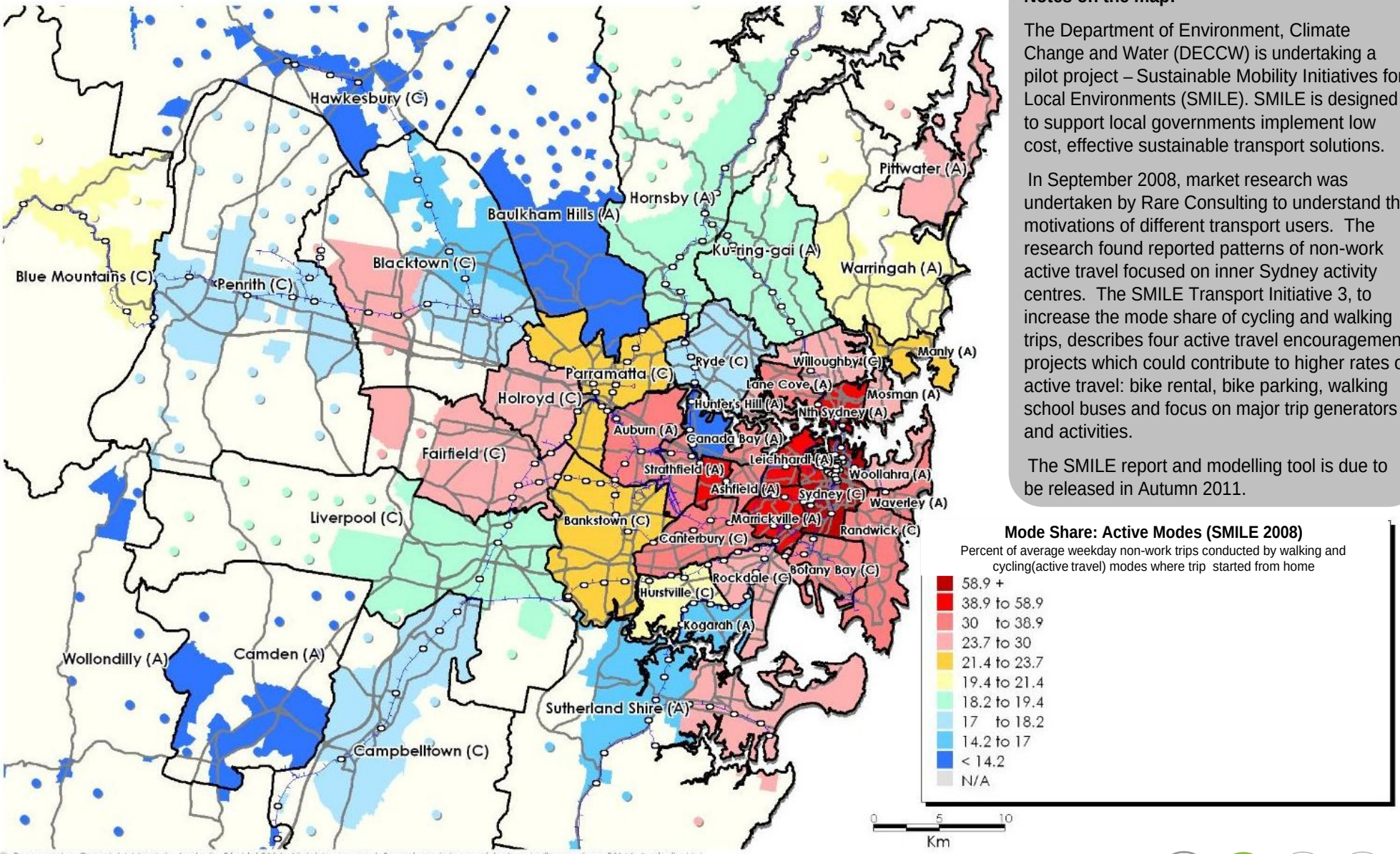
(a) The Household Travel Survey *does not* collect data for trips which include walking in combination with another mode

Notes on the Data:

The Austroads *Guide to Traffic Management, Part 9 Traffic Operations,* p 165 identifies a pedestrian design speed used by Australian states and territories: a pace of 1.2 metres/ second is used in NSW.

At this pace, a trip of 1 kilometre is *less than a 15 minute walk* and a 2 kilometre walk is *less than a 30 minute walk*.

Inner Sydney activity centres have higher rates of walking



Notes on the map:

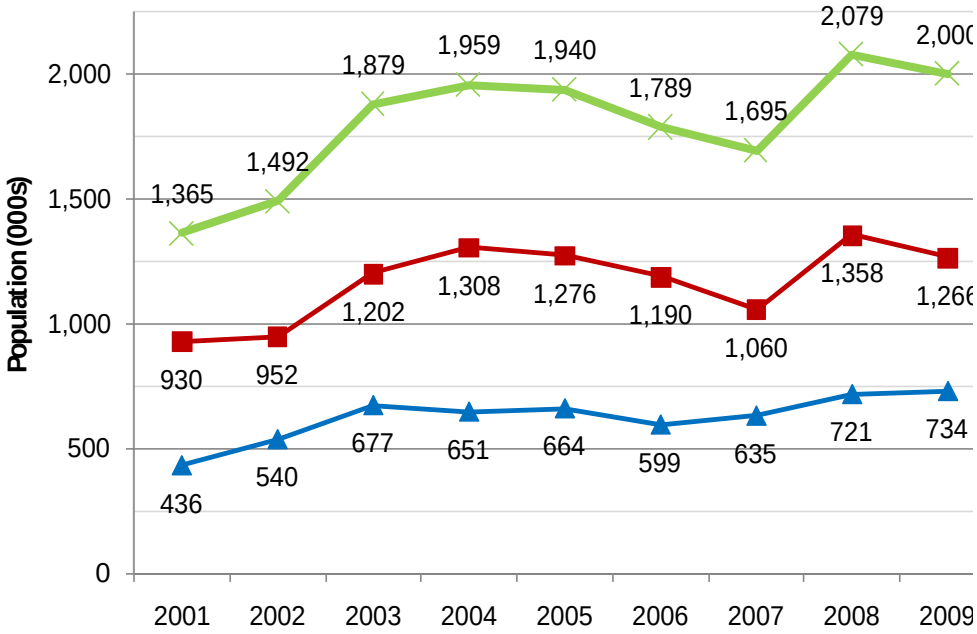
The Department of Environment, Climate Change and Water (DECCW) is undertaking a pilot project – Sustainable Mobility Initiatives for Local Environments (SMILE). SMILE is designed to support local governments implement low cost, effective sustainable transport solutions.

In September 2008, market research was undertaken by Rare Consulting to understand the motivations of different transport users. The research found reported patterns of non-work active travel focused on inner Sydney activity centres. The SMILE Transport Initiative 3, to increase the mode share of cycling and walking trips, describes four active travel encouragement projects which could contribute to higher rates of active travel: bike rental, bike parking, walking school buses and focus on major trip generators and activities.

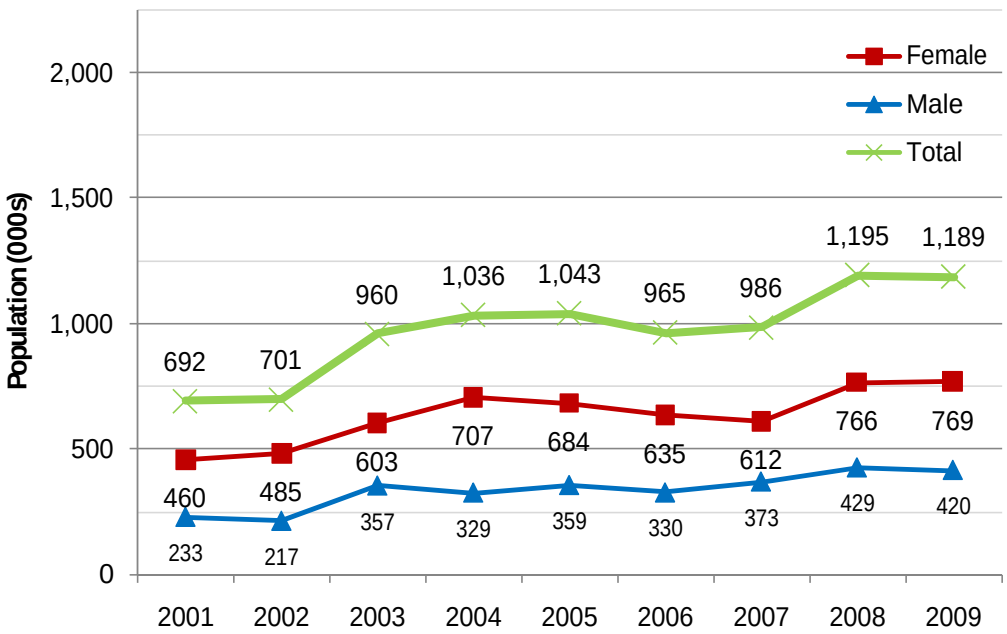
The SMILE report and modelling tool is due to be released in Autumn 2011.

Walking is the most popular recreational activity – but people are less likely to walk regularly

NSW residents reporting walking for recreation ***once*** during the past year



NSW residents reporting ***regular*** walking for recreation during the past year (*at least three times per week)*



Relevant data sources – ERASS

Each year the Australian Sports Commission, and state and territory government agencies responsible for sport and recreation, conduct the *Exercise, Recreation and Sport Survey* (ERaSS).

The survey collects participation information on the frequency, duration, nature and type of physical activities by persons aged 15 years and over for exercise, recreation or sport during the 12 months prior to interview.

Further study:

The difference in reported rates of walking once and walking regularly in the past year may represent under reporting in the survey or a real opportunity to increase recreational walking in NSW.

Further research would identify any factors which explain why residents walk once for recreation but do not undertake the activity again.

Key finding:

Walking *is* the most popular recreational activity reported by NSW residents in the annual ERaSS, with an estimated 2 million trips in 2009. Another 307,300 people are estimated to have bushwalked at least once in the past year.

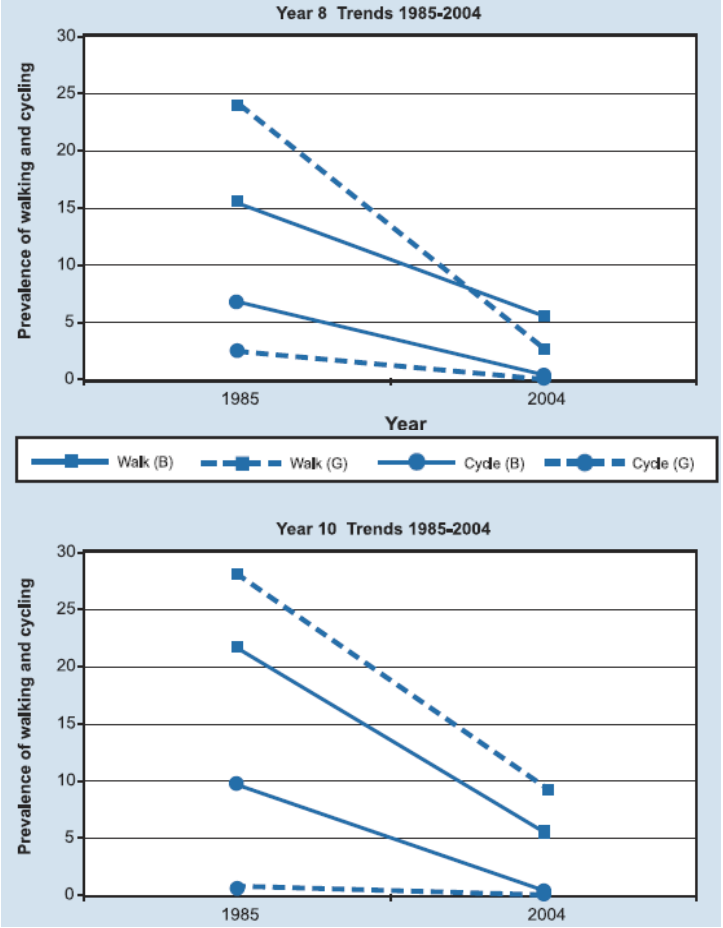
However, respondents were less likely to walk *regularly*. **For the purposes of ERaSS, regular walking occurs three times per week or more.**

School children are walking less and being driven more

The Short Report of the NSW Health *Schools Physical Activity and Nutrition Survey (SPANS)* conducted in 2004, highlighted a substantial, downward trend in the Journey to School (below). The Sydney *Household Travel Survey* data (right) for the same year showed the largest increase in motor vehicle travel coincided with the end of the school day during the afternoon peak.

In the 1985 survey nearly 25% of girls in year 8 and nearly 30% in year 10 walked to school *four times* a week. By 2004, the rates of active travel to school – for boys and girls – fell in *both* year 8 and year 10 groups. The decline for year 8 girls was steeper than that of year 8 boys (p.17 of the Short Report).

Rates of children walking to school in 1985 and 2004 (SPANS)



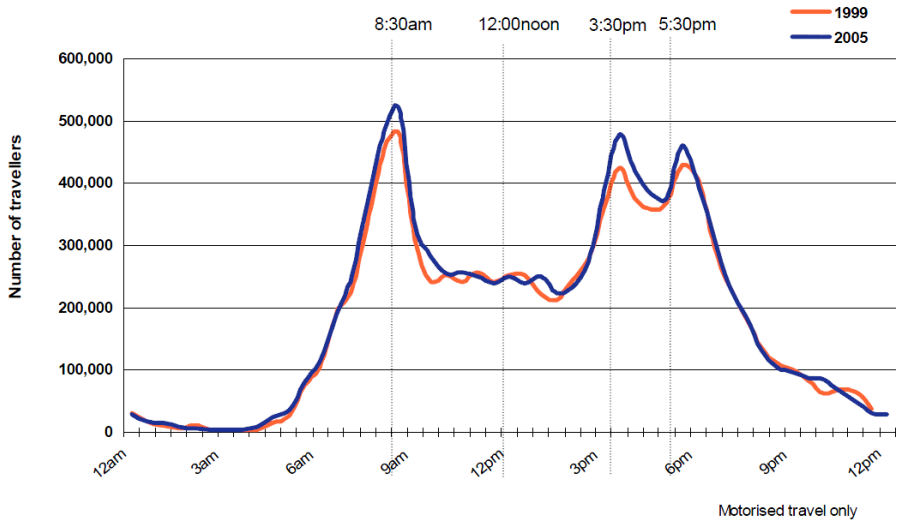
Relevant data sources:

The NSW Health Schools Physical Activity and Nutrition Survey (SPANS) data was reported within the 2004 Short Report. Full results of 2010 (SPANS) data are expected to be released in 2011.

Finding:

The NSW TravelSmart Schools Program 2006-07 confirmed parent journey to work as a key factor that influences parent's decisions on how they and their children travel to and from school.

Number of people travelling, by time of day on weekdays (2004 HTS)



Relevant data sources:

The 2004 *Household Travel Survey Summary Report* (2006 release, produced by the Ministry of Transport's, Transport Data Centre) showed the impact of the Journey from School trips – with the growth in close of school day afternoon peak travel surpassing the close of work day evening peak travel.

For further research:

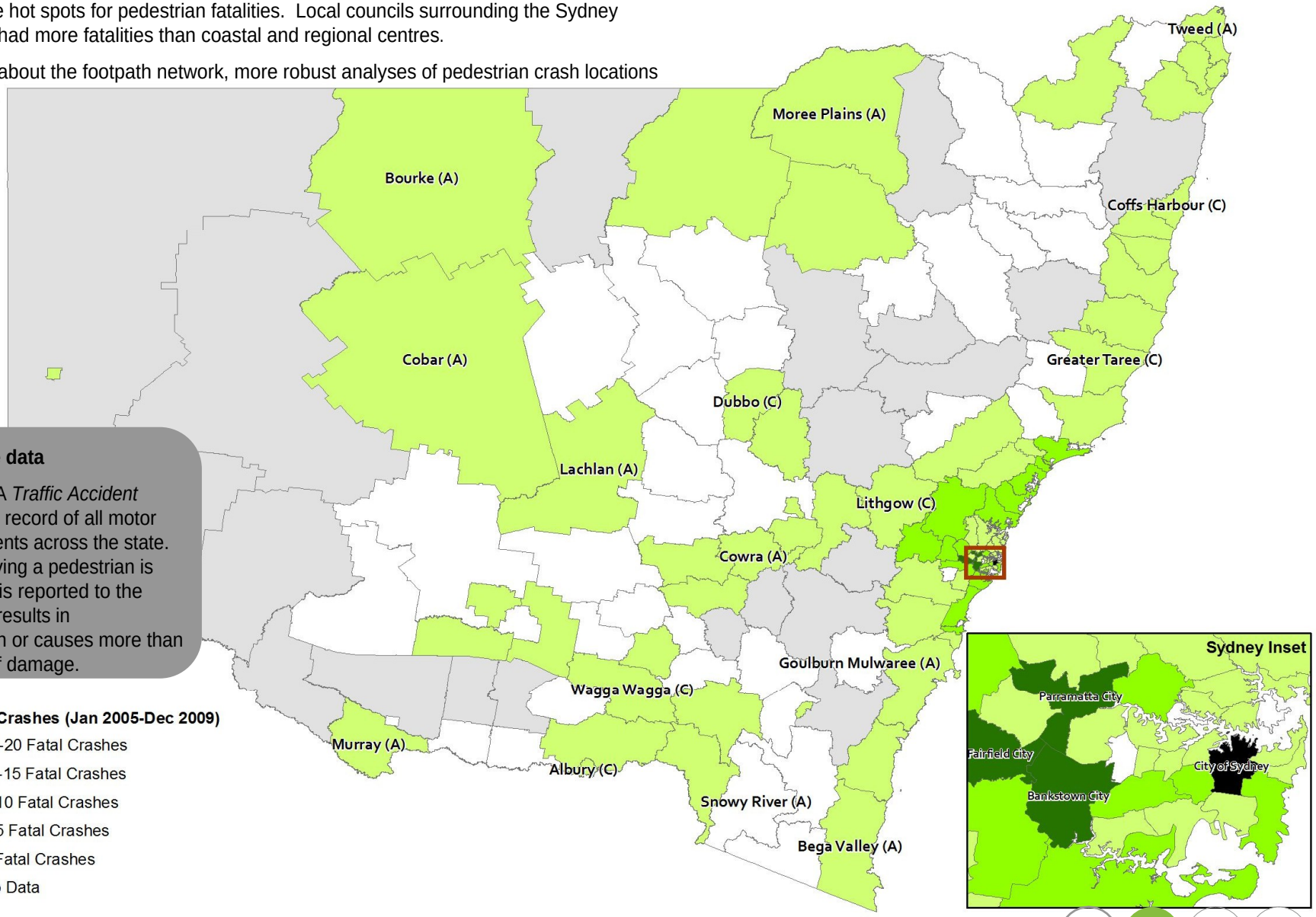
Walking School Bus programs are one initiative to foster community ties and encourage walking across school children and their parents.

Further study of walking school buses delivered in NSW by Landcom, would indicate the success of the program and wider, practical applications across NSW.

The highest rates of fatal pedestrian crashes are in urban centres

Activity centres are hot spots for pedestrian fatalities. Local councils surrounding the Sydney Metropolitan Area had more fatalities than coastal and regional centres.

As more is known about the footpath network, more robust analyses of pedestrian crash locations may be conducted.

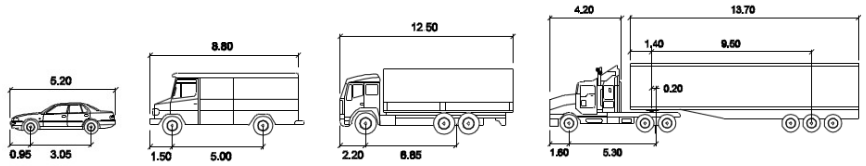


Notes on the data

The NSW RTA *Traffic Accident Database* is a record of all motor vehicle accidents across the state. A crash involving a pedestrian is recorded if it is reported to the NSW Police, results in hospitalisation or causes more than $500 worth of damage.

Pedestrians experience a poor quality of walking environment (and low level of service) in Sydney

In traffic engineering, there are many different design vehicles ranging in size and performance from a small car to a B-triple trailer truck. The 2009 update to the Austroads *Guide to Road Design, Part 4 Intersections and Crossings – General* p 26 has four design vehicles, but no "design pedestrian". The Austroads *Guide to Traffic Management, Part 9 Traffic Operations,* p 165 identifies two pedestrian design speeds used by Australian states and territories: 1.2 metres/ second or 1.5 metres/ second. In NSW, 1.2 metres/ second is commonly used. This assumes every pedestrian walks at the same speed.



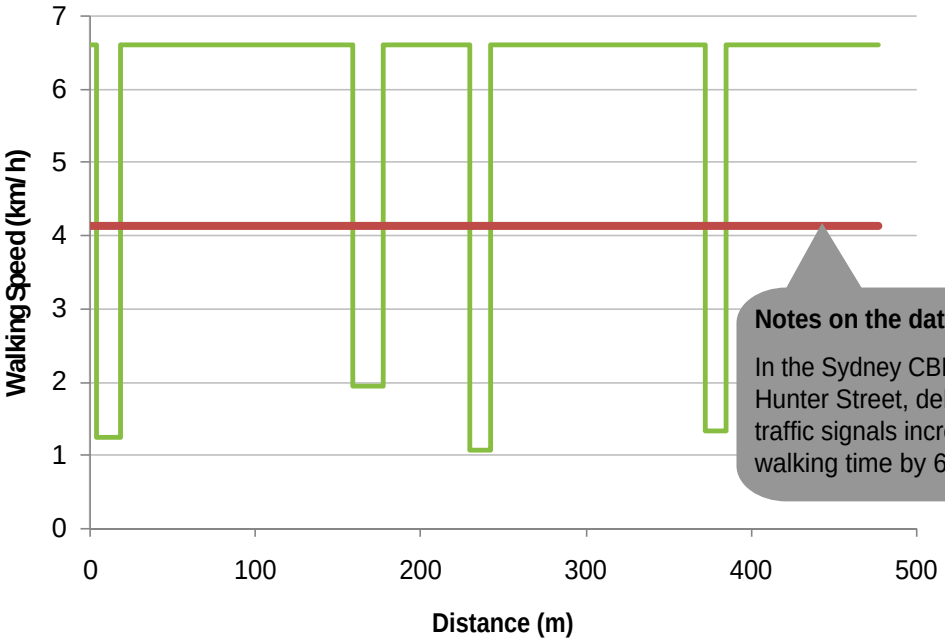
In 2007 Professor Jan Gelh of Gehl Architects was engaged by the City of Sydney to conduct the *Public Spaces – Public Life* survey for Sydney CBD. Gehl Architects found that pedestrians have a low degree of priority compared to other modes. The results of a timed walk on Hunter Street in Sydney during the morning peak (shown on the right) shows that pedestrian delays at traffic signals increase the walking time by 60% – reducing travel speeds from 6.5 km/h to just 4 km/h.

Further, Gehl Architects found CBD footpaths are cluttered with payphones, posts and unnecessary footpath interruptions, further reducing the quality of the walking environment. In just the city centre, there are 178 payphone and advertising units – which are installed in the footpath, blocking travel.

Additional guidance:

The 2004 Dutch guideline *Recommendations for traffic provisions in built-up areas,* identifies five design pedestrians. The various walking speeds vary between 0.8 metres/ second to children at 2.1 metres / second. These rates are used to design the walking network around destinations, ranging from child care to aged care facilities.

Pedestrian travel time surveys in the Sydney CBD, Hunter Street, 8.00 am weekday (Gehl Architects, 2007)



Notes on the data:

In the Sydney CBD, on Hunter Street, delays at traffic signals increase walking time by 60%

For further study:

The City of Sydney and the NSW Government recently signed a Memorandum of Understanding (MOU) addressing all transport in the Sydney CBD, including opportunities to improve the environment for walking. Agreed initiatives include:

- Begin a trial of pedestrian countdown timers.
- Create seven 10kph shared zones in streets and laneways to mix uses.
- Reduce the speed limit in the City Centre to 40 kph.
- Improve pedestrian priority at major pedestrian intersections.
- Reduce wait times for pedestrians in peak periods.
- Identify further roads and lanes to convert to shared zones.

The lessons learnt through these activities as a result of this MOU will have practical applications for the other local government areas.

Benchmarking

How do walking outcomes in NSW and Sydney perform against comparable locations, including other Australian states and capital cities?

NSW has a strong track record, reporting on pedestrian safety indicators. In the absence of detailed network data or comparable trip data, injury benchmarks are the strongest for international comparison.

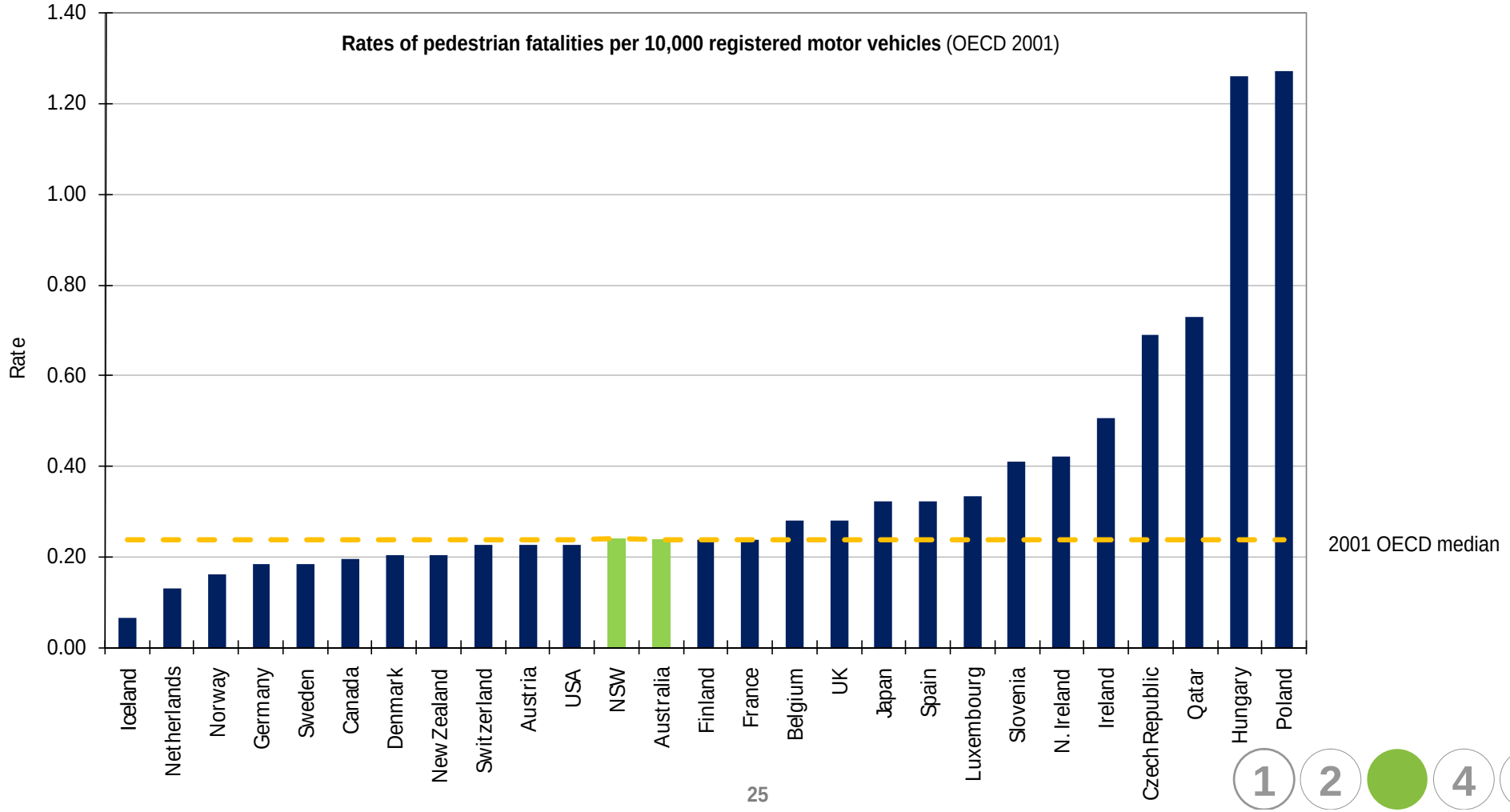
- In 2001, on international pedestrian road safety indicators NSW was average
- Since 2001, pedestrian crashes have reduced across NSW
- Low car speeds correlate to improved pedestrian safety

In 2001, NSW was average against international pedestrian road safety indicators

The Organisation for Economic Co-operation and Development (OECD) compiles international indicators to compare member countries. In a 2001 review of road safety, researchers recorded pedestrian fatalities as a factor of 10,000 registered motor vehicles. In the same period, pedestrian fatalities in NSW matched the Australian indicator and OECD median – ranking behind that of Northern European countries with a favourable track record of pedestrian priority but also below that of Eastern European countries with a growing culture of motoring (see chart below).

Finding:

Participating in international benchmarking returns useful comparisons and performance measures.



Since 2001, pedestrian crashes have reduced across NSW

Pedestrian fatalities and reported pedestrian injuries have steadily decreased in NSW. The rate of pedestrian fatalities per 10,000 vehicle registrations continues to trend towards zero (see chart below). Increasing vehicle registration could explain the steeper decline in the rate per 10,000 vehicle registrations compared to the slower decline in rates of fatalities and injuries.

The Roads and Traffic Authority continues to fund the preparation of Pedestrian Access and Mobility Plans (PAMPs) by local councils. PAMP projects include installation of measures to improve pedestrian safety such as:

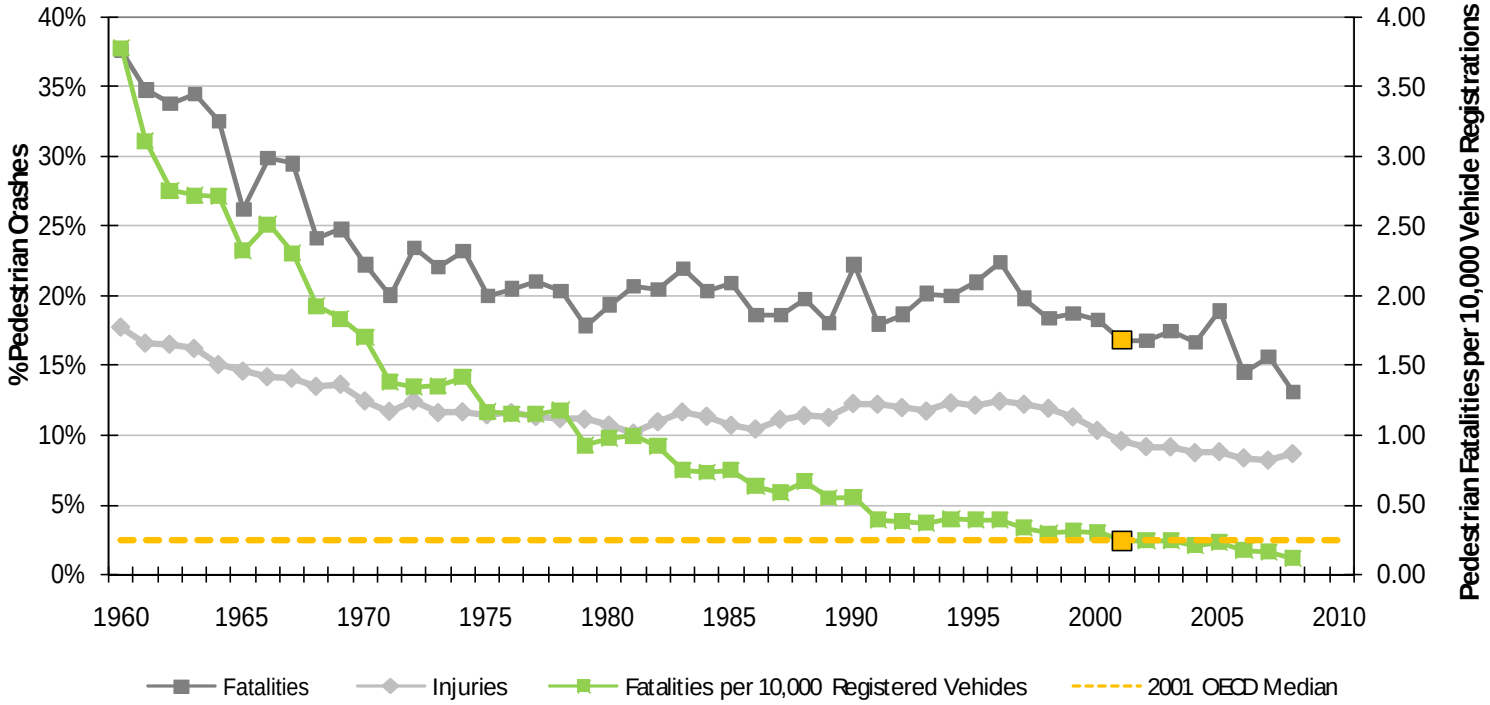
- Pedestrian refuges
- Pedestrian fencing
- Pedestrian crossings
- Signalised intersections

Finding:

Although the NSW Roads and Traffic Authority typically funds 50-100% of costs associated the implementation of local PAMP pedestrian safety projects, no state-wide asset layer exists for these assets.

Mapping these assets would provide the basis for desktop walking analyses of annual crash data, walkability, missing links and walk quality.

Rates of pedestrian fatalities and injuries in NSW motor vehicle crashes (RTA annual reporting)



Further study:

The pedestrian safety facilities installed next to roads do not necessarily improve the pedestrian experience but rather maintain vehicle speeds by fencing off pedestrian desire lines.

The remaining environment for walking is often less direct, cluttered, constrained and unpleasant.

Further data collection and analysis is required to identify if pedestrian volumes remain constant after "remedial" interventions like fencing and barriers or if fewer people are choosing to walk.

Low car speeds correlate to improved pedestrian safety

In 2004 road safety research, a comparison of Australian and Dutch road safety indicators showed that lower vehicle speeds strongly correlate to the pedestrian's chance of surviving a crash (right). This chart compares international and historic data to illustrate the increased likelihood of a pedestrian surviving a motor vehicle crash in lower motor vehicle speed environments. Several trend lines test the correlations between low vehicle speed and survival rates.

In 2010, this theme was recently explored again in a paper for the Australasian Road Safety, Research, Policing and Education Conference *Casualty reductions in NSW associated with the 40 km/h school zone initiative.* The school speed zone reductions were "found to be associated with a significant reduction in child pedestrian trauma in the identified school zones." However, it is possible that these reductions are a reflection of fewer children being unsupervised near the road.

Case study: Vision Zero philosophy, Sweden

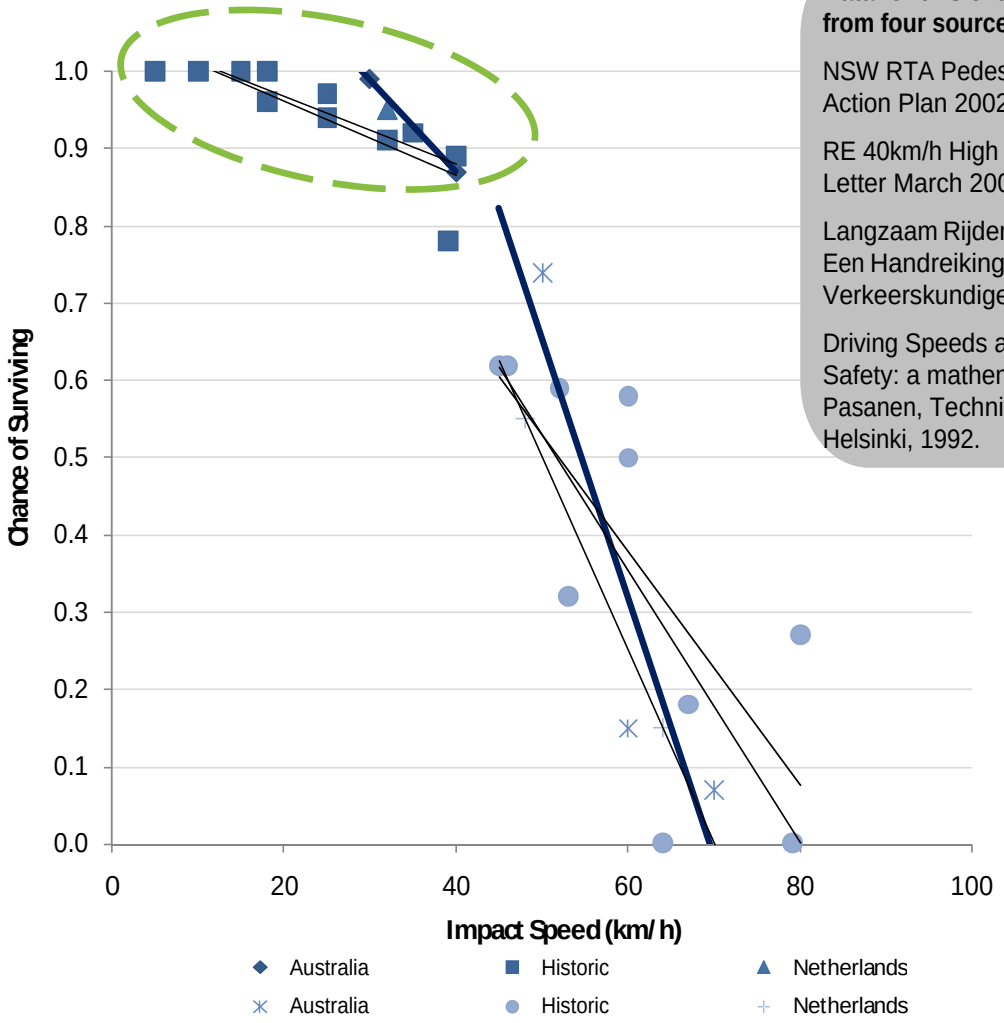
Adopted in 1997, *Vision Zero* is a Swedish Road Traffic Safety Bill. The vision is that no one will be killed or seriously injured within the road transport system. Vehicle mobility can not be obtained at the expense of safety: "the speed limits within the road transport system should be determined by the technical standard of vehicles and roads *so as not to exceed the level of violence that the human body can tolerate*".
The first principles in Vision Zero pertain to vulnerable pedestrians:

1. Vulnerable road users should not be exposed to motorised vehicles at speeds exceeding 30 km/h

2. If 1. cannot be satisfied then separate or reduce vehicle speed to 30 km/h

Applications of Vision Zero were considered for an Australian context in a 1999 Institute of Traffic Engineers paper *Vision Zero – an ethical approach to safety and mobility*

Likelihood of a pedestrian surviving a motor vehicle crash (RTA and CROW)



Data for this chart compiled from four sources:

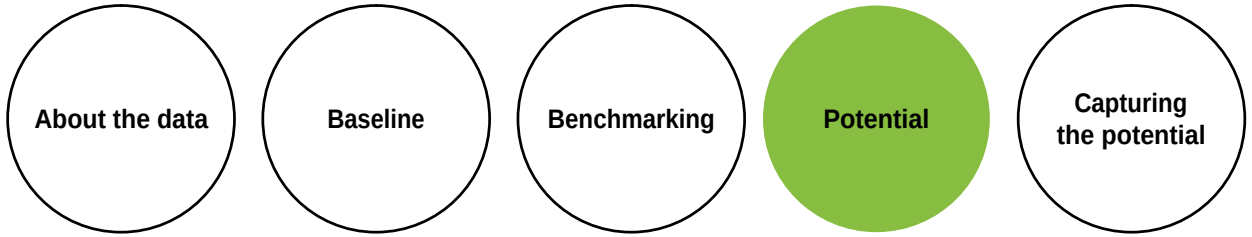
NSW RTA Pedestrian Safety Action Plan 2002-04,

RE 40km/h High Ped Program Letter March 2004,

Langzaam Rijden Gaat Sneller Een Handreiking voor Verkeerskundigen CROW, 2004,

Driving Speeds and Pedestrian Safety: a mathematical model E Pasanen, Technical University of Helsinki, 1992.

Potential



What is the broad potential to increase walking in NSW

Based on the data collected and analysed, the project team established a baseline of available data relating to current walking levels and walking infrastructure in NSW. This baseline may be used to set goals to increase the infrastructure provision for walkers and the rate of walking in NSW. These goals could be formalised in the State Plan as:

•Shifting short car trips and car passenger trips is a market to increase walking trips

•There is a relationship between the built environment, transport planning and walking

Shifting short car trips and car passenger trips is a market to increase walking trips

On an average weekday, the 2008 Sydney Household Travel Survey (HTS) indicates there were nearly 566,000 car trips and 316,000 more vehicle passenger trips of less than one kilometre in the Sydney Metropolitan Area. As a result, there are a total of over 880 000 short car and passenger trips of less than one kilometre each weekday (see 'Total trips by distance', pg 20 of this report).

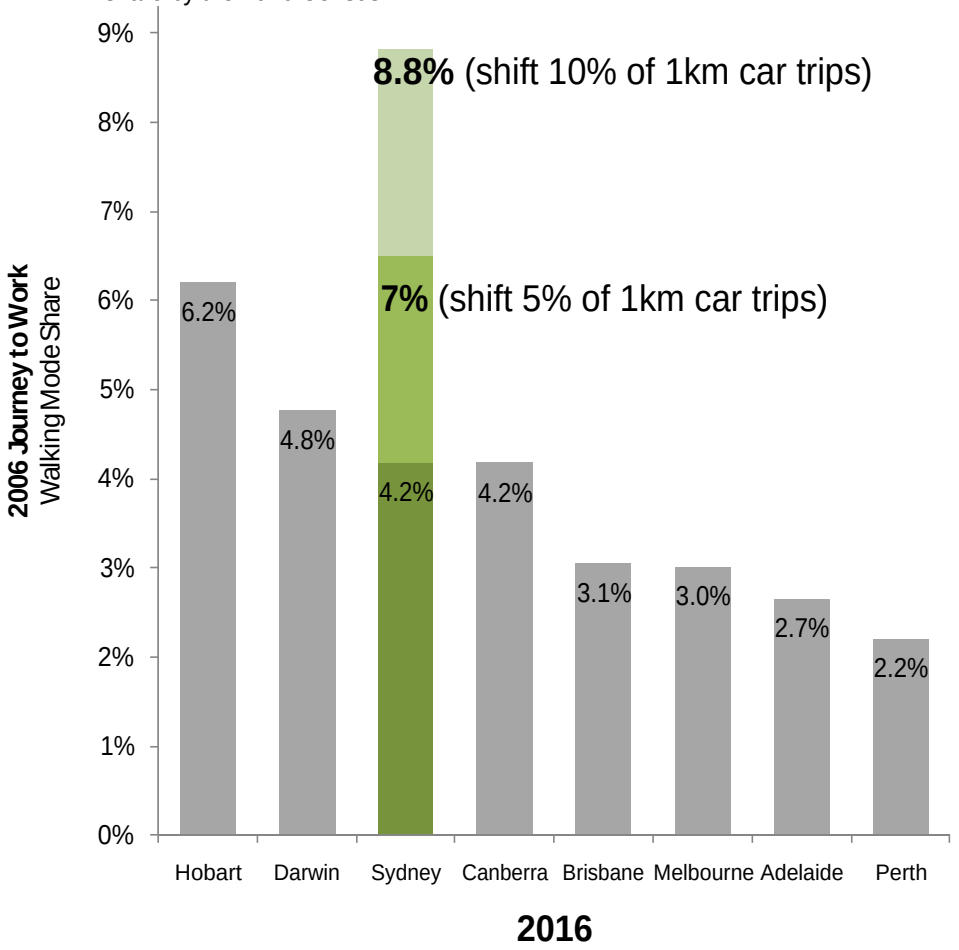
At the Austroads *Guide to Traffic Management, Part 9 Traffic Operations,* p 165, average walking speed of 1.2 metres/ second, a trip of one kilometre is *less than a 15 minute walk*!

Whilst a portion of these car trips may be unavoidable due to infirmity or disability, many of these trips are ideally suited to active travel modes, including walking.

Converting 5% of short car and car passenger trips (44,000) to walking for travel trips could increase the Sydney walking mode share to **7%** in the 2016 Census Journey to Work.

Converting 10% of short car trips (88,000 trips) to walking for travel trips could increase the Sydney walking mode share to 8.8% in the 2016 Census Journey to Work.

Based on the walk to work mode share in the 2006 Census Journey to Work, an additional 44,000 or 88,000 walk to work trips could double the walking mode share by the 2016 Census.



For further research:

Further analysis is required to establish an equivalent recreational walking goal.

A recreational walking goal could be developed and measured using the annual Exercise, Recreation and Sport Survey to measure growth in regular and occasional walking indicators.

Finding:

The 2010 NSW State Plan (p11) sets a priority to increase both walking and cycling, but does not set a specific target for walking.

The 2010 Metropolitan Transport Plan (p15) forecasts an increase on 2010 "walk only" trips by 7.4% to 3,790,000 "walk only" trips. This excludes walking to access all other travel modes, including walking to parked cars, bus stops, ferry wharves or rail stations.

Walking to motor vehicles or public transport should be incorporated in these plans and reported on regularly.

There is a relationship between the built environment, transport planning and walking

The 2010 Metropolitan Transport Plan (MTP) anticipates a 7.4% increase in walking trips by 2020 – excluding walking to the start or from the end of public transport and car trips.

However, to ensure rates, duration and frequency of walking increase to the benchmark of 30 minutes of physical activity per person, per day – new walking trips and recreational walks must be generated in addition to walking for trips to work, errands and journey to school.

To generate completely new walking trips and recreational walking, requires a connected walkable network and quality destinations. A suite of walking infrastructure, encouragement programs and policies are required.

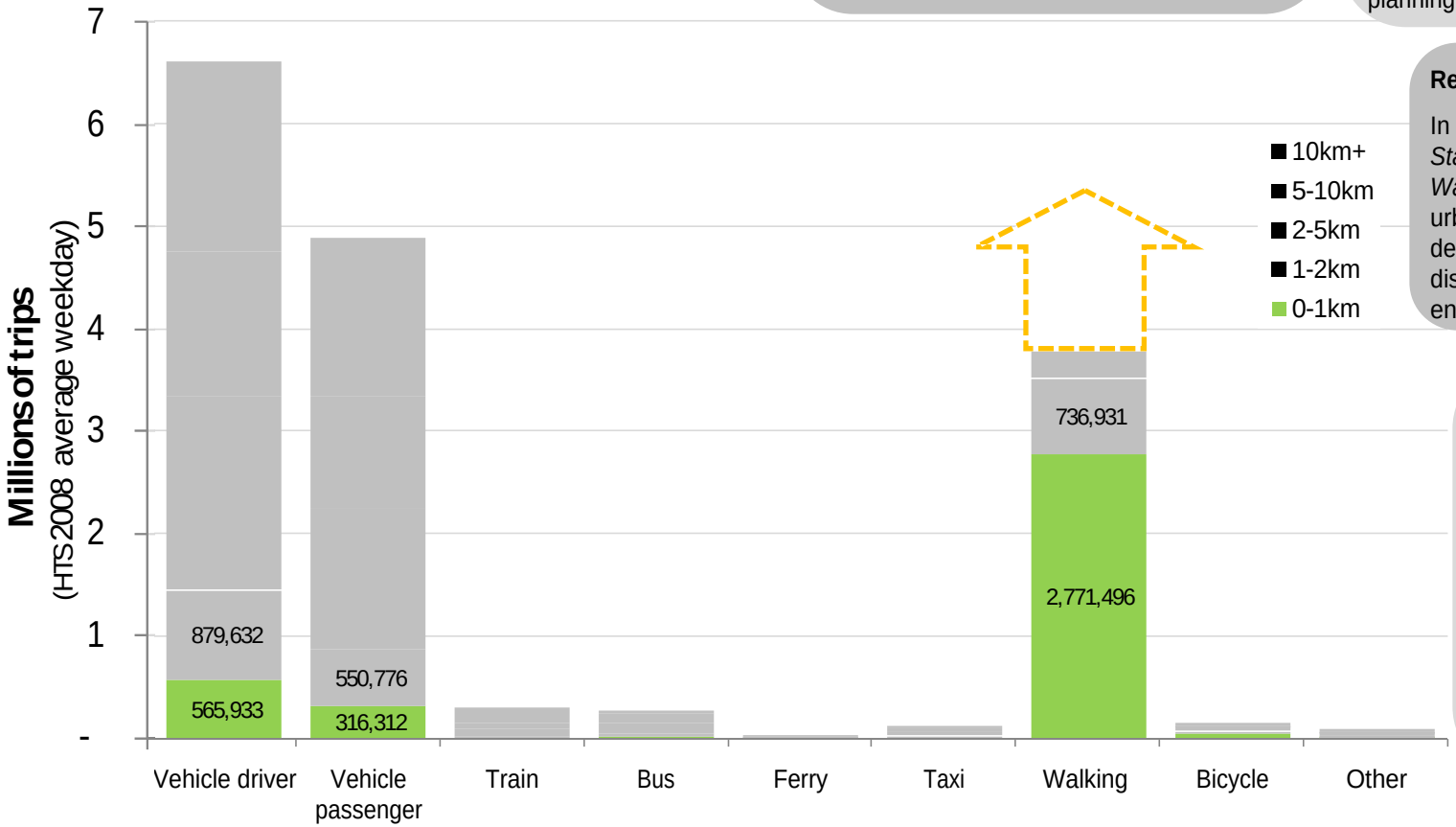
Relevant data sources:

In 1997, *Advice on a Strategy for Walking in London* found that rate payers' willingness-to-pay increased for recreational walking, rather than walking for transport, for all values: clean, well-lit, even pavement, less crowded, info panel or way-finding signs and kerbs.

The report also found delay to pedestrians could be no longer than 96 seconds before pedestrians crossed illegally.

For further study:

In a 2005 article in the American Journal of Preventive Medicine, *Increasing walking: How important is distance to, attractiveness, and size of public open space?* Giles-Corti, Broomhall and Knuiman reported that proximity to park and the quality of the park, relate to rates of walking. Using the POST tool developed for this research, could establish a park "minimum" for locating and planning parks in NSW.



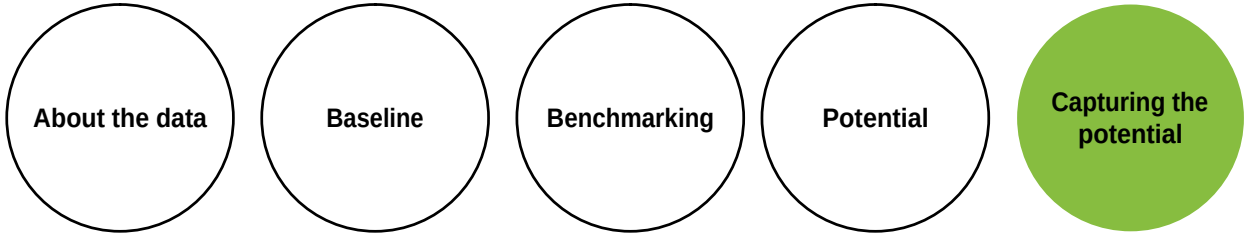
Relevant data sources:

In the 2010 Heart Foundation *Position Statement on the Built Environment and Walking* notes that compact, connected urban environments with a mixture of densities and land uses, create shorter distances between desired destinations, encouraging transport related walking.

For further study:

Estimates of walking to public transport services seem to indicate passengers are willing to walk further for more direct trains or buses. Further study would establish the factors that influence this decision and indicate improvements or programs to increase walking (i.e. increasing express public transport services or amalgamating express bus stops).

Capturing the potential



What data would help to identify ways to grow walking and track outcomes achieved?

What further research would complete the picture of walking in NSW?

To capture progress towards a potential walking benchmark, NSW agencies and organisations must:
Car trips of less than 2 kilometres are a market to increase walking trips

- Establish a baseline and set targets to increase walking
- Measure improved pedestrian indicators
- Measure and add to the walking network

Establish a baseline and set targets to increase walking

Report on walking

To set meaningful targets to increase walking, walking baseline indicators must be established by completing gaps identified in this study. Within the three categories of pedestrian data, five baseline indicators are proposed:

- Length of footpath and the extent of the footpath network
- Frequency of walking trips
- Walking kilometres travelled (WKT)
- Duration of walking trips
- Minor injuries whilst walking, including falls and near misses

Following the initial baseline data collection, these indicators become the basis for setting appropriate and ambitious targets to increase walking for transport and health.

Report on walking programs and spending

In addition to indicators to track walking for health and physical activity, the *Bicycling and Walking in the United States 2010 Benchmarking Report* tracks walking performance based on allocated funding and full-time staff.

Category	Infrastructure	Pedestrian	Safety and security	Funding	Staffing
Fundamental data	**Network** Kilometres Network connectivity and permeability	**WKT** Trip length (km) Origins and destinations Linked trips	**Safety** Crashes Injuries Falls	**Spending** Infrastructure Programs	**Staff** Full-time Part-time
		Travel time Total time Delay (crossings and midblock) Peds / metre / minute			
		Frequency Trips and walks Participation			

For further study:

As the RTA handbook is widely used in the assessment of new development, this guide should be revisited and brought up to international standards, with more than one "design pedestrian".

Relevant data sources:

The Austroads *Guide to Traffic Engineering Practice* uses the international best practice pedestrian Level of Service, established by Fruin in 1971.

The 2002 RTA *Guide to Traffic Generating Developments* handbook uses the 1985 *Highway Capacity Manual* to assess pedestrian Level of Service.

Measure improved pedestrian indicators

Category	Infrastructure	Pedestrian			Safety and security	Funding	Staff
Fundamental data	Network	Frequency	WKT	Travel time	Safety	Spending	Full-time equivalent
	Map and measure **X**	Household Travel Survey **++**			RTA Traffic Accident Data **X ++**	Annual reports **X**	Key Performance Indicators (state and local) **X**
		Permanent pedestrian counters #	Measuring Active Travel Survey **++**				
		Temporary pedestrian counts #	Pedometers #				
			Bluetooth/ Smart phones/ GPS applications #				

For further study:

Smart phones and Bluetooth devices provide an opportunity to collect walking travel data in an unobtrusive way.

Applications like "map my run" collect pedometre-like data about trip length and travel time. Bias is inherent through this data collection methodology (due to market penetration of smart phones and due to the type of user likely to provide data through this type of application).

Greater investigation is required before considering this application for transport planning or health planning purposes.

Key finding:

Data collection across these indicators is advancing in various degrees. Advanced data collection programs are required where data is currently available or technology exists to conduct data collection today.

X Improve data collection

++ On-going

***** Data currently available, data collection required

\# Technology available to collect data, program required

Measure, plan and provide the walking network

Current maps and measurements of the walking network form part of the walking baseline. Without a consistent and comprehensive state-wide database of the walking network, it is difficult to measure the performance of the walking network and establish the essential walking indicators for the state.

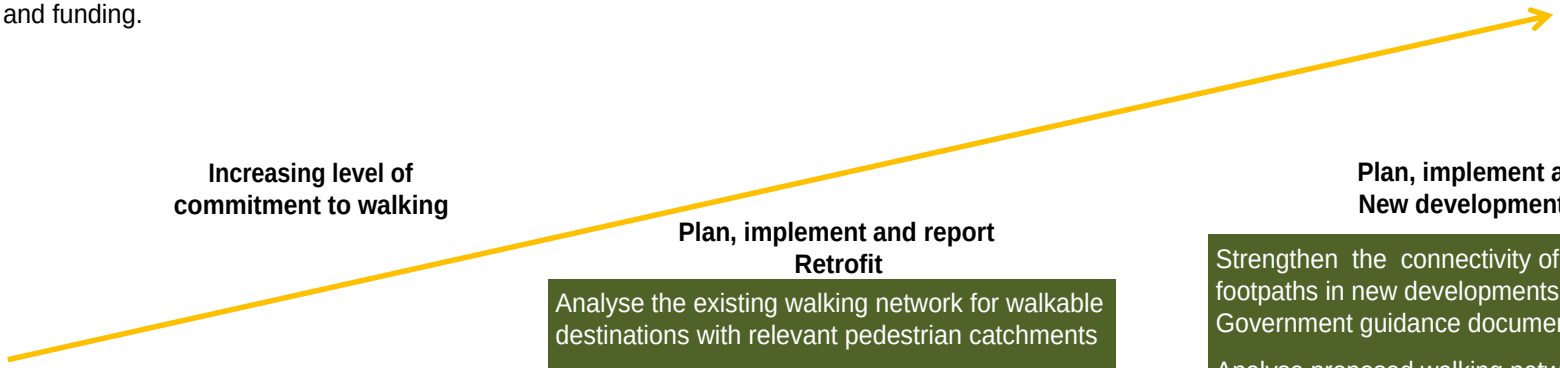
Collecting this data and reporting regularly against infrastructure and usage indicators support the mandate to increasing walking and increasing places to walk.

Proposed measures of walking are infrastructure kilometres, use of existing instruments to increase the network and funding.

Finding:

Map the existing footpaths and pathways across NSW.

Add to the network by retrofitting existing, and building footpaths in new neighbourhoods and town centres.



Increasing level of commitment to walking

Map and report

Collect all existing walking network information to establish a single state-wide resource: the NSW Walking Network Geodatabase

Establish

Plan, implement and report Retrofit

Analyse the existing walking network for walkable destinations with relevant pedestrian catchments

Audit the pedestrian network regularly to identify required improvements and gaps

Acquire land where required to provide connectivity and new footpath links in existing neighbourhoods and town centres

Report new footpaths and provide these to a state-wide walking database

Build, report and measure

Plan, implement and report: New development / projects

Strengthen the connectivity of and provision of footpaths in new developments, according to NSW Government guidance documents.

Analyse proposed walking networks in new destinations for walkable destinations with the pedestrian catchments of trip attractors

Provide land where required to provide connectivity and new footpath links in existing neighbourhoods and town centres

Report new footpaths and provide these to a state-wide walking database

Build / reserve, report and measure

Increasing level of detail and coordination

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Guidelines for Road Safety Around Schools

Local Government Edition

ROADWISE

WESTERN AUSTRALIAN LOCAL GOVERNMENT ASSOCIATION

ROAD SAFETY COUNCIL

SPEED AND RED LIGHT CAMERA FUNDED PROJECT

1. Contents

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- Shane Purdy (Shire of Mundaring)
- Glenn Shaw (City of Wanneroo)
- Ossie Pereira (City of Gosnells)
- Rob Harvey (Main Roads WA)
- Emma Hawkes (Office of Road Safety)
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- Terri-Anne Pettet (WA Local Government Association)
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    - Cr David Willis Shire of Plantagenet
    - Cr Tracey Roberts City of Wanneroo
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3. Foreword

The safety of children travelling to, from and around schools is an issue of concern to the whole community.

Local Governments have responsibility for more than 72% of all roads in Western Australia and as most schools are adjacent to those roads, Local Government is concerned that a high level of safety is afforded all those who use schools and drive past them.

These *Road Safety Around Schools Guidelines* have been developed by the Western Australian Local Government Association (WALGA) to assist Local Governments to understand the particular problems that can occur.

The need for these guidelines was identified by Local Government following a survey conducted in 2005.

The guidelines are intended to be practical and include specific problems to look for around schools, the issues involved and how to resolve them. A list of potential solutions to typical problems is included as part of the guidelines. Also included is a list of who to contact about resolving issues.

The information presented is not exhaustive and solutions suggested may not provide all the answers, however it is hoped the guidelines will be a valuable resource for schools across the State.

Improving road safety around schools is important and it is hoped the coordinated approach detailed in these guidelines will help achieve positive results in your local community.

Cr Bill Mitchell JP
President

4. Purpose of these Guidelines

These guidelines have been prepared by the Western Australian Local Government Association (WALGA) with the support of the Road Safety Council for use by Local Government and other technically experienced people interested in road safety in the vicinity of schools. They are produced for the express purpose of enhancing the safety of children travelling to and from and around schools by:

- providing information on many of the major road safety issues involved;
- providing information on how best to maintain or improve road safety for children travelling to and from schools as well as advising where further assistance might be obtained; and
- providing answers to commonly asked questions about road safety issues around schools.

The information presented is not exhaustive and solutions suggested may not provide all the answers. Ultimately, investigation of the issue and implementation of solutions is the responsibility of particular authorities. Those investigations may involve a detailed engineering assessment including, as necessary, formal road safety audits by qualified personnel.

5. Background

Road safety is of significant concern to all levels of Government and the community generally. Everyone is affected in some way by the trauma that road crashes cause. The Road Safety Council strongly supports efforts to improve road safety and its road safety strategy *Arriving Safely – Road Safety Strategy for Western Australia 2003 – 2007* identifies major issues and strategies to address them. It targets major behaviours that are the cause of a significant proportion of road crashes as well as various classes of road users who are over-represented in road crashes.

The Road Safety Council (whose responsibilities are mentioned in section 10) has endorsed a 'systems approach' to dealing with road safety within the framework of Western Australia's road safety strategy. Each agency with responsibility for particular spheres of influence or control in relation to roads, vehicles and road users has developed or are developing programs targeting reductions in road crashes and their severity as part of the 'systems approach'. Strategies that produce the greatest benefits are given priority.

This systems approach will have a positive impact on road safety and Local Governments have a major role in delivering or participating in the delivery of many programs under this systems approach. Pedestrians, particularly young children walking or riding bicycles near or on roads to and from schools will be beneficiaries of some of the programs.

Local Governments have responsibility for maintaining most of the road network including all local roads and they have a major role in enhancing and managing traffic near schools.

The WA Local Government Association, on behalf of Local Governments, has been working with the Road Safety Council and its member agencies to enhance school children road safety and it has participated in the development of many strategies to improve road safety around schools in recent years. These include the development of special road safety audit templates to assist qualified road safety auditors to identify the special problems that can occur during the planning, design, development

and operations of schools[1] and a review of guidelines, policies and procedures for road safety at new and existing schools[2]. The latter of these will lead to improvements in organisational policies and procedures in relation to planning of new schools and redevelopment of existing schools by ensuring road safety is a major consideration.

There are also a variety of programs that have been developed, or are being developed that are specifically aimed at improving the safety of children while travelling to and from school. The provision of special school zone speed limits by Main Roads WA that was undertaken in consultation with Local Governments is one such program.

The development of the *Safe Routes to Schools Program*, an initiative of the WA Local Government Association's RoadWise Program and strongly supported by the Road Safety Council (RSC) and all member agencies, is another. It has provided a major incentive for schools to work with Local Governments to provide safer environments for children on their way to and from school and to reduce traffic congestion before and after school periods. The program aims to:

- establish a network of safer routes for children to travel to and from schools;
- encourage more children to walk or cycle; and
- educate parents/carers in safe behaviours around schools (particularly when picking up and dropping off children).

6. How to use these Guidelines

These guidelines are separated into sections to assist practitioners with solving road safety problems near schools.

- Section seven outlines legal responsibilities of various authorities for roads and infrastructure associated with roads and road safety at existing schools.
- Section nine discusses typical road safety problems and what should be done to overcome or avoid them as well as providing a checklist of road safety features that should be applied – an ideal school from a road safety perspective.
- Section 10 describes the roles and responsibilities of Government agencies and Local Governments in respect to road safety generally.
- Section 11 contains a table showing frequently occurring problems and possible solutions.

7. Legal Responsibilities

Almost all actions to address particular road environment safety problems can only be implemented within the authority provided by legislation such as the *Traffic Act 1974* and subordinate regulations (eg *Road Traffic Code 2000*) and the *Local Government Act 1995* and subordinate Local Laws adopted by Local Governments. For instance, school warning signs are 'road signs' as defined in legislation that can only be installed or removed with the authority of the Commissioner of Main Roads. The following table provides a guide on areas of responsibility relating to roads and infrastructure adjacent to schools based on the classification of the road.

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[1] *Road safety around schools audit checklists*; Road Safety Council Task Force, December 2002
[2] *A review of guidelines, policies and procedures for road safety at new and existing schools*; Road Safety Council Task Force, August 2004

Table 1: Responsibilities and Legislation for Various Facilities on Roads

Road Next to School	Responsibility and Legislation
<u>All Roads</u>	
• Traffic-control signals (including pedestrian lights) • Road markings (centre lines, edge lines, lane lines, school crossing markings, zebra crossings) • Road signs (Stop, Give Way, Speed Limits, Keep Left etc) • Bicycle lanes (on road)	Main Roads WA for road signs, traffic-control signals and pavement markings (regulation 297 *Road Traffic Code 2000*) and for making roads one way or providing special lanes such as bus lanes or bicycle lanes on roads (regulation 291). Note that Main Roads WA may have delegated responsibility for installing and/or maintaining some signs and some road marking to Local Governments.
• Children's crossings	Assessment by the police. Approval is jointly by the Police Service (training of the crossing attendant and appointment of warden under the *Road Traffic Act 1974*) and Main Roads WA for installing crossing markings and signs (regulation 297 of the *Road Traffic Code 2000*).
• Footpaths, shared paths and bicycle paths (except freeways and control of access highways)	Local Government (or developer at development stage) is responsible for construction. Approval for shared paths, bicycle paths is responsibility of Commissioner of Main Roads WA (regulation 297 of the *Road Traffic Code 2000*). In most cases the Commissioner has delegated approving and signing responsibilities to Local Governments for shared paths. (Freeways and control of access roads are responsibility of the Commissioner).
<u>Main Roads and Highways</u>	
• Road widening, resurfacing, medians, pedestrian refuge islands, pedestrian bridges and subways, driveways (approvals)	Main Roads WA (*Main Roads Act 1930*).
• Parking signs (any restrictions on parking or permissive parking)	Main Roads WA (*Road Traffic Code 2000* regulation 297) albeit that in rural towns on main roads and highways, Local Government may have been delegated the responsibility by Main Roads WA.
• Bus stops	Main Roads WA in conjunction with Local Government and the Department for Planning and Infrastructure (*Road Traffic Code 2000* regulation 297).
• Street lighting	Main Roads WA in conjunction with Local Government (*Main Roads Act 1930*)
<u>Local Roads</u>	
• Road widening, resurfacing, medians, pedestrian islands,	Local Government (*Local Government Act 1995*)

Road Next to School	Responsibility and Legislation
pedestrian bridges and subways, driveways	
• Warning signs (children and school signs, intersection warning signs)	Main Roads WA within the Perth metropolitan area. Local Government for all local roads outside the Perth metropolitan area (delegated by the Commissioner).
• Parking signs (any restrictions on parking or permissive parking)	Local Government where they have adopted a Local Law under the *Local Government Act 1995* or by delegation from the Commissioner of Main Roads. Main Roads WA is responsible (where no local law has been adopted or delegation is not accepted).
• Bus stops	Same as for parking signs (above). Location determined in association with Department for Planning & Infrastructure.
• Street lighting	Local Government (*Local Government Act 1995*) Note that lights that may dazzle road users (located on or near a road may be ordered to be removed or removed by the Commissioner of Main Roads under section 87 of the *Road Traffic Act 1974).*
• No Through Road signs	Main Roads WA for road-side signs where road has through-road characteristics or Local Government (on street name signs) for other roads.

Parking Areas on School Land

For new private schools and the redevelopment of existing schools responsibility for providing off-road parking is generally the responsibility of the developer. However, overall parking requirements are determined as part of the planning/design process and approvals are sought from Local Government for the establishment of these areas including access. The Department of Education and Training (DET) is responsible for Government schools and it liaises with Local Government on parking needs. In general terms, DET is not in favour of setting aside land on the school site for parking of parents/carers. However, if land is available off-site (within the road reserve that abuts the school site) pick-up/set down areas may be negotiated between Local Government and DET.

8. Identifying Problems

Road Safety problems around schools are usually identified by school staff, parents and carers of students, or local residents in the area. Local Governments may also identify problems through:

- site inspections including *Safe Routes to Schools Programs* and road safety audits
- analysis of statistical information such crash data and traffic information.

- the application of computer programs such as *Crash Tool*[3] or *Road Safety Risk Manager*[4].

Typical problems that occur at or near schools include road user problems such as excessive speed, poor parking habits and u-turning. Road and environmental problems include poor road alignment, poor surface conditions, lack of drainage, lack of adequate parking, poor visibility, inadequate road crossing locations, inadequate and/or poor footpaths, shared paths, kerbing, lack of hand rails and pram ramps, inadequate intersection controls and lack of road signs.

9. Finding Solutions

Determining solutions to some problems requires expertise in traffic management and road safety. Some problems (and solutions) are obvious such as difficulties with footpaths, missing or damaged warning signs, trees and shrubs restricting visibility and so on. However, some are not so obvious and require expertise to resolve. While it is not possible to prescribe solutions for every situation, the following may assist in identifying potential solutions for a variety of problems. Apart from dealing with a particular problem, practitioners should look at issues and potential solutions from a holistic viewpoint since there may be consequences of a particular action that fixes one problem but causes another.

9.1. Engineering

Road design and the general environment in which roads are constructed have a strong influence on road safety. There are several attributes of road environments and user movements that are particularly important to providing safety in the vicinity of schools. The major ones are as follows.

- Traffic speeds should be low – desirably 40km/h or less (the road configuration/geometry should be such that it creates the expectation of a low speed environment).
- Parking should be adequate and appropriate to the location to allow safe picking up and setting down of children (sufficient parking has to be provided by schools for staff, casual /parent assistance and visitors to ensure that there is no overflow impact on pick up / set down requirements).
- Paths (footpaths and shared paths) should be provided on the school side of the road for children walking and cycling to and from school or walking to bus stops or places where they are picked up or dropped off.
- Roads should generally be free from high levels of congestion.
- Traffic circulation should be enhanced by treatments that encourage vehicles to travel in a direction that enables dropping-off and picking-up on the school side of the road.
- Sight lines for drivers to see children and be seen by children should be clear at intersections and all places where children might cross a road.
- Road crossing places for children should be safely located and adequately signed.
- Attention should be given to ensuring visibility is adequate for drivers to safely enter and leave parking areas and to see children on intersecting paths.
- All pedestrian and bicycle access ways should be free from visibility constraints.

[3] Crash Tool is a Main Roads WA program for prioritising road improvements based on crash risk ref: http://www.mainroads.wa.gov.au/NR/mrwa/run/start.asp

[4] Road Safety Risk Manager is an ARRB Group program that enables treatments to be analysed across the network to ensure the highest value projects are completed first. Ref:

Traffic Speeds

Traffic speed is one of the most important issues relating to safety and there are many techniques for reducing or maintaining traffic speeds at reasonably safe levels. The installation of special school zone speed limits is one technique and Main Roads WA's policy is to install these limits along all school frontages. While policies may change, at the time of preparation of these guidelines, school zone speed limits are installed as follows:

- Within 80 km/h and higher speed limit roads – 60 km/h SCHOOL ZONE.
- Within 60 and 70 km/h speed limit roads – 40 km/h SCHOOL ZONE.
- Within 50km/h speed limit roads - 40km/h lineal or area speed zone with school tag

Application is required to be made to Main Roads WA for installing and maintaining these signs. In country regions, Local Governments should approach Main Road WA's regional offices while in the Perth metropolitan area Local Governments should approach Main Roads WA sector officers (refer Attachment 1).

Photograph 1: School Zone speed limit signs

While these speed limits, with regular enforcement, have been shown to reduce operating speeds of vehicles, alterations to the road and its environment are generally self-regulating and have been shown to be very effective. Treatments that induce lower speeds include:

- Roundabouts
- Channelising islands (at intersections)
- Median islands and kerb protrusions (nibs) to narrow available pavements
- Speed humps (design is important and more 'aggressive' humps are more suited to car parks and accesses)
- Raised plateaus (application as part of overall road treatment only, with care required to not make ramp slopes too steep and not to give the impression that the plateau is an extension of a footpath or that it is a protected crossing)
- Angled slow points (single or double)
- Serpentines/chicanes/blisters.

Reference should be made to Main Roads WA publication *Guidelines for Local Area Traffic Management*[5] (distributed to all Local Governments in 1991), Australian Standards publication AS 1742.13 and Austroads: Guide to Traffic Engineering Practice – Part 10: Local Area Traffic Management (http://www.onlinepublications.austroads.com.au/script/home.asp) regarding the suitability of these treatments and the processes recommended for determining appropriate traffic calming measures.

Practitioners should refer to appropriate guidelines regarding the design of various treatments. Austroads is a useful source (http://www.austroads.com.au/ under publications section).

Advisory 40 pavement markings

In photograph 1, the number 40 is shown as outlined by a yellow square of paint. Main Roads will consider limited application of yellow square 40 markings on 60km/h and 70km/h dual carriageway heavily trafficked roads.

Yellow Flashing Warning Lights

Main Roads WA is trialling the installation of flashing yellow warning lights on the approaches to and at children's crossings to determine their effectiveness in improving safety. The purpose is to warn drivers of the crossing ahead, causing them to slow. While the outcomes of the trial are not known, the application of flashing lights is likely to be limited to places where visibility at crossings is very limited and only on roads that have very high volumes of traffic travelling at speeds higher than the 50km/h built-up are speed limit.

Roundabouts

Roundabouts are useful as a speed control treatment on local roads at intersections. They also provide a means for vehicles to U-turn with reasonable safety and assist with parents/carers picking up or setting down children on the school side of a road without having to travel long distances or attempting to U-turn near the school. Particular care should be taken when considering roundabouts at intersections where there are high numbers of pedestrians or cyclists crossing one or more of the roads. Children, in particular should be encouraged to cross roads away from roundabouts that have high traffic flows. Children should preferably cross where median refuge islands are installed.

[5] Guidelines for Local Area Traffic Management, 1990; Main Roads WA

Photograph 2: Roundabout (single lane)

Note: Care should be taken in the design of roundabouts to ensure deflection angles require vehicles to drive slowly through the roundabout and vegetation in the central island does not prevent drivers seeing 'through' the roundabout.

Median Islands and Nibs

Median islands enable pedestrians to cross roads in two stages by providing intermediate refuge. They also serve a traffic management function by:

- reducing the road space available to traffic and lessening the distance pedestrians have to cross to places of refuge;
- deterring overtaking (particularly important near schools);
- providing shelter for turning vehicles at breaks in the raised median island; and
- providing 'side friction' that reduces traffic speeds

An additional benefit is they can assist wardens at *Children's Crossings* to control both directions of traffic flow from a 'refuge' position (if necessary). Nibs that are often associated with indented parking stalls also narrow the pavement width for through traffic and lessen the road width pedestrians have to cross.

Photographs 3: Median islands (two examples)

Speed Humps/Plateaus

Care must be taken in the use of speed humps and plateaus. Humps are generally rounded whereas plateaus have ramp slopes each side of a flat area. Humps and plateaus that have gentle slopes are suitable on local roads provided they are part of an overall approach to slowing traffic on that road. They must be accompanied by pavement markings (piano key type) and warning signs with advisory speed limits.

Photograph 4: Speed humps

Angled Slow Points, Chicanes and Blisters

These treatments are generally not appropriate in front of schools since drivers tend to have to focus on negotiating the treatments rather than being alert for children. They are also difficult for cyclists. However, they may be appropriate treatments away from schools (particularly blisters) to slow traffic on the school approach roads (Blisters are oval shaped islands either side of which vehicles are required to travel. Blisters introduce a road curve in each direction).

Photograph 5: Blister

Photograph 6: Chicane

Partial and Full Closures

There are a variety of treatments that involve restrictions of access to roads that can have a traffic calming effect. However, they also have a significant affect on permeability of traffic flow with through traffic being diverted to other roads. They should only be considered as part of an area-wide review of traffic safety and access and the safety implications on schools should be considered in that context. Full closure is usually a last resort.

Parking

It is important to understand what is meant by the terms "Stop" and "Park". In statutory terms the *Road Traffic Code 2000* (regulations that dictate how people and vehicles may use roads) includes the following definitions (and these should be mirrored in Local Laws adopted by Local Governments in relation to parking):

> **"stop"**, in relation to a vehicle, means to stop the vehicle and permit it to remain stationary, except for the purpose of avoiding conflict with other traffic or of complying with the provisions of any law;
>
> **"park"** means to permit a vehicle, whether attended or not, to remain stationary, except for the purpose of —
>
> (a) avoiding conflict with other traffic;
> (b) complying with the provisions of any law; or
> (c) taking up or setting down persons or goods (*maximum of 2 minutes*);

In essence, where there are *No Stopping* signs, a vehicle may not stop unless held up by traffic. *No Parking* means a vehicle must not stop for longer than is necessary to pick-up or set down people or goods and not for longer than 2 minutes. An extension is permitted for the disabled provided the vehicle has an appropriate authorising sticker.

No Stopping Sign

No Parking Sign

For lengths of roads that are intended for pick-up and set down areas only, *No Parking* signs can be used. Some Local Governments apply special signs other than No Parking that indicate picking up and setting down only is permitted. While these may be appealing, uniformity of signing practice is important so that drivers understand the meaning of signs as they travel from one area to another. However, 'kiss and ride' signage appears to be used by a number of Local Governments in lieu of No Parking and their purpose seems reasonably well understood. Practitioners who use these types of signs should ensure that Local Laws support their use and that there is uniformity in application. These types of signs (including No Parking) are appropriate to use on a length of road immediately in front of a school. They allow children to be dropped off or picked up in the minimum amount of time. However, in the after-school period, parents/carers often arrive earlier than school finishing time so pick-up sections are usually inadequate to serve their needs. Therefore parking bays/areas that cater for parking of vehicles are necessary.

Introducing no parking zones improves road safety for pedestrians crossing streets, particularly for children who are often hidden from view between parked cars.

Number of Parking Bays required

The requirement for parking at schools is related to the number of students attending a school. While a host of issues such as access to public transport, community vehicle ownership and population densities can influence parking needs, it has been found by practical assessment of numerous schools that parking requirements are mostly related to student numbers. The formulae applied by Local Governments and accepted by DET in relation to parking is as follows:

- Approximately 14 pick-up and set-down bays for every 100 children enrolled at primary schools and 7 per 100 children for high schools.
- School staff parking accommodated on the school grounds.

Generally, the amount of parking required for parents/carers dropping-off children before school is less than when children are being picked up after school. While the above formula generally applies, some variations may be acceptable depending on the location of the school and access to public transport. Schools can also vary in numbers of students from one year to the next and care should be taken to ensure parking is adequate to meet reasonable needs. Some important requirements of parking bays/areas include the following:

  - Parking (including pick-up and set down parking and longer term parking bays) should be on the school side of the road where possible. Where parking is provided off-road, one way traffic flows should be developed within the parking area.
  - Parking restrictions on the side of the road (for a short distance) opposite the school entrance should generally be NO STOPPING during periods before and after school. This discourages children being dropped off on the opposite side of the road to the school and having to walk across the road.
  - The need for vehicles to reverse where there are child pedestrians in the vicinity should be avoided.
  - Where a school has multiple road frontages, parking and accesses to off-road parking should preferably be on the less heavily trafficked (minor) roads.

- Entries and exits to off-road parking should be separated from entries for bicycles and pedestrians.
- Traffic speeds in parking areas must be low (no more than 10km/h) and this is often best achieved by speed humps and raised plateaus within lanes next to or at the ends of parking areas. Pavements of dissimilar colour to normal roads are preferred for car parks.

On-Road Parking

Embayed parking is preferred along school frontages. This enables kerb nodes to protrude at intervals along a road reducing pavement widths for through traffic and providing places where pedestrians can see past parked vehicles and be seen by drivers.

Photograph 7: Embayed parking along a side road between two schools

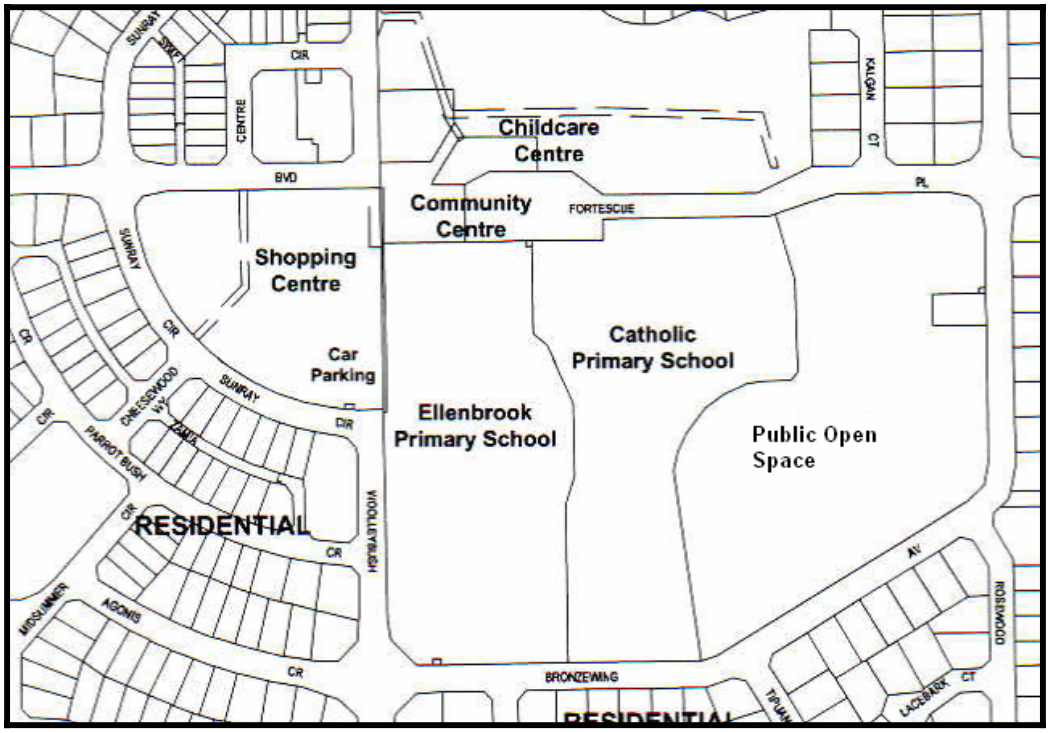
Photograph 8: Embayed parking

Photograph 9: Angle parking on a side road to a school

Off-Road Parking

In some instances parking can be supplemented by using adjacent sporting facilities or shopping centre parking. Figure 1 shows the configuration of schools in such a situation.

Figure 1: Primary School Adjacent to Shopping Centre



In the above example, Ellenbrook Primary School is adjacent to the shopping centre and parents/carers of children attending the school often park at the shopping centre to pick up children after school. They either shop before or after picking up children. Fortescue Place in front of the school(s) is a cul de sac with very generous parking integrated into the turn around area. The adjacent public open space is also useful in not requiring children to cross a road to use the facilities (which applies to both the Government and private school).

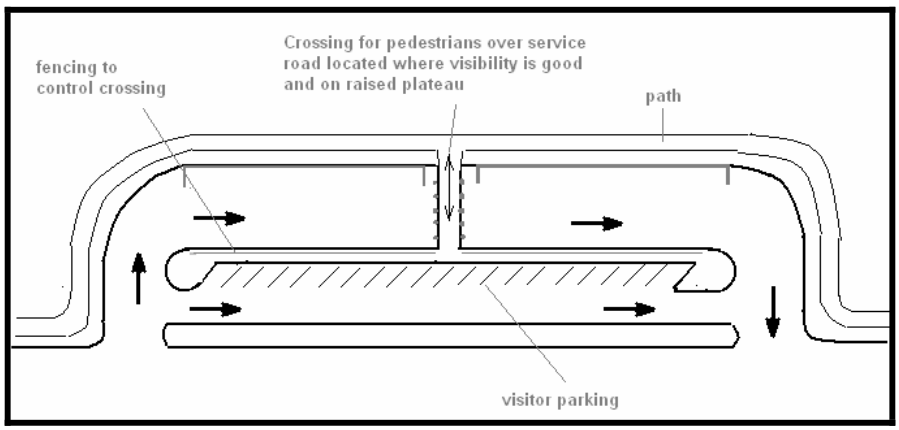
Photograph 10: Parking shared with adjacent sporting facility within a cul de sac (Composite photo - school on left and sporting ground on right)

Photograph 11: Off road parking (note one way traffic flow and path on school frontage)

Photograph 12: Off-road parking

Bus parking can be off-road as shown in photograph 12. However, the bus turning circle requirements can be prohibitive and it may not be possible to cater for buses other than in indented parking areas on the road.

Figure 2: Illustration of off-road pick-up and set-down area (schematic only)



Photograph 13: Entry to high school off-road parking and pick up and set down area (one way traffic flow)

Bus Facilities

Public transport to and from schools can be an issue. The most desirable situation is for public buses drop off and pick up children on the school side of a road at stops close to but not immediately in front of school entrances. While attempts should be made to obtain public bus services close to schools, bus scheduling and route selection sometimes do not match students' requirements. This can lead to safety problems. Studies of children commuting to school in Western Australia have consistently shown that children are most at risk when they are entering and exiting buses, rather than when they are travelling on the buses.

The planning of schools should consider public transport needs particularly in relation to the location of stops because it is important to children safety. Wherever possible, stops should be located on the school side of the road away from areas that are congested by parked vehicles. Bus stops on the side of the road opposite to a school should be similarly located and there should be good visibility to the bus stop and places where children might cross to bus stops. A bus stop in traffic law terms (*Road Traffic Code 2000* and in Local Laws) disallows vehicles stopping within 20m of the approach side and 10m of the departure side of the stop post. This caters for a single rigid chassis bus stopping. However, if more than one bus or an articulated bus is to be catered for at a stop, it is necessary for *Bus Zone* signs to be installed

defining the length or kerbside space required. This is usually accompanied by a dashed line, marking the bus parking 'bay' between *bus zone* signs.

Bus Zone sign

It is illegal for vehicles other than public buses to stop at a *bus stop* or within a *bus zone.*

Depending on the traffic circumstances bus stops might be catered for in a bay or not. If median islands are installed along a road and they serve as refuges for pedestrians, a bus stopped next to the island will stop all traffic behind it. This is not necessarily acceptable, depending on traffic circumstances. It is not appropriate on important traffic arteries. On local roads, a bus blocking the passage of following traffic is usually less of a problem. A short duration of stopping by a bus dropping off or picking up a few passengers is usually not of concern. However, buses stopping for more than a few seconds, holding up following traffic can cause safety problems. This is a matter of assessment of individual circumstances by experienced road safety practitioners. In the case of arterial roads arterial traffic must be able to pass a stopped bus without crossing the centre of the road. This may require a bus bay to be constructed.

The Public Transport Authority [phone (08) 9326 2277] must be consulted in respect to the location of bus stops and the provision of bus bays.

Photograph 14: Bus stops within bays (bus zones)

School owned buses

In some instances a school has its own bus. Stopping areas for these buses is usually on the school grounds. The places where these buses stop should be clearly marked and separate from other parking. Stopping areas should avoid the need for the bus to reverse and children should be able to leave and enter the bus directly from a path.

Road Crossings

The ability of children (and other pedestrians) to safely cross roads is very important. Road crossing types include pedestrian *bridges* and *underpasses*, *traffic-control signals*, *marked foot crossings*, *pedestrian crossings* and *children's crossings*. Apart from bridges and underpasses the others have legal definitions in the *Road Traffic Code 2000* because there are traffic laws involved with their use. Bridges and tunnels are extremely costly to build and they are reserved for crossing places with high pedestrian demands and very high vehicle movements. Practitioners should consult with Main Roads WA in relation to these facilities. Information on the application of these devices can be viewed on the internet at http://www.mainroads.wa.gov.au [Refer to Standards - Roads and Traffic Engineering – Traffic Management – Pedestrian Crossing]. Applications for facilities other than children's crossings should be directed to the Main Roads WA office (Refer to Attachment 1).

Traffic-Control Signals

Traffic-control signals are installed at intersections that have high volumes of conflicting traffic (refer to Main Roads WA website above except last step go to Traffic Signals). The signals may also incorporate pedestrian lights (WALK/DON'T WALK) incorporated with the signals. However, young children have difficulties understanding the operations of traffic control signals and they may not be a solution to enhancing safety for young children crossing roads. Traffic-control signals are a regulatory device that requires the Commissioner of Main Roads approval to install or modify. The provisions of regulation 297 of the *Road Traffic Code 2000* relate to the Commissioner's powers.

Marked Foot Crossings

These are pedestrian operated signals (a variety of which are 'pelican crossings') complemented by road markings. Marked foot crossings can be part of intersection signals (the pedestrian lights with lines across the road to mark where pedestrians must walk) or be a separate crossing facility installed between intersections. They are installed only where pedestrian crossing demand is high. Young children usually have difficulties understanding the operations of these facilities and they should generally not be installed only to facilitate young children crossing busy roads. Marked foot crossings are also a regulatory device that requires the Commissioner of Main Roads approval to install or modify. The provisions of regulation 297 of the *Road Traffic Code 2000* are relevant.

Green pedestrian light
(pedestrian symbol in green)
(regs 3, 197)

Red pedestrian light
(pedestrian symbol in red)
(reg 3, 197)

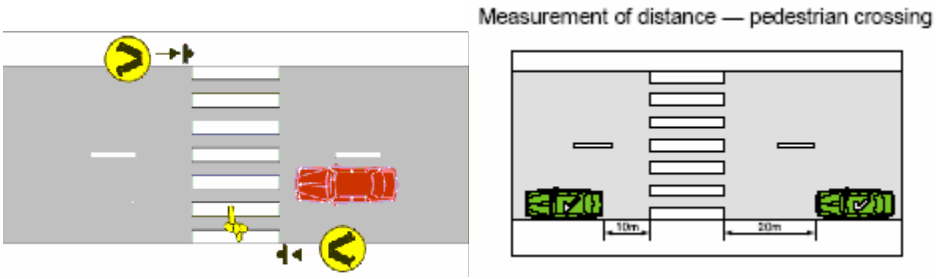
Marked foot crossings are not usually appropriate for school children except where the road is very heavily trafficked and pedestrian numbers are very high for significant proportions of a day.

Photograph 15: Marked foot crossing

Pedestrian Crossings (Zebra Crossings)

Pedestrian crossings are a regulatory device that requires the Commissioner of Main Roads approval to install or modify. They are comprised of stripes painted on the road together with a 'walking legs' sign on each side of the road on the approach side of the crossing. These crossings impose a mandatory *No Stopping* prohibition of 20m on the approach side and 10m on the leaving side of the crossing. The provisions of regulation 297 of the *Road Traffic Code 2000* are relevant to the Commissioner's powers while regulation 144 refers to parking prohibitions (that should be mirrored in local laws on parking).

Figure 3: Pedestrian crossings (one showing signs and the other No stopping distances)



These crossings require consistent use for pedestrians to be afforded a reasonable level of safety (refer to Main Roads WA website). They should therefore not be installed where pedestrian use is low or spasmodic. Infrequent use leads to drivers not expecting pedestrians to be on the crossing and they are therefore unprepared to stop for the occasional pedestrian stepping onto the road. They are not particularly safe for children of primary school age to use for this reason and that children have difficulty judging the closing speed of approaching traffic. Children may step onto these crossings in the belief that vehicle drivers will have seen them and be able to stop in time. This is often not the case. Consequently, installing pedestrian crossings to cater just for school children is not recommended.

Children's Crossings

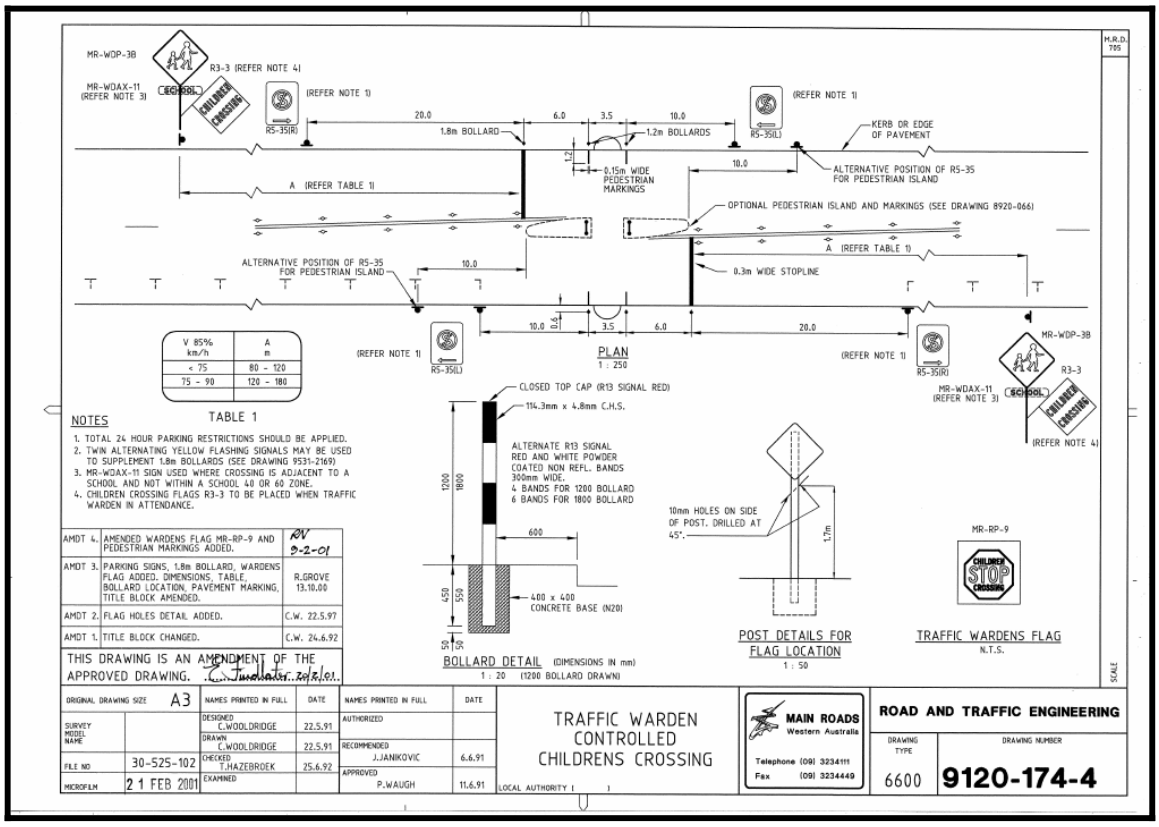
Children's crossings afford children the highest level of protection of all crossings at-grade. This is because an adult trained warden operates the crossing and traffic is controlled by stop banners held by the warden. They are installed where high volumes of children cross busy roads according to a formula developed by the *School Crossing and Road Safety Committee* (SC&RSC). This is a committee comprised of Government agency representatives with involvement in road safety as well as a WALGA representative (see section 6.1.5 for further information about Children's Crossings).

Children's Crossing Stop Banner

Photograph 16: Children's Crossing Warning Signs (with flags installed by the warden)

Photograph 17: Children's Crossing

Figure 4: Layout of children crossing markings, signs and bollards (courtesy Main Roads WA)



Note that Children Crossing flags on the approaches to crossings are installed by the warden when the crossing is operating. 'Children' warning signs are permanently installed and unless children are expected to cross the road at night time, the signs are not reflectorized (like most other warning signs). This drawing can be viewed on Main Roads WA website under *standards - road & traffic engineering - traffic management – pedestrian crossing – traffic warden controlled children's crossings – section 5.2*.

Applications for Children's Crossings

The process for seeking the installation of a children's crossing at a particular place is for the school Principal or the chairperson of the school's Parents and Citizens (or similar) support group to apply to the School Crossing and Road Safety Committee for a review of pedestrian needs. The Police Service's Traffic Warden State Management Unit which manages and coordinates the operation of all controlled children's crossing facilities within Western Australia arranges for the location to be assessed according to requirements determined by the *School Crossing and Road Safety Committee* (SC&RSC). That Committee is comprised of representatives from Main Roads WA, Police, WALGA and DET (Education). The Police unit is also responsible for recruiting, training and assessing Traffic Wardens as well as monitoring activities and the operation of children's crossings. The unit provides administrative support on behalf of the Police to the SC&RSC.

Where the volume of children and traffic are reasonably low and hazards are considered 'not abnormal', a crossing that utilises volunteer crossing wardens is offered to be installed (Type B crossing). The volunteers are required to be sourced by the school or its Parents and Citizen's Association. When student numbers and

traffic volumes are high, then a crossing is installed using a Police paid warden to operate the crossing (Type A crossing). The Commissioner of Main Roads approves the establishment of crossings. In both circumstances Main Roads WA supplies the warden with 2 STOP banners and advance warning flags to use on the approaches to the crossing. Main Roads WA also installs the crossing pavement markings, appropriate advance warning signs and red and white bollards at the crossing. Local Governments install island treatments and kerb ramp requirements.

Details of how to apply for a children's crossing are able to be viewed at the - website http://www.police.wa.gov.au/Services/Traffic.asp?SchoolCrossingSection.

Safe Routes to Schools

In the past, WALGA's RoadWise Program coordinated the Safe Routes to School Program and employed two staff members to oversee its implementation. This program is no longer running; however the *Road Safety Around School Guidelines* incorporate the principles and practices of Safe Routes to School and more, whilst being delivered in a more sustainable fashion. RoadWise staff are available to provide advice, assistance and support to Local Government for road safety issues around schools.

Photograph 18: Footprints marked on a path by school children as part of Safe Routes to School

Bicycle Safety

Traffic laws allow under 12 year old children to ride on any footpath. While the number of bicycle users vary from one school to another it is important that the safety of child cyclists be considered. For instance paths around schools should be wide enough to cater for cyclists and pedestrians to share. At places where paths meet roads consideration should be given to encouraging children to dismount from bicycles when crossing roads rather than attempting to ride across them. Entrances to bicycle parking areas on school grounds should be separate from entrances for motor vehicles and pedestrians. Potential conflict between motor vehicles and bicycles should be avoided. This requires sight lines to be clear of obstacles.

Pedestrian Fencing and Landscaping Barriers

Pedestrian fencing is generally used in association with crossing facilities where it is necessary for safety to direct children to places where crossing is appropriate (and deter them crossing where it is unsafe). It may be used on nature strips or medians (wide medians only). However, fencing should be used sparingly and carefully applied since it also prevents pedestrians leaving a carriageway. Attention should also be given to the placement and height of fencing to ensure that it does not obscure sight lines for pedestrians wanting to cross a road and vehicle drivers being

able to see pedestrians – children in particular. Landscaping barriers are generally not favoured because they tend to interfere with sight lines or distract pedestrians from looking for oncoming vehicles. If these barriers can be crossed relatively easily by children they will do so. The consequence is that children may be hidden from drivers (in the case of shrubbery) and/or children will be distracted from looking for traffic.

9.2. Other Issues

Other engineering issues can arise as a consequence of changes to schools such as the introduction of additional (transportable) classrooms.

Transportable Classrooms

When schools rapidly increase in numbers of students (such as often occurs with Government schools) the Department of Education and Training (DET) usually caters for increases by using transportable classrooms. These are placed on the school site in positions that generally suit school administration needs and in most situations this is done in consultation with Local Governments. The increase in student numbers is often the result of urban infill (more dense land-use) in addition to the ability of student to attend schools that are not necessarily closest to them. DET often is not aware of student numbers at any school until the beginning of the school year and this presents particular difficulties in terms of classroom accommodation. The number of transportable classrooms allowed to be located at a school is determined by DET and is restricted. The location of these rooms can impinge on road safety particularly for schools that are not fenced. Students tend to take the shortest distance to home and that may not involve use of facilities that were positioned prior to the transportable being located at the school. Places where pedestrians did not previously travel can become used, resulting in a need to consider new paths and pedestrian facilities and sometimes additional parking.

9.3. The Ideal School

While there are many school-road configurations that will provide a high level of safety for children, some of the elements that make these schools safe are as follows:

- Road access to schools should be provided by the school having roads on at least two, but desirably three sides. It is preferable that one is a local distributor/connector road.
- The entrances to the school should be from a local road.
- Off-road parking for parents/carers where speeds are restricted by raised plateaus.
- Indented on-road parking away from entrance on the local road(s).
- Pick-up and set down area on a one way service road near the front of the school or on the local road in front of the school (this is achieved by installing *No Parking* signs along the road that may need periodic enforcement).
- Traffic circulation should be enhanced by treatments that encourage vehicles to travel in a direction that enables dropping-off and picking-up on the school side of the road.
- Turn around areas should be provided where necessary such as roundabouts at convenient nearby intersections.
- Pedestrian and school children bicycle access ways not conflicting with motorised traffic.
- School staff parking away from other parking and on school grounds.
- Median refuges on the local distributor road next to school.

- Bus stops on the school side away from main congestion areas (main entrance).
- School recreational areas adjacent to the school.
- Visibility at all entry points/driveways and road crossings must be very good.
- Traffic speeds on local roads around the school should be limited by engineering treatments to not more than 40km/h (roundabouts, general streetscape modifications) and these may require periodic enforcement.
- School warning signs should be installed and clearly visible on all school approaches.
- *No Stopping* kerbside prohibitions should be imposed on the side of the road opposite the school for an hour before and after school times (this may require periodic enforcement).
- Children's crossings (where warranted) should be located where children congregate to cross roads (as long as it is determined to be the safest place to cross, eg refer to Safe Routes to Schools process for developing travel patterns maps).
- Paths (footpaths and shared paths) should provide easy access to schools and be located on the school side of the road.
- RoadWise (WALGA) should be consulted where a safe routes to schools program has not been implemented.
- Where one road is a cul de sac there must be a very generous car park/turn around area at the end of a cul de sac.

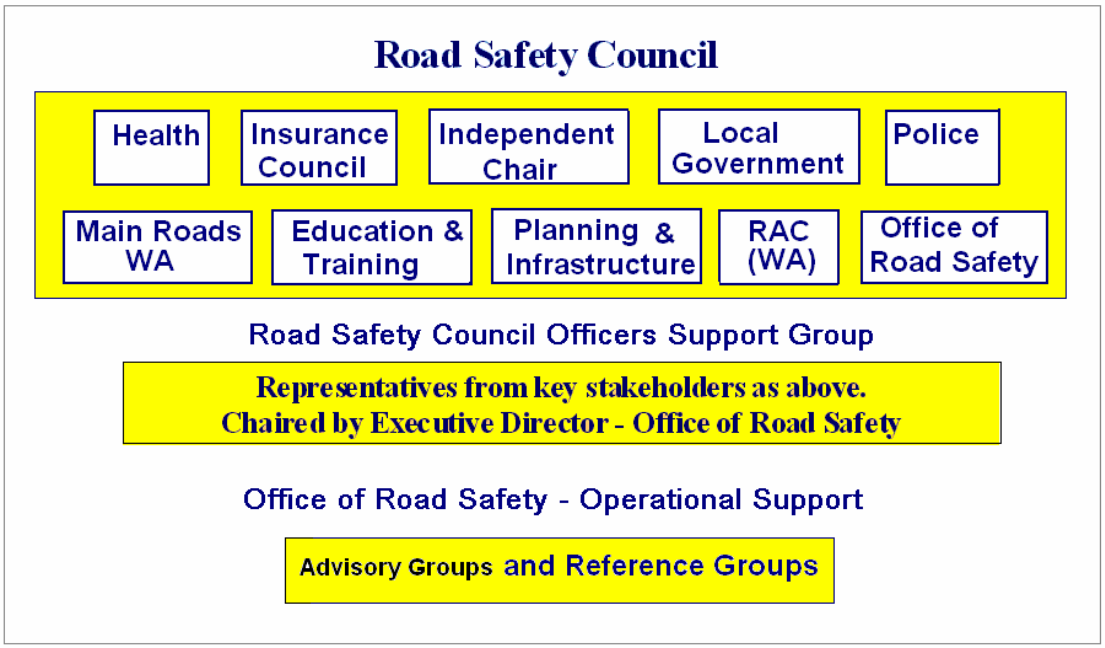
10. Roles and Responsibilities of Organisations

Responsibility for road safety is a community-wide issue. Everyone must be concerned for improving road safety for substantial reductions in road trauma to be achieved. Communities working together achieve the greatest benefit and this certainly applies in respect to road safety near schools. Statutory responsibilities for road safety by Government departments and Local Governments are considerable and diverse and their assistance is vital. On issues relating to roads adjacent to schools, many agencies have a role. A précis of those responsibilities is contained in the following.

10.1. Road Safety Council

The Road Safety Council (RSC) is the peak road safety body in Western Australia that has responsibility for coordinating road safety efforts by agencies and monitoring the effectiveness of the State's road safety strategy. It also manages and distributes funds for a variety of road safety projects that are not generally within the scope of individual agencies to undertake as part of their normal responsibilities. Its members are appointed by the Minister responsible for road safety and its operations are governed by the *Road Safety Council Act 2002*. The administrative structure in which the RSC operates, its membership and support organisations are depicted in the following diagram.

Figure 5: Road Safety Council Operations structure



The RSC is responsible to the Minister responsible for road safety. Enquiries relating to operations of the Council, support groups should be to phone (08) 9222 9922. Further information can be viewed at http://www.officeofroadsafety.wa.gov.au

Road Safety Council Officers Support Group (ROSCOS)

This group is comprised of officers from organisations represented on the Road Safety Council (RSC). It considers and makes recommendations on reports and agenda items for the RSC.

Advisory Groups and Reference Groups

These are groups established by the RSC to investigate and consider special road safety issues. Membership of Advisory Groups and Reference Groups include representatives of Government agencies and other organisations with expertise regarding the particular issues.

10.2. Office of Road Safety

The Office of Road Safety operates within the Department of Premier and Cabinet and provides operational support to the Road Safety Council, ROSCOS, Advisory Groups and Reference Groups. It also develops and manages road safety advertising campaigns and monitors progress on implementation of Western Australia's road safety strategy for the RSC including road safety projects that are funded by the RSC using Road Trauma Trust Funds[6].

10.3. Local Governments

As Local Governments have responsibility for building and maintaining more than 72% of all roads they, among others, can have a significant influence on road safety around schools. Local Governments are responsible for building and maintaining all local roads including intersection treatments, driveways, traffic islands and median strips, nature strips and all types of paths next to local roads. On local roads outside the Perth metropolitan area, Local Governments are also responsible for installing and maintaining traffic warning signs (Note: the Commissioner of Main Roads delegated this responsibility to country local governments in 1975 – an instrument of authorisation). In the Perth metropolitan area. Main Roads WA retains responsibility for warning signs in addition to all regulatory traffic signs and traffic control signals. Local Governments are responsible for the provision of kerbside parking prohibitions on most local roads in WA.

Local Government has the role of commenting on developments of new subdivisions, including the provision of new schools and the redevelopment of existing schools. It specifies traffic management and safety requirements for school developments and can influence planning by offering advice on how best to orient the school to make best use of facilities such as joint use of parks/playing arenas/parking.

10.4. WA Local Government Association

The WA Local Government Association (WALGA) is an independent, membership-based group representing and supporting the work and the interests of 144 Local Governments in Western Australia. It established (and manages) RoadWise - the Local Government and Community Road Safety Program that encourages the local community to be involved in road safety at the local level. RoadWise Committees have been established in almost all Local Government areas in Western Australia and they are assisted in their work by WALGA. WALGA is a member of the Road Safety Council. WALGA's RoadWise Program staff provide advice, support and assistance to Local Governments on road safety.

10.5. Education (Department of Education and Training) (DET)

The Department of Education and Training (DET) is, among others, responsible for Government schools in relation to their establishment, development and redevelopment. It works closely with respective Local Governments in respect to the planning and development of schools' parking facilities, location of transportable classrooms (if required) and vehicle accesses. DET does not support off-road parent pick-up and set-down facilities on the school site.

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[6] The Road Trauma Trust Fund is established by the Road Safety Council Act 2002 and funds allocated to the fund includes one third of all speeding and red light running fines obtained through camera detection. Government may allocate additional funds.

10.6. Road Aware

The issue of road safety education generally through schools is not addressed in these guidelines albeit that road safety awareness is part of school curriculum which is developed through the use of *School Drug Education and Road Aware* (SDERA) resources. This Road Aware program arose from a 2000 review of road safety issues relating to children and young people by the Road Safety Council. The review [7] was completed in February 2001 and it focused on children aged 0 to 16 years and young people aged 17 to 20. The review led to the development of the SDERA program that is a joint cross-sectoral initiative of the Association of Independent Schools WA, the Catholic Education Office and the Department of Education and Training. The *Road Aware* component of this program, developed in January 2003, is funded through the Road Safety Council of WA and forms part of the *Arriving Safely: Road Safety Strategy for WA 2003-2007*.

Road safety curriculum resources are provided free of charge. Free teacher professional development is available for all education systems and sectors. Staff is available in metropolitan and regional areas. For more information contact 9264 4743.

10.7. WA Police

Police officers are responsible for enforcement of road traffic laws. The Traffic Warden's State Management Unit is also the contact point for the establishment of Children's Crossings. In instances where Local Governments do not have local laws for controlling parking, Police are responsible for enforcement of kerbside parking restrictions/prohibitions. In the Perth metropolitan area, only one Local Government does not have a local law covering parking and Police enforcement of parking restrictions therefore relates mostly to main roads and highways in the Perth metropolitan area.

10.8. Main Roads WA

Main Roads WA is responsible for the construction and maintenance of all highways and main roads (including Freeways) in WA. As mentioned in table 1, the Commissioner has state-wide responsibility for all traffic signs (apart from parking signs and road name signs), traffic-control signals and road marking. Main Roads WA together with Local Government are responsible for managing 143,871kms of road network in Western Australia. The State Road Funds to Local Government Agreement represents a partnership between State and Local Governments and allows the distribution of funds to maintain and improve roads. Funding is available for eligible road safety focused projects through Black Spot programs.

10.9. Department for Planning and Infrastructure (DPI)

In regard to school children road safety, DPI has a planning role relating to new school developments and the redevelopment of existing schools. Road safety is a primary consideration in the WA Planning Commission's community design code – *Liveable Neighbourhoods* that was developed by DPI. It is also an important feature in *Transport Assessment Guidelines for Developments* which are used for planning new developments. The planning and operations of public transport including bus routes is also the responsibility of DPI. The public transport division of DPI must be consulted in regard to bus rotes and bus stops.

[7] *A Review of Good Practice: Children and Road Safety*; Road Safety Council, February 2001

Special Programs

DPI also sponsors a number of programs targeting school children safety. They include the following:

- Walk Safely to School Day
  This initiative is in line with the Australian Government's latest 'Get Moving' campaign, which promotes the importance of being active for an hour or more every day. The primary objectives of the event are:
  - To promote the health benefits of walking and encourage the development of healthy lifestyle habits at a young age; and
  - To help children develop the vital road-crossing skills they will need as they become mature pedestrians.

  All primary schools in Western Australia receive a Walk Safely to School Day pack, which includes information, posters and stickers to help promote Walk Safely to School Day to students, their parents and carers.

  Primary school staff, students, parents and carers are also encouraged to find out more information at the Walk Safely to School Day website at www.walk.com.au.

- TravelSmart
  In keeping with the above national strategy, TravelSmart is a Western Australian community-based program sponsored by DPI that encourages people to use alternatives to travelling in their private car. An outline can be viewed at http://www.dpi.wa.gov.au/travelsmart/729.asp.

- Walking School Bus
  'Walking school bus' is a school-based system of walking students of all ages from home to school and return under adult supervision. The supervisors are volunteer parents who are trained in procedures for ensuring the safety of children. Each 'bus' has a minimum of two adult supervisors. The system is managed in the school by a Volunteer Activity Coordinator (VAC). The VAC works with parent volunteers, Local Government and DPI to plan and create routes. The volunteers are covered by Government self insurance providing some simple conditions are met. Further details can be viewed at http://www.dpi.wa.gov.au/walking/1542.asp

Photograph 19: Walking Bus (courtesy Department for Planning & Infrastructure)

- Perth Walking Strategy
  DPI has produced a Perth walking strategy that aims to encourage walking as a transport mode. It has developed a number of strategies in partnership with the following organisations.
  - Disability Services Commission
  - Ministry of Sport & Recreation
  - Department of Education and Training
  - National Heart Foundation
  - Health Department of WA
  - Transport WA Healthway
  - Main Roads WA
  - WA Local Government Association
  - Ministry for Planning
  - WA Police
  - WA Pedestrian Forum
  -

Strategies relevant to schools is to 'promote safe and secure walking environments' and to 'provide, improve and maintain pedestrian routes for walking'.

Several actions are:

- Review, audit and improve where necessary road and traffic management schemes (particularly those provided primarily to assist users other than pedestrians), to ensure all pedestrian safety requirements (such as traffic lights) are included;
- Review the adequacy of pedestrian access provisions to public transport services and make recommendations, where necessary, to improve access and subsequent use of public transport; and
- Identify, develop, signpost and set priorities for safe, convenient and attractive walking routes both to local, destinations and from points of departure within and between areas that are dominated by pedestrian activity.

There are many other actions and the strategy can be viewed at
http://www.dpi.wa.gov.au/mediaFiles/walking_metropedstrat00_s2.pdf

There may be opportunities for improving paths and facilities to and around schools as part of this strategy.

11. Common Problems and Possible Solutions

This section identifies typical problems that can occur at or near schools and suggests actions by Local Governments that might be taken to solve them. They are not exhaustive and require expertise in respective areas to implement (as previously mentioned). While much of the following relates to potential engineering solutions there are other actions such as education/encouragement or enforcement that may be appropriate – and these are partly touched on.

It is important that solutions conform to good practice determined by qualified personnel. Solutions generally require contributions by road users, schools and the various agencies involved with implementation, including Local Governments, for them to be effective.

Frequent Problems and Possible Solutions

Issue	Problems	Possible Solutions
Speeding	Vehicles travelling too fast	• Check conspicuity/visibility of CHILDREN/SCHOOL warning signs, removing any obstructions. Request Main Roads WA install (if not installed) or replace if dilapidated. • Check conspicuity/visibility of school zone speed limits (prune vegetation if obscuring or contact Main Roads WA if dilapidated). • Police enforcement of special school zone speed limits. • Raise awareness of speeding in community newspapers/Parents and Citizens circulars. • Examine options of implementation of traffic calming measures if justified (following recommended consultation process regarding options).
Road crossings	Unsafe for children to cross busy road or crossing at dangerous place	• Implement or review Safe Routes to Schools Program. • Request warning signs from Main Roads WA if not already installed. • Encourage children to shift to safer crossing location. • Examine path and fencing requirements for preferred crossing location. • Request a review of student pedestrian needs to the School Crossings and Road Safety Committee via the Traffic Wardens State Management Unit (school Principal or chairman of Parents and Citizens group to apply). • Review need for refuge/median islands. • Review sight lines and school pedestrian entry/exit locations. • Review path locations/alignment. • Review location of bus stops.
Manoeuvring	Vehicle U-turning in driveways or near congested areas	• Advise parents/carers through school newsletter of dangers and advise of safer options. • Examine options for installing roundabout at nearby intersection. • Examine potential for a median island over length of school frontage.

Issue	Problems	Possible Solutions
Parking	Vehicles parking illegally (double parking, parking on paths, across driveways, pedestrian ways, or contrary to signs)	• Request enforcement by ranger or police as appropriate. • Review available parking and plan for increases if insufficient parking. • Advise parents/carers through newsletter of dangers and seek safe routine for picking-up and setting down children on the school side.
	Vehicles parking on the nature strip or parking on side opposite to school and allowing children to cross road	• Review available parking and plan for increase if insufficient parking. • Advise parents/carers through newsletter of dangers and seek safe routine for picking-up and setting down children on the school side. • Install *No Parking on Nature Strip* signs or *No Stopping* signs where stopping is not appropriate on the road.
	Visitor parking inadequate	• Review available parking and liaise with school Principal/DET to negotiate cost sharing arrangements for improved parking. • Encourage walking and cycling to and from school.
Paths	Pedestrians obstructing	• Education through school newsletter.
	Damaged	• Repair path. • Schedule maintenance checks.
Intersection	Traffic queues Poor sight distance Pedestrian safety problem Vehicle crashes	• Refer to Main Roads WA if road signs are an issue. • Improve sight distance if possible. • Review need for engineering solutions (treatments). • Conduct crash investigation (if serious injury or fatal) or Road Safety Audit. • Consider eligibility for Black Spot Funding.
	No ramps for pram/wheelchair access	• Install if local road or refer to Main Roads WA if Main Road or Highway.

Issue	Problems	Possible Solutions
Bicycles	Children not wearing helmets, riding incorrectly/dinking	• Advise school Principal. • Advise parents/carers through school newsletter of benefits of wearing helmets.
	Bicycle parking racks not available at school Bicycles badly maintained	• Advise school principal.
	Bicycles using road rather than paths	• Examine options to install *shared path* in context of Safe Routes to School Program.
Bus	Bus stop in dangerous place, requires relocation/ modification	• Liaise with Public Transport Authority, school Principal and Main Roads WA (Attachment 1 if no local parking laws or main road or highway involved).
Passengers in vehicles	Failure to wear seatbelts, inappropriate behaviours leaning out of windows	• Police enforcement
	Alighting road-side	• Advise parents/carers through school newsletter of dangers.
Road surface	Pot holed / cracked surface	• Maintenance issue – schedule repair and regular checks.
Road markings	Inadequate or faded road markings, broken reflective markers	• Advise Main Roads WA.
Advertising sign	Obscuring visibility/obstructing	• Investigate and relocate/remove (depending on local law). Refer to Main Roads WA Advertising Signs Guidelines at http://www.mainroads.wa.gov.au/internet/standards/rtems/traffic_mgmt/roadside_advert
Trees and shrubs	Obscuring visibility	• Remove/prune if on nature strip or median. • Contact Principal if on school land.
Heavy vehicles	Inordinate use of road	• Undertake area counts and liaise with Main Roads WA on options

Issue	Problems	Possible Solutions
Pedestrians	Children not using crossings Concern with closeness of traffic and older pedestrians	• Evaluate location of the crossing and available network of footpaths etc. • Install hand rails. • Contact school Principal or Parents & Citizens/Friends to initiate intervention program
Traffic-control signals	Faulty Long queues Pedestrian demand high (WALK lights required)	• Contact Main Roads WA (Attachment 1).

12. Attachment 1

12.1. Contact Details

MAIN ROADS WESTERN AUSTRALIA
TRAFFIC & SAFETY BRANCH – TRAFFIC SERVICES
At 18 January 2007

Safety hazards i.e. damaged signs, traffic signal faults, potholes, etc
Call 1800 800 009

	SHIRE/COUNCIL	SECTOR OFFICER	TELEPHONE
Metro North	Traffic Services Manager North (TSMN)	Ed Jordan	9323 4402 0419 906 162
	Stirling	Joanna Hyde	9323 4373
	Swan Mundaring Bassendean Rottnest Island	Ron Koorengevel	9323 4568 0417 913 956
	Wanneroo	Bruce King	9323 4630 0419 044 826
	Joondalup Bayswater	To be advised.	9323 4373 04179 32037
Metro Central	A/Traffic Services Manager Central (A/TSMC)	Brad Lenton	9323 4196 0417 910 662
	Perth and Fremantle)	Daniel Sui	9323 4226 0417 903 549
	South Perth Victoria Park Melville East Fremantle	Gani Pablo	9323 4707
	Nedlands Vincent Cambridge	Rickie Wai	9323 4282 04 1717 4305
	Subiaco Mosman Park Cottesloe Claremont Peppermint Grove	Laurina Pickin	9323 4211 0439 930 674

	SHIRE/COUNCIL	SECTOR OFFICER	TELEPHONE
Metro South	A/Traffic Services Manager South (A/TSMS)	Jerko Ostoic	9323 4676 0417 924 370
	Rockingham Serpentine-Jarrahdale	Mike Voke	9323 4570 041 9939 818
	Gosnells Armadale Belmont	Des Edwards	9323 4353
	Cockburn Kwinana	Paul Gillbanks	9323 4150 0419 967 650
	Canning Kalamunda	Geoff Francis	9323 4355 0419 948 470
Traffic Manager Advertising Signs Tourist/Service	Traffic Manager (TM)	Theo Hazebroek	9323 4545 0417 934 308
	All areas	Brian Watson	9323 4115 0417 973 099
		Mal Chandler	9323 4237 0419 043 843
		Doug Hannah	9323 4156 0439 933 377
		Trevor Jarvey	9323 4501 0438 945 960
		Greg Winzar	9323 4459 0417 170 991
Speed Zoning	All areas	Rick Hunnisett	9323 4180 0409 292 660
		Colin De Costa	9323 4318 0418 932 614
		Lube Kostadinoski	9323 4558 0419 985 506
Special Events Regional Traffic matters	All areas	Clint Cooper	9323 4302 0409 291 878
		Dave Moyses	9323 4607 0438 289 375

Office of Road Safety:	9222 9922
WALGA (RoadWise):	9321 5055
Department of Education and Training:	9222 2555
Department of Planning and Infrastructure (Admin):	9216 8000 / 9264 7777

13. Attachment 2

13.1. List of useful websites

Main Roads WA

Home page: http://www.mainroads.wa.gov.au
Advertising signs guidelines:
http://www.mainroads.wa.gov.au/internet/standards/rtems/traffic_mgmt/roadside_advert

Crash Tool (crash analysis)
http://www.mainroads.wa.gov.au/NR/mrwa/run/start.asp

ARRB Group

Home page: http://www.arrb.com.au/

Austroads

Home page: http://www.austroads.com.au/
Publications: http://www.onlinepublications.austroads.com.au/script/home.asp

Office of Road Safety

Home page: http://www.officeofroadsafety.wa.gov.au/

Education (Department of Education and Training)

Home page: http://www.eddept.wa.edu.au/
Policy on parking:
http://www3.eddept.wa.edu.au/facilitiesandservices/Client/maintenance_parking.htm

Department for Planning and Infrastructure

Home page: http://www.dpi.wa.gov.au
Walking Strategy:
http://www.dpi.wa.gov.au/mediaFiles/walking_metropedstrat00_s2.pdf

WA Police

Children's Crossing Section:
http://www.police.wa.gov.au/Services/Traffic.asp?SchoolCrossingSection

14. Attachment 3

14.1. List of Publications

- Guide to Traffic Engineering Practice – Part 10 - Local Area Traffic Management (Austroads)
- Guidelines for Local Area Traffic Management (Main Roads WA)
- Australian Standards AS 1742.10 (Pedestrian Control & Protection)
- Australian Standards AS 1742.11 (Parking Controls)
- Australian Standards AS 1742.13 (local Area Traffic Management)
- TravelSmart (Department for Planning & Infrastructure)
- A Review of Good Practice: Children and Road Safety; (Road Safety Council, February 2001)
- Liveable Neighbourhoods – Community Design Code (WA Planning Commission)
- Transport Assessment Guidelines for Developments (WA Planning Commission)
- Road Traffic Code 2000
- Road Safety Council Act 2002
- Local Government Act 1995
- Road safety around schools audit checklists; (Road Safety Council Task Force on Road Safety Around Schools, December 2002)

15. Attachment 4

15.1. List of References & Resources

- Road safety around schools audit checklists; (Road Safety Council Task Force, December 2002)
- A review of guidelines, policies and procedures for road safety at new and existing schools; (Road Safety Council Task Force, August 2004)
- Safe Routes to Schools Program (WALGA)
- Arriving Safely – Road Safety Strategy for Western Australia 2003 – 2007 (Office of Road Safety)
- Guidelines for Local Area Traffic Management (Main Roads WA)

Guidelines for Road Safety Around Schools

School Edition

ROADWISE

WESTERN AUSTRALIAN LOCAL GOVERNMENT ASSOCIATION

ROAD SAFETY COUNCIL

SPEED AND RED LIGHT CAMERA FUNDED PROJECT

1. Contents

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- Department for Education and Training
- Office of Road Safety
- Public Transport Authority
- WorkSafe WA
- WA Police
- Department for Planning and Infrastructure
- School Drug Education and Road Aware Program
- City of Stirling
- City of Gosnells
- Town of Victoria Park
- Town of Narrogin
- Shire of Roebourne
- Shire of Greenough
- Shire of Broome
- City of Melville
- City of Bunbury
- Road Safety Around Schools Policy Forum
    - Cr David Boothman City of Stirling
    - Cr David Willis Shire of Plantagenet
    - Cr Tracey Roberts City of Wanneroo
    - Cr Brian Warner City of Rockingham
    - Cr Trevor Clarey City of Stirling
    - Shane Purdy Shire of Mundaring
    - Paul Giamov City of Canning
    - Allan Ralph Shire of Broome
    - Allan Claydon City of Mandurah
    - David Harris Institute of Public Works Engineering Australia
    - Debbie Terelinck WA Local Government Association
    - Vanessa Jackson WA Local Government Association
    - Terri-Anne Pettet WA Local Government Association

3. Foreword

The safety of children travelling to, from and around schools is an issue of concern to the whole community.

Local Governments have responsibility for more than 72% of all roads in Western Australia and as most schools are adjacent to those roads, Local Government is concerned that a high level of safety is afforded all those who use schools and drive past them.

These *Road Safety Around Schools Guidelines* have been developed by the Western Australian Local Government Association (WALGA) to assist schools to understand the particular problems that can occur.

The need for these guidelines was identified by Local Government following a survey conducted in 2005.

The guidelines are intended to be practical and include specific problems to look for around schools, the issues involved and how to resolve them. A list of potential solutions to typical problems is included as part of the guidelines. Also included is a list of who to contact about resolving issues.

The information presented is not exhaustive and solutions suggested may not provide all the answers, however it is hoped the guidelines will be a valuable resource for schools across the State.

Improving road safety around schools is important and it is hoped the coordinated approach detailed in these guidelines will help achieve positive results in your local community.

Cr Bill Mitchell JP
President

4. Aim of the Road Safety Around Schools Guidelines

These guidelines are an initiative of the Western Australian Local Government Association's RoadWise Program. They address the vulnerability of school children as pedestrians, passengers and cyclists.

The guidelines aim to assist school communities in the identification of road safety issues in their school environment and the development of strategies to address these issues.

Key outcomes expected from the use of strategies suggested in this document include:

- A safer environment for children on their way to and from school.
- More children walking and cycling safely to school.
- A decrease in the traffic congestion surrounding the school during before and after school.
- A greater awareness and commitment to school road safety by the whole school community.

4.1. Who will use this handbook?

This handbook has been designed to be used by teachers and school staff, Parents and Citizens'/Friends' Association members, School Road Safety Committee members, and other interested community members.

The handbook guides these interested parties through a range of education, encouragement, environmental and engineering strategies that can contribute towards a safer school transport environment.

5. Road safety in a health promoting schools framework

Research indicates that the most effective school road safety interventions are those that are based on a 'whole of community' awareness and commitment. A useful framework to keep in mind when planning school road safety strategies is the World Health Organisation's *Health Promoting Schools Framework.*

This framework can be applied to any health issue but in a school road safety context, it advocates that student road safety learning experiences in the classroom be complemented by strong school environment road safety strategies and strong links to parents and relevant community agencies. The figure on page six represents what the *Health Promoting Schools Framework* may look like in the context of effective school road safety:

Health Promoting Schools Framework

School environment

- A School Road Safety Committee or Student Road Safety Committee.
- Road safety issues in the school community are identified and an action plan is developed to address them.
- School Road Safety and Traffic Advice or guides are developed with consultation and distributed to staff, parents and carers.
- Safer school road safety environmental strategies such as Safe Routes to School, the Walking Bus and Kiss and Drive parking bays are implemented.
- School road safety issues are promoted and safer school road safety behaviours are celebrated with parents and carers through newsletter tips, assembly items and library displays.

Parent and community involvement

- The at home activities in the School Drug Education and Road Aware's *Challenges and Choices* resources for early and middle childhood are distributed to parents through their children.
- Parents are represented on the School Road Safety Committee.
- Parents are encouraged to participate in school road safety learning experiences.
- Local Government representatives (engineers, rangers etc), local police, Main Roads WA are consulted to address road safety issues in the school.

School health curriculum

- School Drug Education and Road Aware's *Challenges and Choices* resources for early and middle childhood are used in all classrooms.
- Professional development on road safety is available to staff.
- Students, parents and teachers have input into school road safety issues addressed through the curriculum.

6. Background Information

This background information was adapted from *Challenges and Choices; a middle resource for resilience, drug and road safety education,* School Drug Education and Road Aware, WA, 2006.

6.1. Children are vulnerable road users

Road-related fatalities are the leading cause of death for children aged between 0 and 12 years and the third highest cause of injuries behind falls and unintentional injuries. Despite being vulnerable in the school traffic environment, fortunately the incidence of road related fatalities and injuries among children is very low.

Children involved in road crashes are more likely to:

- be injured than killed;
- die when not wearing a restraint; and
- die as a passenger or pedestrian than as a cyclist.

What are the main issues for children?

The main issues for children aged 5 to 12 years as passengers, pedestrians or cyclists (including skateboards, scooters and other wheeled recreational devices) are:

PASSENGERS	PEDESTRIANS	ON WHEELS
• wearing an approved child car restraint or using a booster seat • entering and exiting from the rear door closest to the kerb (safety door) • using safer behaviours to avoid driver distraction	• walking with adult supervision • using the systematic search strategy in different locations including designated pedestrian facilities • checking driveways and other hazards in the traffic environment	• wearing a correctly fitting helmet and other protective equipment and clothing • riding a bicycle suited to the child's height • riding in safer places away from the road

6.2. Passenger Safety

Why are child passengers at risk?

In 2003 there were 179 road crash fatalities in Western Australia and 11% of those killed were aged 0-16 years. The majority of child road users killed or hospitalised were passengers (56%). 17% of this age group who were killed or hospitalised were unrestrained, compared to 7% of all fatally injured or hospitalised motor vehicle occupants.

Passengers in this age group are at risk because they:

- do not wear a restraint or use an incorrectly fitted restraint.
- are not seen by drivers when they are entering or exiting cars due to their smaller stature.
- may distract the driver or engage in some other inappropriate behaviour while travelling.
- do not think about what they are doing or the consequences of their actions.
- often do not know how to enter and exit a vehicle safely or how to use a restraint properly.

What places children at risk?

- Passengers travelling unrestrained in a car are ten times more likely to be killed in a road crash than those wearing a seatbelt *(Data Analysis Australia 2000).*

- Of children and adolescents aged six to 16 years killed in car crashes, 55% were found not to be wearing a restraint (64% males and 44% females). This percentage is high relative to other age groups (e.g. 34% for 17 to 39 year olds). (*Data Analysis Australia. 2000.)*

- Passengers travelling in the back of a ute or open load space (which is illegal in WA) are more likely to suffer injury or death in a crash or rollover due to non-restraint usage.

- Crash studies indicate that the force of a crash at 40km/h with a power pole or parked car is like being dropped from a two-storey building onto concrete. The force at the point of impact will be equivalent to 20 times the child's own weight (i.e. 600kg if the child weighs 30kg).

Protective Passenger Behaviours

To reduce the risk to child passengers, classroom and parent education should focus on children:

- wearing a correctly fitted and adjusted restraint
- sitting in the rear seat of a vehicle
- using the safety door to enter and exit the vehicle. This door is the rear door closest to the kerb.
- travelling without distracting the driver or other passengers
- keeping all body parts within the vehicle
- acting under adult supervision when entering and exiting a vehicle, and while in places such as car parks.

Restraints

- The Office of Road Safety conducted a observational study in 2005 which showed that children had much lower rates of correct restraint use than adults. While the average rate of correct restraint use across the State was 96%, on 63% of children aged between 1 and 4 were correctly restrained, 84% of children aged between 5 and 11 were correctly restrained and 92% of children aged between 12 and 16 were correctly restrained.

Restraint laws for passengers and drivers:

- Every person travelling in a motor vehicle must use an appropriate approved restraint.

- Penalties apply for drivers carrying an illegally unrestrained child passenger aged under 16 years in their vehicle.

Selecting an appropriate child car restraint:

Child car restraints offer crash protection appropriate for the weight and height of the child. **Age is not an indicator for changing the type of restraint**. The following is a guide. Always check restraint manufacturers guide for exact weights.

- **Birth to 9kg – Rearward facing restraint**

- **8kg-18kg – Forward facing restraint**

- **14kg to 26 kg – Booster seat with a lap sash belt or child harness**
  As a general rule it is safer to use a rigid booster seat with a back, side wings and sash guide to keep the belt in place. Once a child's eyes are level with the top of the booster seat, it no longer provides protection for the child's head and neck and the child should be moved to a child harness without a booster.

- **14kg to 32 kg – Child harness**

- **32kg + - Adult seatbelt**

  When using lap sash belts it is important to tighten the belt and remove the slack. A lap sash belt offers more protection than a lap only belt. A harness is recommended.

Who checks and installs car child restraints?

There is a network of agencies throughout Western Australia who are qualified to check and install child car restraints (e.g. RoadWise).

For further information contact the child car restraint information line on 1300 780 713 or visit the website at www.childcarrestraints.com.au

6.3. Pedestrian Safety

Why are child pedestrians at risk?

Children are considered vulnerable road users, because up to the age of approximately ten years they may not be developmentally ready (i.e. they do not have the physical and cognitive skills) to make safer judgments and choices of their own about traffic. Pedestrian trauma accounts for 20% of injury deaths for children aged between 5 and 14 in Western Australia.

Child pedestrians are at risk because they have:

- **developing peripheral vision**
  Children are less likely to notice objects not directly in front of them as their peripheral vision is still developing (it is one-third of an adult's field of vision). Unless they turn their heads, they may not notice vehicles to their right or left.
- **developing directional hearing**
  Children may often have problems working out where sounds are coming from and may expect traffic to come from the wrong direction.
- **a smaller stature**
  Because of their size it is often difficult for drivers to see children, especially when standing between parked cars.
- **limited sense of perception**
  Children have trouble judging how fast a vehicle is coming towards them or just how far away a vehicle is. They may let a slow vehicle pass and then cross in front of a fast one.
- **poor search behaviour and do not take sufficient time to look when crossing the road**
  Children like to keep moving! As a result they may not wait for stop lights to change, for cars to stop at crosswalks or give enough time to complete a thorough search procedure before they step out onto the road.
- **unpredictable behaviour, and do not consider the consequences of their actions**
  Children often have trouble stopping at the kerb especially if they are excited or are chasing a ball, and may dart out onto the road without thinking.
- **a tendency to be easily distracted**
  Children tend to focus only on the things that interest them most. They are easily distracted in the company of friends and cannot be relied upon to use safe behaviour consistently.
- **limited ability to respond quickly to a sudden change in traffic conditions**
  They may be able to say when the road is clear and safe to cross but a sudden change in traffic conditions can cause confusion and panic.
- **difficulty seeing a situation from another's viewpoint**
  Children often think that if they can see a car approaching them that the driver must be able to see them too.
- **an unwillingness to change from a direct route even if it is dangerous.**

Children may also be at risk because of their:

- lack of knowledge and skills to deal safely with the traffic environment
- responsiveness to peer pressure
- propensity to take risks
- parents or other adults over-estimating their ability

- possible lack of road-side training
- presence on the road not being anticipated by drivers
- lack of experience dealing with different traffic situations (i.e. rural children interacting with city traffic situations).

What are the risks for child pedestrians?

- In Australia (April 2004 to March 2005) 20 pedestrians aged between 0 and 16 years of age were killed (*ATSB, Road Deaths Bulletin March 2005).*

- In Australia, pedestrian injury is the leading cause of death among five to nine year old children (*Al Yaman, Bryant & Sargeant, 2002).*

- Among children aged 1 – 14 years, hospitalisation rates decreased with age and were lowest for those aged 10-14 years *(Al Yaman, Bryant & Sargeant, 2002).*

- Males are twice as likely to be injured as a pedestrian than females.

When are child pedestrians involved in crashes?

Research has found:

- children are more likely to be hit by a car when crossing mid block.
- injuries usually occur in residential areas, on straight, sealed and dry local roads, and during the hours commencing 8:00am, 12:00pm and 4:00pm.

Protective pedestrian behaviours

To reduce the risk to child pedestrians, classroom and parent education should focus on children:

- always using the **systematic search strategy** (described below)
- selecting safer places to cross
- using designated crossings (e.g. crosswalks, pedestrian phase signals, railway crossings)
- being supervised by an adult whenever possible
- using a footpath when available.

Systematic search strategy

Step 1	Choose the safest place to cross.
Step 2	Ask an adult for help to cross the road where possible.
Step 3	**Stop** back from the kerb and road.
Step 4	**Look** in all directions for traffic.
Step 5	**Listen** for traffic.
Step 6	**Think** about when it is safe to cross.

Step 7	When the road is clear or all traffic has come to a complete standstill, walk straight and quickly across the road.
Step 8	Keep checking the road by looking, listening and thinking about the traffic while crossing.

Where are safer places to cross?

Children have difficulty identifying and selecting places to cross the road safely. They tend to assume that all places are safe as long as no vehicles are visible nearby.

Pedestrian facilities

It is important children use a pedestrian facility when there is one available, even if it means walking some extra distance. If a pedestrian facility is not available, encourage children to cross where they have a clear view of traffic in every direction and drivers can see them waiting to cross.

Crossing at traffic lights

It is safer to use the systematic search strategy described previously when the green 'walk'' figure is illuminated. However, children should be reminded not to presume that traffic will stop and to check the traffic before stepping onto the road.

Crossing between parked cars

It is dangerous for children to cross between parked cars, however when this is the only choice they should be taught to:

- select a gap between two cars which have no drivers.
- make sure the gap is not big enough for a car to park.
- walk to the outside corner of the car and stop where drivers can see the pedestrian and the pedestrian can see the traffic (i.e. in line with the outside edge of the cars).
- use the systematic search strategy to cross the road.

In a car park

A car park can be a dangerous place for pedestrians as drivers are usually focused on driving into or out of parking bays and may not see pedestrians, especially children. Children should:

- stay close to an adult whenever possible.
- select the safest route (e.g. using footpaths, crosswalks, pedestrian phase lights).
- be aware of sights (e.g. exhaust smoke, reversing lights) and sounds (beepers, slamming doors).
- look and listen for vehicles driving in and out of parking bays.

Walking where there is no footpath

When a footpath is not available, pedestrians should:

- walk on the road verge as far away from the road as possible
- walk on the edge of the road if no verge is accessible and face oncoming traffic
- move off the road edge until the oncoming vehicle has passed.

Boarding a school bus

Pedestrians waiting to board a school bus should stay on the footpath or road verge until the bus has stopped.

Crossing after a school bus has left

Pedestrians should wait until the bus has moved away and the road is clear before crossing using the systematic search strategy.

6.4. Safety on Wheels

Why are children riding bicycles and wheeled recreational devices at risk?

Children derive great enjoyment and satisfaction from cycling and using other wheeled recreational devices such as scooters, skateboards and roller blades. It gives them a sense of pride and achievement when they become proficient in their skills. However each year in Western Australia around 500 children are admitted to hospital with riding-related injuries.

Children under ten years of age generally have not developed the necessary cycling and traffic skills to safely ride in traffic. They need to be closely supervised by an adult at all times. They are also at risk because they:

- may not have the necessary physical skills to handle a bicycle
- lack knowledge and skills to deal with the traffic environment
- do not always think about the consequences of their actions
- have not developed an effective search behaviour and may not look for long enough when scanning traffic
- give in to peer pressure to act unsafely
- over-estimate their ability.

What are the risks for young riders?

It is safer for children to ride on footpaths, as allowed under the Road Traffic Code 2000 or on other off-road locations such as shared paths or parks.

- Between April 2004 and March 2005, 11 cyclists aged between 0 and 16 years of age were killed (*ATSB Road Deaths Report March 2005).*
- Between 1996 and 2000 there were 4 fatalities and 102 hospitalisations as a result of bicycle injuries (*Adams and Cercarelli, 2003).* In Western Australia children aged between 12 and 16 years are the group of cyclists most at risk of injury.
- The majority of these injuries occur on public roads (*Kidsafe Bicycle Safety).*
- Most cycling injuries don't involve another vehicle but occur when children fall off their bike after crashing into a pole, kerb or fence (*Kidsafe Bicycle Safety).*
- In Australia injuries through scooter riding are on the increase. Two out of three of those injured are under 14 years of age. The most common serious injuries are fractures to the arm/wrist usually as the rider puts out a hand as they fall (*Kidsafe Bicycle Safety, WA, 2003).*
- Injuries to the face and head are less frequent but are potentially more serious (*Kidsafe WA, Bicycle Safety, WA, 2003).*

Protective Riding Behaviours

To reduce the risk to child riders, classroom and parent education should focus on children:

- avoiding roadways or other areas that are used by motor vehicles
- wearing an approved helmet at all times
- avoiding large hills, kerbs, cobblestones, grates and other rough or discontinuous surfaces
- never riding with more than one person on a bicycle or scooter
- before each use, checking that there are no loose or missing parts.

Courtesy on shared paths and footpaths

When riding on paths there are rules that need to be followed:

- keep to the left of the path
- don't ride too fast or do anything unexpected
- use a bell when approaching others
- give way to pedestrians
- obey signs along the path
- ride in single file.

Helmets

How can young riders reduce the risk?

- Studies have shown that bicycle helmet use decreases the risk of head injury by 85% and brain injury by 88% (Henderson.1996).

The protective effects of helmets during a crash or fall are increased by:

- the helmet being properly worn (sitting at the front of the head)
- the retention straps being tight and fastened. This prevents the helmet from moving or coming off and the risk of head injury being reduced during a crash
- the helmet being fitted properly. Improperly fitted helmets can double the risk of head injury.

What safety features do helmets have?

- Look for the Australian Standards Mark AS 2063.2 or AS/NZS 2063 certification label. This is usually displayed on and in the helmet. The label ensures that the helmet has passed safety tests and meets the standard required by Australian State road laws. Not all helmets meet this standard.

- Young children require a helmet that provides extra neck support.
- Where possible, a bright or fluoro coloured helmet should be selected to increase visibility in the traffic environment.
- Ensure the helmet has adequate venting to keep the child's head cool.

How to select and fit a helmet?

Correct size

Check head size by using a tape measure placed just above the eyes and ears. Match this with the helmet sizes listed on the display box to find a helmet that covers this measurement.

- Helmets are designed to protect the wearer against possible impact. For maximum protection a helmet must be a good fit (i.e. snug to the head) and securely fastened.
- If a helmet is too small, it will not give adequate coverage and protection.
- If a helmet is too large, it may move on the head and not provide the protection intended.

Fitting a helmet

Helmets come with fitting instructions; however, the following points will be appropriate for most styles:

- Place the helmet on the child's head and use the pads supplied to ensure a snug fit.
- Test the fit by grasping the helmet and attempt to move it to the front and back of the head.
- Adjust the straps so that the side adjustor forms a 'Y' shape below the ears and the buckle is positioned well under the chin.
- Attempt to move the helmet backwards and forwards once on the head and straps have been fastened correctly.
- Make further adjustments if necessary as a loose helmet can increase the risk of injury.

Helmet care

- Extreme heat can damage the shell and weaken the helmet. This is usually visible when 'bubbling' occurs on the surface of the helmet shell. Avoid leaving the helmet outside in the weather, near a heater or on the back ledge of the car.
- Substances (i.e. petrol, paint adhesives and cleaning agents) can damage helmets. Clean helmets with mild soap and water, rinse then dry with a cloth not in front of heater or in the sun.

Replacing helmets

- Helmets are essentially manufactured for single impact protection. They absorb the impact and protect the head. When a helmet has been subjected to a severe blow it should be replaced even if it appears undamaged.
- Replace a helmet when it shows obvious signs of wear or no longer fits the head correctly.

6.5. Road Laws

Road laws have been designed in the interest of promoting a safer community. The WA Road Traffic Code 2000 clearly defines the responsibilities of all road users. The summary of relevant laws outlined below may be useful to consult when schools are developing Road Safety and Traffic Guides.

Further information about the Road Traffic Code 2000 is available on the Office of Road Safety website (www.officeofroadsafety.wa.gov.au).

Passengers and the Law

Restraints

Every person travelling in a motor vehicle must use an appropriate approved restraint. Penalties apply for drivers carrying an illegally unrestrained child passenger aged under 16 years in their vehicle.

Travelling in open space vehicles

It is against the law to travel in the open space of a vehicle where restraints are not provided (e.g. back of ute or van).

Pedestrians and the law

Using the footpath

- Pedestrians should use the footpath or nature strip where possible, as it is an offence to walk on a road if there is a footpath or nature strip to walk on.
- If there is no footpath, pedestrians must travel, where practical, on the right side of the road facing the oncoming traffic. If it is not practical to travel on the right side then the pedestrian must use the left of the road and immediately move off the road when a vehicle approaches from behind.
- Pedestrians must not walk more than two abreast on the road unless overtaking.
- Drivers must give way to pedestrians and cyclists on the footpath when entering or exiting a driveway.
- If a driver is turning left or right or making a U- turn, the driver must also give way to any pedestrian at or near the intersection on the road or part of the road the driver is entering.

Crossing the road

- Pedestrians should use and obey pedestrian signals and crossings.
- Pedestrians must use a marked crossing if they are within 20 metres of the crossing.
- Pedestrians must follow the directions of a traffic warden while crossing.
- Pedestrians must cross intersections using the shortest and most direct route (i.e. no jaywalking).

Cyclists and the law

- Bicycles are classified as vehicles. Cyclists have many similar rights and responsibilities as drivers of other vehicles.
- Cyclists must wear a properly adjusted and fastened, approved safety helmet carrying the Australian Standards Mark (AS2063) or ANZ….
- Cyclists should warn pedestrians overtaking on a shared path or footpath by using a bell or calling out.
- Cyclists must walk their bikes across pedestrian crossings, children's crossings and at traffic signal crossings (unless there is a bicycle crossing light).
- Drivers must give way to pedestrians and cyclists on a footpath when entering or exiting a driveway.

Bicycle offences

Apart from the risk of being killed or seriously injured, there are fines for not wearing a helmet. A first offence will result in a cautionary Bicycle Offence Notice being issued to the child and their parents or guardians. Cyclists 14 years and over not wearing a helmet may be issued with a Traffic Infringement Notice for $50.

7. Steps to improving road safety around your school

The following step-by-step list is a quick reference guide for teachers, parents and students to plan for improving road safety around schools. These steps are further elaborated upon in this handbook (see appropriate page numbers).

Step 1: Form a School Road Safety Committee - see page 18

Step 2: Conduct a School Road Safety Survey and collate data (or collect other information to determine road safety problems around the school) – see page 20.

Step 3: Develop an Action Plan
Firstly consider a range of education and encouragement strategies such as classroom and at home activities, developing a Road Safety and Traffic Guide, developing a Student Road Safety Committee and safer pedestrian and cyclist programs. See page 27.

Secondly, consider a range of engineering strategies relating to traffic speed, parking and road crossing. See page 36.

Step 4: Implement Action Plan

Step 5: Review progress of Action Plan – by checking if the planned strategies in the 'By when?' column of the Action Plan have been implemented; reflecting on success of strategies to address the issues identified.

Step 6: Maintenance – Monitor your progress and modify strategies, building on your successes and identifying and implementing ways to improve others. Continue to promote your school road safety practices and address other issues as they arise.

8. Forming a School Road Safety Committee

8.1. Rationale for forming a School Road Safety Committee

It is essential for those wishing to bring about coordinated change in schools to have a basic working knowledge of how schools can change. The following four components are vital for change to occur in schools:

1. **A pressure for change**
- Is the principal supportive?
- Are teachers, parents and students supportive?
- How can the self interest of all parties be engaged in order to gain their support?

2. **A shared vision of change**
- What will these changes look like?
- How will you visually summarise what you want to do?
- How will you highlight the benefits for students, parents, teachers and school administration?

3. **Capacity for change to occur**
- Will the school make this health change a priority?
- Is the principal supportive?
- How can you build the good will of staff and parents?
- Who can help you implement your health changes? e.g. Local Governments, local police.

4. **A plan for change**
- What are the key issues?
- How will these issues be addressed?
- What resources are required to implement strategies?
- Will there be costs involved?

The best way for these four components to be incorporated into changes to school road safety issues is to work with a committee. It is suggested that the School Road Safety Committee comprise between 5 and 8 representatives from the following:

- Principal or member of the school administrative team
- Health education coordinator
- Interested teachers (from different year levels)
- Interested parents
- Community members e.g. Local Government representative
- Students

8.2. Tips for effective coordination of a School Road Safety Committee

Conducting effective meetings

- Meet once a month or twice a term preferably away from school as this may provide a more relaxed atmosphere
- Start and finish meetings on time
- Conduct meetings with an agenda

- Ensure that tasks are equally shared among the committee
- Clearly record actions
- Appoint a facilitator for each meeting to keep the group on task (this role can be rotated).

Developing an action plan

- Before developing an action plan, conduct a survey of parents/families using the School Road Safety Survey Form (Appendix 1) to determine the most popular routes to school and problem areas around the school.
- Collate and interpret data from this survey using the Safe Routes to School Access database program enclosed in the CD Rom in this handbook.
- Identify no more than three key issues for the committee to plan strategies to address each term. Substantial environmental strategies may take some time to achieve due to the need for Local Governments and the Department for Education and Training to budget for these items.
- Use the Action Plan (Appendix 2) provided to plan strategies that the committee will undertake.

Implementing the action plan

- Consider whether the plan will need to be passed to the school decision making group for approval.
- Ensure that the first strategy to be implemented is a high profile or very visual strategy e.g. An assembly launch of the school's Road Safety and Traffic Guide.
- Ensure that planned strategies are spread evenly throughout the course of the year for maximum impact and to spread the workload.
- Ensure that the workload is evenly shared among the committee.
- Ensure that the Student Road Safety Committee (if it exists) is aware of the action plan and is addressing similar outcomes.
- Ensure that the plan is reviewed at each meeting.

Maintaining momentum

- If frustrations or doubts occur, remind people that change is a process not an event and that it takes time to gain results from a new initiative.
- Prepare for the long haul. A new program needs to be sustained for three to five years before it becomes part of a school culture. Ensure that new teachers and families to the school are made aware of any existing road safety strategies and the School Road Safety Traffic Guide.
- Involve all stakeholders. Parents must be part of the strategies the committee develop. They can become the best advocates for school initiatives if they are brought on side and informed early in the planning process. Representatives from Government agencies such as Main Roads WA, Local Governments, and local police are crucial for the implementation of planned strategies. Try to develop personal relationships with these representatives.
- Share successes and results of data collection. This positive feedback loop will sustain the implementation of your program. Articles in the newsletter, on the school website, in local newspapers, on school notice boards and items at assemblies are useful means of celebrating success.
- Don't underestimate the power of a Student Road Safety Committee. Strategies implemented by this student body (e.g. assembly items about parking congestion around the school, double parking etc. or special Walk to School or Bike to School Days) have a strong impact on other students who can, in turn, encourage their own parents to 'do the right thing'.

9. Collating data from school road safety survey and developing an action plan

Included in the appendices is a standard survey you can use to systematically identify road safety issues around your school. It is recommended that you include the whole school community in determining priorities and building ownership of them. This also ensures that all issues are identified and can be addressed.

An electronic copy of the survey is included on the CD which accompanies these guidelines. You can make changes to the survey so that it best suits your school.

Also included on the CD is the Safe Routes to School database into which survey responses can be entered. The database will analyse survey responses for you and create a proforma action plan. Instructions are provided in the user manual which is included on the CD. If you prefer, you can analyse your survey responses manually and then prepare the action plan yourself.

The responses collected should be used to guide you in developing your action plan. Repeating the survey once you have completed all the actions in your plan will help measure your success.

10. Possible solutions to common problems identified in the action plan

The following solutions are a guide only to the possible problems identified by the Action Plan and may not be appropriate in every situation. Additionally not all solutions have to be implemented to address these common problems. Schools are encouraged to observe problems closely to help them identify the cause and should consider using a range of education, encouragement and environmental strategies. Advice is available from Local Governments to assist in the selection of appropriate strategies.

The sample Action Plan on page 24 has been included to help schools plan a strategic road safety program. The ‘What are our key issues?’ column relates to the main findings from the data collection. The ‘How will we address this issue?’ column identifies the range of education, encouragement and engineering strategies the school plans to use to address these issues. The ‘Who will do this?’ column ensures that the workload is shared among the School Road Safety Committee or school community and the ‘By When?’ column ensures accountability and can be used as a checklist to monitor the progress of the Action Plan. An Action Plan pro forma is included in Appendix 2.

10.1. Congestion or lack of parking

- Install a Kiss and Drive area to increase the use of available bays. Refer to page 38 for more information.
- Encourage students to walk and cycle to school by promoting Walk to School or Ride to School days; identify and mark with blue footprints and stop smiley faces the safest routes to walk and or cycle to and from school; and promote these footprints and walking/cycling events at assemblies and in newsletters and local

papers. The ability of a school to implement this activity would depend upon schools policies regarding these promotional days and insurance.
- Encourage parents to park away from school in an alternative parking area (e.g. shopping centre, local reserve) and reward this behaviour at school assemblies and in school newsletter.
- Stagger start and finish times of school day for different year groups.
- Review available parking and as a last resort, plan for increases if insufficient.
- As a last resort, ask the Local Government to investigate the possibility of installing more parking bays if road reserve is available (Most Local Governments require that schools fund 50% of the infrastructure costs. Schools need to contact their funding body for capital works to determine if this can be provided).

10.2. Double parking

- Request enforcement through Council Rangers Service.
- Consider participating in the Volunteer Wardens Program conducted by some Local Governments where concerned parents or teachers are trained to assist in the safe movement of traffic around schools at drop off and pick up times.
- Develop a School Road Safety and Traffic Guide and outline expectations of school community for compliance to parking laws.
- Include reminders about the importance of safe parking in newsletters and praise those parents who ‘do the right thing’.

10.3. Parking in no standing or no parking zones

- Check the signage and road markings to make sure they are clear and legible. If not, place a request with your Local Government for maintenance.
- Request enforcement by Local Government Rangers.
- Develop a School Road Safety and Traffic Guide and outline expectations of school community for compliance to this parking law.
- Include reminders about this aspect of safe parking in newsletters and praise those parents who ‘do the right thing’.

10.4. Parking on the nature strip

- Request Local Government put parking restrictions about verge parking in place and that the Rangers enforce these when they are first installed.
- Consider a voluntary one-way system to prevent parking on both sides of the road.
- Ask the Local Government to investigate the possibility of installing parking bays to formalise the parking area and create order (the Department of Education and Training would be required to half fund this in most Local Government areas).
- Develop a School Road Safety and Traffic Guide and outline expectations of school community for compliance to this parking law.
- Include reminders about this aspect of safe parking in newsletters and praise those parents who ‘do the right thing’.

10.5. Parking in the bus bay

- Ensure all signage is clear and legible.
- Have teachers/parent volunteers monitor the bay occasionally to encourage compliance with this parking law.
- Request enforcement and assistance from Local Government Ranger Service.
- Develop a School Road Safety and Traffic Guide and outline expectations of school community for compliance to this parking law.
- Include reminders about this aspect of safe parking in newsletter and praise those parents who 'do the right thing'.

10.6. Parking or driving though the teachers' car park

- Ensure all signage is clear and legible.
- Have teachers monitor the area occasionally to encourage compliance with this parking law.
- Develop a School Road Safety and Traffic Guide and outline expectations of school community for compliance to this parking law.
- Include reminders about this aspect of safe driving in newsletters and praise those parents who 'do the right thing'.
- Consider installing gates on the car park which get closed during peak periods.
- As a last resort, request enforcement and assistance from Local Government Ranger Service to provide private parking agreements.

10.7. Children crossing the road to cars parked on opposite side of the road to school

- Request the Local Government install parking restrictions on the areas opposite the school during school periods.
- Request enforcement and assistance from Local Government Ranger Service.
- Consider a voluntary one-way system so that parents are encouraged not to park on the opposite side of the road.
- Develop a School Road Safety and Traffic Guide and outline expectations of school community for compliance to this parking law.
- Include reminders about this aspect of safe parking in newsletters and praise those parents who 'do the right thing'.
- Conduct classroom based pedestrian safety education from the *Challenges and Choices: Early and middle childhood resource for resilience, drug education and road safety.*
- Send home the At Home Activities about pedestrian safety from *Challenges and Choices: Early and middle childhood resource for resilience, drug education and road safety.*

10.8. Children crossing the road at dangerous places or crossing busy roads

- Include reminders about pedestrian safety at assemblies and praise those students who 'do the right thing'.
- Conduct classroom based pedestrian safety education from the *Challenges and Choices: Early and middle childhood resource for resilience, drug education and road safety.*

- Send home the At Home Activities about pedestrian safety from *Challenges and Choices: Early and middle childhood resource for resilience, drug education and road safety.*
- Identify and mark with blue footprints and stop smiley faces, the safest routes to walk and or cycle to and from school. Promote these routes at assemblies, in newsletters and in the local paper.
  The ability of a school to implement this activity would depend upon schools policies regarding these days and insurance.
- Request warning signs from Main Roads WA or Local Government if not already installed.
- Review sight lines and school entry locations.
- Examine path and fencing requirements for preferred crossing locations.
- Request children's crossing through the Traffic Warden State Management Unit.
- Review the need for refuge or median islands with Main Roads WA or Local Government.

10.9. U-turns in front of the school

- Request Police enforcement if the U-turns are illegal or are considered to be dangerous.
- Consider a voluntary one-way system so that parents are encouraged to approach the school in a way that does not require a u-turn.
- Discuss engineering options with Local Government if the problem is widespread and causing a significant safety hazard. The options could include splitter islands, roundabouts and centre island median treatments.
- Develop a School Road Safety and Traffic Guide and outline expectations of school community for compliance to this traffic law.
- Include reminders about this aspect of safe driving in newsletters and praise those parents who 'do the right thing'.

10.10. Pulling into and reversing out of private driveways

- Consider a voluntary one-way system so that parents are encouraged to approach the school in a way that does not require reversing into driveways.
- Develop a School Road Safety and Traffic Guide and outline expectations of school community for compliance to this traffic law.
- Include reminders about this aspect of safe driving in newsletters and praise those parents who 'do the right thing'.

10.11. Speeding

- Check sight lines of *Children/School* warning signs and contact Local Government or Main Roads WA to relocate if necessary.
- Request Police enforcement of special school zone speed limits.
- Contact Local Government to see if they can make available a speed alert mobile, if they provide "Please Slow Down – Consider our Kids" bin stickers.
- Develop a Pace Car Pledge program, where parents sign pledges agreeing not to speed and place a bumper sticker on their car to show their commitment.
- Consider other engineering traffic calming strategies with consultation with the Local Government or Main Roads WA.

- Develop a School Road Safety and Traffic Guide and outline expectations of school community for compliance to this traffic law.
- Include reminders about this aspect of safe driving in newsletters and praise those parents who ‘do the right thing’.

11. Sample Action Plan: Gunnadoo Primary School

- Before and after school congestion **- Congestion around Busy Street at drop off and pick up times** **- Children running onto road from behind parked cars** **- Parking on footpaths during these times**	**Education and encouragement** - Develop a School Road Safety and Traffic Guide to outline rules and guidelines for parking and vehicle access around the school. Launch at assembly. - Encourage teachers to use the classroom and At Home activities from the *Challenges and Choices* resources relating to Pedestrian safety. - Identify the safest routes to school and paint footprints and stop smiley faces. Promote through newsletter and local paper. - Certificates at assembly for Safe Pedestrians and Safe Driver Awards. **Engineering** - Liaise with Local Government to install Kiss and Drive and Stop and Chat signs and have a special morning tea to launch the use of them. **Enforcement** -Liaise with Local Government Ranger to book illegally parked cars over a two week period initially	- School Road Safety Committee (Tom and Lisa) with consultation with P&C and Student Road Safety Committee. - Mark to liaise with all teachers. - Vicki and Tom liaise with P&C for parent help. Whole school involvement in painting. Tom to deal with promotion. - Tony to explain system to Student Road Safety Committee. Students to identify and present certificates every fortnight at assembly. -Tom to liaise with Sue (engineer at Local Government) - Student Road Safety Committee to organise launch event (invitations, media etc.) - Lisa contact Local Government Ranger and explain problem areas.	- end of Term 1 - By Week 3 Term 1 - End of Term 1 - By Week 3 Term 1 - Kiss and Ride installed by start of Term 2. Provide information to parents Week 10 Term 1 - Two weeks each term if required

Cars speeding along Straight Street particularly before and after school.	**Education and encouragement** - Assembly item about dangers of speeding by students from *Challenges and Choices*. - Liaise with Local Government to borrow a speed alert mobile (SAM). - Request in newsletter to obey speed limits around school. **Engineering** - Liaise with Main Roads WA to install 40kmh school zone on both sides of school grounds. **Enforcement** - Liaise with local police to make spot visits to school (before and after) and book speeding offenders.	- Students Road Safety Committee to organise (Lisa to assist coordination). - Vicki organise newsletter snippet. - Tom to liaise with John at Main Roads WA. - Students Road Safety Committee to write letter requesting visit from John (Main Roads). - Tony liaise with Sue (Local Government) and Frank (Police). - Student Road Safety Committee to write article about this for newsletter and assembly	-By Week 5 Term 1 - By Week 1 Term 1 Each term as required
Dangerous situation for children as cyclists and drivers share main drive to car park	**Education and encouragement** - Ensure that rules for shared paths for cyclists are clearly outlined in School Road Safety and Traffic Guide and promote in newsletter - Discuss with students at assembly - Encourage teachers to use the classroom and At Home activities from the *Challenges and Choices* resources relating to safety on wheels.	- Vicki to check and organise newsletter snippet - Tom to discuss at assembly and organise Student Road Safety Committee to reinforce at weekly assembly spot. - Mark to liaise with all teachers.	- End of Week 3 Term 1 - ongoing as required - By end of Term 1

	Engineering - Liaise with Local Government to install a pedestrian/cyclist bollard at end of shared paths to encourage student cyclists to dismount and not enter main drive to car park.	- Tony liaise with Sue (Local Government)	- By end of Term 1

12. Suggested education and encouragement strategies to address key road safety issues

Education and encouragement strategies should be the strategies that the committee considers first. These strategies usually involve the whole school community and are often effective economical solutions to key road safety issues. Choose from the following education and encouragement strategies:

12.1. Classroom and at home curriculum material

Challenges and choices: early childhood and middle childhood resilience, drug and road safety resources

These two free resources, produced by *School Drug Education and Road Aware* were sent to all WA primary schools in 2006. Encourage teachers to use these resources first to plan and implement whole school road safety programs. All learning experiences in these resources are linked to the *Curriculum Framework.*

The focus areas for the **early childhood** resource include:

- **Focus area 1: Passenger safety** (focuses on wearing a correctly fitted restraint; using the safety door; behaviours that will not distract the driver and using public transport.)

- **Focus area 2: Pedestrian safety** (focuses on holding an adult's hand to walk and cross roads; identifying safe places to cross the road and the systematic search strategy; potential and existing hazards in the traffic environment including car parks and planning safe routes to walk to and from school.)

- **Focus area 3: Playing safely** (focuses on wearing a correctly fitted helmet when riding a bike or wheeled device; and safe places to ride.)

- **Focus area 4: Sensing traffic** (focuses on identifying relevant pedestrian and cyclist road signs; developing auditory recognition of sounds that relate to pedestrians and cyclists and increasing the visibility of pedestrians).

The focus areas for the **middle childhood** resource include:

- **Focus area 1: Passenger safety** (focuses on the role of a restraint in a crash; correct ways to get in and out of cars, buses and trains and the passengers' responsibility to act safety to avoid driver distraction.)

- **Focus area 2: Pedestrian safety** (focuses on using the systematic search strategy in different locations; identifying potential pedestrian risks; and identifying potential hazards in the local area.)

- **Focus area 3: Safety on wheels** (focuses on selecting safer places to ride bikes and wheeled devices; choosing and maintaining a bike and helmet and the physical, emotional and financial consequences of crashes.)

- **Focus area 4: Road signs and rules** (focuses on identifying relevant pedestrian and cyclist road signs and the consequences of non-compliance; and making decisions in road user situations.)

The *At Home Activity Sheets* at the end of each focus area provide easy to use activities to involve and educate parents and families in school road safety.

TravelSmart to school program

TravelSmart to School is a Department of Planning and Infrastructure integrated education program raising awareness about the impacts of car use and encouraging the use of travel alternatives. The program promotes walking, cycling, public transport and carpooling for school trips.

TravelSmart to School Kit contains a range of classroom based learning experiences focussing on these issues. This free kit may be ordered by contacting (08) 9336 7047 or emailing info@milleniumkids.com.au.

The TravelSmart to Schools Program is supported by the Walking School Bus (details below).

Get on board: Transperth's community education program

This free Transperth program, suitable for Years 5-7 students is delivered by a trained facilitator. It focuses on using public transport as an alternative to car travel. Delivery of the program can be arranged by contacting 9326 3970 or emailing education@transperth.wa.gov.au.

Planet ThinkSafe

Planet ThinkSafe provides safety information in an interactive way, using colourful graphics and animation specially designed for primary school students from 7 to 11 years old.

Students can explore Planet ThinkSafe and find out about common hazards using the ThinkSafe SAM methodology of:

- **S**pot the hazard
- **A**ssess the risk
- **M**ake the changes

Planet ThinkSafe encourages children's safe behaviour in four main areas in a range of situations; playgrounds, at home, at school and on the road. In each situation some of the most common hazards have been identified, the risk of each hazard assessed and ways to control the hazard provided.

Planet ThinkSafe provides printable teacher tips and teacher led classroom activities that have been designed to encourage enquiry from students and consolidate the information on the website. All classroom activities have been mapped to relevant WA Curriculum Framework outcomes across the eight curriculum areas where appropriate.

Planet ThinkSafe can be accessed from the WorkSafe website on www.worksafe.wa.gov.au by clicking on educational resources and students on the home page.

12.2. Whole school strategies

The following strategies can be implemented as whole school or classroom based initiatives. They may be coordinated by teachers, members of the School Road Safety Committee or members of the Student Health Committee: See page 33 for a range of strategies specifically suggested for members of the Student Health Committee to undertake.

- **Special events days**: Road Safety Week; White Ribbon Day; Walk to School and Cycle to School Day; Blessing of the Roads.
- **Guest speakers**: – see Appendix 4
- **Launches**: To promote the Safe Routes to School Stop Smiley Faces program, a Road Safety and Traffic Guide or Kiss and Drive bays or similar.
- **Competitions**: Posters and quizzes on a road safety theme.
- **Library and shopping centre displays**: Students' road safety work or skits.
- **Advocacy**: Students lobby authorities for improvements in local traffic conditions; or lobby the Advertising Standards Bureau (Reply paid 83005 Turner ACT 2612) about advertisements that promote unsafe driving practises. Students make personal checklists to take home to their parents/caregivers to advocate use of the Road Safety and Traffic Guide or personal pledges to walk or cycle to school.
- **Newsletter items:** Student work; promotion of special road safety events or general tips about road safety - see Appendix 3.
- **Certificates of encouragement:** for students and parents who 'do the right thing' with regards to road safety.
- **Road safety monitors**: Older students assist younger students to cross busy roads or wait at Kiss and Drive bays.

12.3. Developing a road safety and traffic guide

A Road Safety and Traffic Guide is basically a blue print of how the committee would like pedestrians, cyclists and motorists to behave while travelling and moving around your school. It lets everyone know when and where they can park; how to use special parking areas such as Kiss and Drive and Stop and Chat Bays; and includes information about pedestrian and cyclist safety programs such as the Safe Routes to School signs or the Walking School Bus.

The key to successful acceptance of this guide is to involve the whole school community in its planning and to launch the guide in a very public way e.g. at an assembly with invited local media and community members in attendance. The launch of this guide is an ideal opportunity to acknowledge all the community agencies you have liaised with e.g. Main Roads WA, WA Police, Local Government Rangers, Traffic Wardens, Road Safety Officers and even local Councillors.

It may also be appropriate to involve the Student School Road Safety Committee (if you have one) in the publication of this guide. A colourful student generated pamphlet or fold out wallet card will have more chance of being read by families than an official policy style document.

Ensure that new families and teachers to the school receive this guide and continue to modify and promote it each year. Also distribute the guide to parents at Kindergarten students' orientation day and reproduce this information in the school handbook or school website (if applicable).

Possible information to include in a road safety and traffic guide:

- **Introduction**
  - Explain that the School Road Safety Committee has developed the following advice to ensure that all children travel to and from school in the safest environment possible.

  - Encourage parents to read and follow these guidelines and also discuss it with their children to ensure they understand the guidelines appropriate to them as pedestrians and cyclists.

  - Explain that it is important that other people that take their children to school (grandparents, babysitters) need to be aware of this information.

- **Parking issues**
  - Explain applicable designated drop off and pick up areas. For example:

    Kiss and Drive Zones are specially marked bays to drop off and pick up students and not for standing for periods of over two minutes.

    Stop and Chat Zones are specially marked bays that may be used for extended periods of time before and after school.

    Class and family pick up points are areas specially designed to alleviate congestion at the main entrance of the school
    Pre-primary: give identified pick up area
    Years 1-3**:** give identified pick up area
    Year 4-7: give identified pick up area
    Families: give identified pick up area

  - Explain alternative parking options. For example:

    Through negotiation with the Local Government it may be possible to use the parking area of a nearby community amenity such as a sporting club, community centre, shopping centre for parking before and after school. Encourage parents and carers to use these areas for parking rather than parking in the street.

  - Explain that parking opposite bus bays is prohibited as this situation forces children to cross in front of or behind a bus, putting them at risk of not being seen by other drivers.

  - Encourage parents to ask their children to use the safety door (rear door nearest the kerb) for exiting and entering their car.

  - Encourage parents to walk their children to and from school to reduce parking congestion and to act as active role models for their children.

- **Pedestrian issues**
  - Explain the *Safe Routes to School Follow Me Footprints and Stop Smiley Faces* (if applicable). For example:

Our School has identified the *safest routes for children to walk/cycle to and from school*. These have been marked with blue footprints and yellow and red stop signs and smiley faces. Walking/cycling to and from school helps to alleviate congestion at drop off/pick up times.

The blue footprints serve as a guide for our children to choose the safest way to walk and or cycle to and from school (attach a map to show where the safe routes have been marked).

The yellow and red stop sign and smiley face at intersections have been placed at the safest crossing points on the safe routes and remind children to:

- STOP back from the kerb
- LOOK in all directions
- LISTEN for traffic
- THINK about when it safe to cross

The school will be educating and encouraging the children to use the recommended safe routes. We therefore ask parents to:

- Be aware and supportive of the use of the designated safe routes
- Take care when parking not to park on the verge/footpaths or in areas which have been signed with the *Follow Me* footstep and the identified safest crossing points with the stop signs and smiley faces.
- Take time to discuss the program with your child/ren and encourage them to use the designated routes.

- Explain the *Walking School Bus* (if applicable) for example:

  The *Walking School Bus* is a supervised walking group of students, escorted by parent volunteers from our school. Students are "picked up" along a set route in the morning and returned in the afternoon.

  It is designed for children who live within 1 km of our school or who can be taken to the *Walking School Bus* route terminus point at the (insert name of meeting point).

  For more information about the *Walking School Bus* route please contact (insert contact details and name of committee member). The Department for Planning and Infrastructure has assisted our school to identify suitable *Walking School Bus* routes and provided training for parent volunteers as proficient escorts.

- Explain alternatives to the *Walking School Bus*. For example:

  Research indicates that children under the age of 10 should not walk to school unsupervised as they cannot accurately judge traffic speed and distance. If your child is under 10 and walks to school unsupervised, please contact your School Road Safety Committee representative (insert contact details and name) so we can look at forming a buddy system with an older student or another appropriate solution to decrease their road safety risk.

- **Cyclist issues**

  - Explain cycling rules in and around the school. For example:
    - Cyclists must wear a correctly fitted bike helmet when riding to and from school.
    - Cyclists must ride on the left of the footpath when it is available and give way to pedestrians.
    - Cyclists must walk their bikes across the school pedestrian crossing and into the school grounds.
    - No primary school age child should cycle to school unsupervised unless there are no roads to cross or there is a designated safe pathway.

- **Specific notification of road safety concerns surrounding the school**

  - Explain areas of road safety concerns specific to your school. For example, a crossing point which does not meet criteria for crossing guard but is used by children; intersections which may require extra care during drop off and pick up times. Liaise with your Local Government regarding which areas need to be included in this section and for practical advice on how dangerous situations may be avoided.

12.4. Developing a Student Road Safety Committee

Rationale for developing a Student Road Safety Committee

A Student Road Safety Committee may be an alternative and more effective way to influence the road safety attitudes and behaviour of students, and in turn, the parents and caregivers in the school community. This committee can work alongside the School Road Safety Committee or act as an alternative to this parent/teacher committee.

A Student Road Safety Committee provides meaningful leadership roles for 6-8 senior students. The strategies implemented by this student group reinforce classroom based road safety curriculum and other education strategies that may have been implemented by the School Road Safety Committee. They also promote a greater awareness and commitment to school road safety by the whole school community.

Tips for effective coordination of a Student Road Safety Committee

The committee

- Particularly encourage boys to nominate for the Student Road Safety Committee as often it is boys who participate in risky road safety behaviour.
- Appoint 6-8 Year 7 students to the committee and acknowledge their appointment in the same way as other student leadership roles e.g. students receive name badges similar to student council or house captain badges.
- Nominate specific roles on the committee e.g. Chairperson, Events Coordinator, Secretary, Treasurer, Data Collector, Journalist, Photographer. Outline responsibilities of these roles and rotate the roles each term.
- Appoint an adult to supervise the Committee on a regular basis, ideally a teacher or parent from the School Road Safety Committee.
- Hold weekly or fortnightly meetings during school time to monitor progress of action plan.

Developing an action plan

- Encourage students to develop an action plan that complements or reinforces the action plan developed by the School Road Safety Committee or if no such committee exists, use the data from the School Road Safety Survey Form (Appendix 1) to help students determine road safety issues around the school that need addressing.
- Encourage students to identify no more than three key issues for the committee to plan strategies to address each term.
- Use the Action Plan (Appendix 2) provided to plan strategies that the committee will undertake.

Implementing the action plan

- Consider who the plan will need to be authorised by before strategies are implemented.
- Consider allocating a budget to the committee so that student road safety events can be catered for and promoted.
- Encourage the Secretary to write letters of thanks to any agencies (Main Roads WA, Traffic Wardens, local Councils etc.) who may have assisted with school road safety issues and supply regular minutes to the Principal or School Road Safety Committee.
- Encourage the Reporter and Journalist to contribute regular articles to the school assembly, newsletter or website.
- Ensure that the workload is evenly shared among the committee and encourage those students who are not contributing to reconsider their role on the committee.
- Review the committee's action plan at each meeting.

Possible activities for a Student Road Safety Committee to undertake

- Special road safety events at school such as Bike to School or Walk to School days, launch of the Road Safety and Traffic Guide, Kiss and Drive bays, White Ribbons for Road Safety or the Blessing of the Roads Easter campaign, followed by breakfast. These should be implemented in accordance with your school's or the Department for Education and Training's risk management and duty of care guidelines.
- Assembly items each term about some aspect of school road safety including reports for the committee, songs and skits by other students and/or guest speakers.
- Committee to encourage parents and students to 'do the right thing' with regard to road safety by awarding regular Safe Driver and Safe Pedestrian/Cyclist awards at assembly.
- Buddy road safety activities with the Year 7 and 6 students and Year 1 and pre-primary classes such as correct crossing of the road with a Traffic Warden.
- Organisation of road safety excursions (e.g. to Wheelchair Sports to play wheelchair basketball – contact ph: 08 9443 4833) and incursions (e.g. The Tree House by Spare Parts Puppet Theatre – contact ph: 9335 5044).
- Fortnightly road safety snippets in school newsletter (See Appendix 3).

- Development of illustrations or graphics to make the Road Safety and Traffic Guide pamphlet more visually appealing. Remember to get permission to use photographs of children.
- Assistance to coordinate the painting of blue footprints and yellow and red stop smiley faces on safest routes to school as well as the ongoing promotion of this program.
- Poster or colouring competitions or lunch time song or rap competitions to promote road safety issues or events.
- Coordination of busy bees to cut down any trees or vegetation that may be interfering with driver/pedestrian sight lines or to repair or replace bike racks.
- Lobbying support from local agencies for environmental strategies that may be needed in the school road environment or wider community.
- Student evaluation of classroom and whole school road safety strategies that have been implemented.
- Free dress days that promote the message that safer pedestrians wear bright clothing, promote the colours of the footprints and stop smiley faces and raise money for future school road safety activities in accordance with established school and Department of Education and Training policies.

12.5. Safer pedestrian and cyclist programs

Follow me footprints and stop smiley faces

This involves the identification and signage of the safest routes for children to walk and cycle to and from school. It also encourages more children to walk and or cycle to school to decrease traffic congestion during drop off and pick up periods.

Data from the School Road Safety Survey and consultation with Local Government or Main Roads WA representatives must occur so as to correctly identify these safe routes. Incorporating Safety Houses along the safe routes is also recommended.

It is suggested that students and parents are involved in the painting of the Follow Me Footprints and Stop Smiley Faces to encourage greater ownership and compliance.

- **Suggested specifications for the placement of Follow Me Footprints and Stop Smiley Faces**

Templates for the Follow Me Footprints and the Stop Smiley Faces are included on the CD for schools to create stencils. It may be advisable to liaise with other surrounding primary schools to share the costs of the paint.

To educate children about the systematic search strategy for crossing roads it may also be useful to paint the symbols in a safe area in the playground so younger students have the opportunity to practice in a simulated environment.

To create a uniform and consistent approach to the identification of the safest routes with the footprints and stop smiley faces, the following specifications are suggested:

Footprints

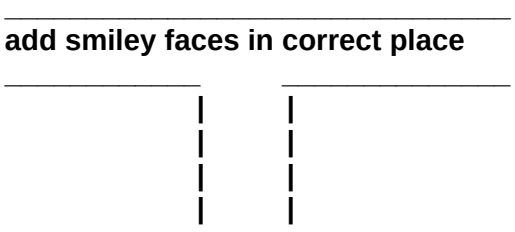
- When identifying the safe routes, footprints should begin where roads intersect, that is at the corner point and not half way down the street.
- Footprints should be placed approximately 3 metres apart and face toward the school.

- It is recommended that the footprints be painted blue (Colour Tone, Victoria Blue - all season low sheen) for easy and consistent identification.

Stop Smiley Faces

The Stop Smiley Faces should be placed at the identified safest crossing points along the routes. These include:

- Crossing points with pedestrian refuges.
- Other points which do not have engineering treatments present but will need to be selected in conjunction with Local Government engineering staff.
- The approach to each junction/intersection where children have to cross a street.
- The Stop Smiley Faces should be placed approximately 50cm from the edge of the kerb with eyes to the left on the left and eyes to the right on the right, simulating students looking right and left.
- The Stop sign is to be placed in the centre. It is recommended that the background be painted bright red with the letters for stop being painted in yellow. The Smiley Faces should also be painted in the bright yellow.



Walking School Bus

The *Walking School Bus* is a supervised walking group for primary school students, escorted by parent volunteers. Students are 'picked up' along a set route in the morning and/or in the afternoon.

It is designed for children who live within 1 km of their school or who can be taken to a *Walking School Bus* route terminus point. The Department for Planning and Infrastructure assists schools to identify suitable *Walking School Bus* routes and provides training for parent volunteers as proficient escorts.

The 'bus' usually operates only a limited number of days each week. Parents are not asked to commit themselves to more than 2 days per week. Nominating one day per week as *Walking School Bus Day* is a good start for the escort group. This can then be increased at a later date.

13. Suggested engineering strategies to address key road safety issues

Engineering strategies are not always the best or only solution to school road safety issues. Education and encouragement strategies should always be considered first, however a number of engineering measures can be used to regulate traffic flow and make school environments safer. When considering engineering strategies, consider the following aspects of the school environment:

- Traffic speeds should be low – 40km/h or less is desirable.
- Parking should be adequate to allow safe drop off and pick up of children, through indented on road parking or restricted speed off road parking.
- Paths should be provided on the school side of the road and cycle access paths should be separate from entrances for vehicles and pedestrians.
- Roads should be generally free from high levels of congestion through the use of one way traffic flow and roundabouts or turning areas.
- Sight lines for drivers and children should be clear. Ensure that vegetation and other obstructions at all entry points, drive ways and road crossings are lower than a small child.
- Road crossings for children and school warning signs should be safely located and clearly visible on all approaches to the school.
- Staff parking should be away from other parking and on school grounds.

13.1. Traffic speed strategies

School zone signs and speed limits

40 km/h school zone signs

Main Roads WA's policy is to install these limits along all school frontages where appropriate. School zones usually operate from 7.30 – 9.00am and 2.30 – 4.00pm on school days during the school term.

School zone speed limits are installed as follows:

- within 80km/h and higher speed limit roads – 60 km/h School zone
- within 50, 60 and 70km/h speed limit roads – 40 km/h School zone

Installation of the 40 km school zone signs can be negotiated with Main Roads WA.

Warning signs, lights and messages

Warning signs to warn motorists to modify their driving behaviour as they near a school include:

- School crossings
- Pedestrian crossings
- Presence of school or pre school
- Presence of pedestrians in the vicinity of a pre school
- People with disabilities

Installation of these warning signs can be negotiated with Main Roads WA.

The Local Government (either through the Road Safety Officer, Community Safety Officer or the Engineering Department) can arrange for temporary installation of Speed Alert Mobiles (SAM) to warn vehicles if they are travelling faster than the 40km/h speed limit or praise those who are travelling within the speed limit.

Other traffic calming devices

While the above speed limits and signs with regular enforcement and education have been shown to reduce operating vehicle speeds, the following calming devices may be an option:

Roundabouts

Roundabouts are useful as a speed control treatment on local roads at intersections. They also provide a means for vehicles to U-turn with reasonable safety and assist with parents/carers picking up or setting down children on the school side of a road without having to travel long distances or attempting to u-turn near the school. Particular care should be taken when considering roundabouts at intersections where there are high numbers of pedestrians or cyclists crossing one or more of the roads. Children, in particular should be encouraged to cross roads away from roundabouts that have high traffic flows. Children should preferably cross where median refuge islands are installed.

Median islands

While median islands improve pedestrian safety by enabling pedestrians to cross roads in two stages, they also assist in slowing traffic speeds. When used near schools they:

- Reduce the road space available to traffic
- Deter overtaking
- Provide 'side friction' that reduces traffic speed.

Speed humps and raised plateaus

These treatments are useful in parking areas or accesses to school where speeds must be no more that 10 km/h.

13.2. Parking strategies

The parking requirements for schools are related to the number of students attending the school and access to public transport. The formula applied by Local Governments and accepted by the Department of Education and Training is:

- Approximately 14 pick up and set down bays for every 100 children enrolled at primary schools and 7 per 100 for high schools
- School staff parking to be provided in the school grounds.

The following parking strategies may be negotiated with Local Governments (or Main Roads WA in the case of main roads and highways):

Kiss and Ride, Stop and Chat and Class and Family Pick Up Zones

A Kiss and Ride Zone is an area designated and appropriately signed for the dropping off and picking up of students only and not for stopping for periods of over two minutes. These zones essentially mean the same as No Parking and can be complemented with an advisory No Parking sign if approved.

A Stop and Chat Zone is an area designated and appropriately signed for those parents/guardians who may arrive at school prior to school beginning or finishing who may need to park for extended periods of time.

Class and Family Pick Up Zones are appropriately signed areas to pick up and drop off children from specific year groups or multiple children from a range or year groups.

In all of these zones:

- Discuss with Local Government if one way traffic flow can be developed to keep pick up / set down on the school side of the road/
- The location should be on the school side of the road.
- Parking restrictions on the side of the road opposite the school should be installed for before and after school.
- Entries and exits should be separate from entries for bicycles and pedestrians.
- Traffic speeds should be no more than 10 km/h.

On road parking

On road parking outside schools should preferably be in marked bays with kerbed nodes. These nodes provide places where pedestrians can see past parked vehicles. On road parking should be provided away from the entrance of the school on a local road.

Off road parking

On road parking is not always feasible. Off road options that may be negotiated include adjacent sporting or shopping facilities or adjacent public open space. When choosing alternate off road parking, try to avoid pedestrians having to cross major roads to access these areas.

Bus parking

If more than one bus or an articulated bus is to park at a stop, it is necessary for *Bus Zone* signs to be installed to define the kerbside space required. It is illegal for other vehicles to stop in this zone. Bus stops should be on the same side as the school, away from the main congestion area.

School owned buses should have a stopping area on the school grounds, separate from other parking. Stopping places should avoid the need for the bus to reverse and children should be able to enter and leave the bus from a path.

13.3. Road crossing strategies

Children's Crossings

Children's crossings afford children the highest level of protection at road crossings. This is because an adult trained warden or volunteer operates the crossing and traffic is controlled by stop banners held by this adult.

Applications for a children's crossing need to be made by the Principal or President/Secretary of the P&C or P&F to the *School Crossing and Road Safety Committee* through the Traffic Warden State Management Unit or local police. This police unit is also responsible for the recruiting, training and assessing of Traffic Wardens and parent volunteers.

Following a review by the *School Crossing and Road Safety Committee*, either a Type A or Type B crossing may be offered. When student numbers and traffic volumes are high, a Traffic Warden is appointed (Type A). When student numbers and traffic volumes are considered 'not abnormal', a crossing that utilises a volunteer warden is offered (Type B).

Main Roads WA installs the crossing pavement markings, appropriate advance warning signs a red and white bollards at the crossing.

Unattended pedestrian crossings (zebra crossings) are not recommended for use outside primary schools because children often step onto the crossing in the belief that vehicles will always stop and this is not always the case.

Marked foot crossings

These are pedestrian operated signals that are usually part of intersection signals. They are installed only where crossing demand is high. Young children often have difficulty understanding the operation of these signals so they are not a preferred option.

Pedestrian fencing and landscaping

Pedestrian fencing and landscaping is generally used in association with crossing facilities to direct children to safer crossing points or deter them from crossing where it is unsafe.

It may be used on nature strips or wide median islands. Attention needs to be given to the placement and height of the fencing or vegetation to ensure that sight lines for drivers and pedestrians are not obscured.

13.4. Road Safety audits

Road safety audit is a process whereby the safety potential of proposed projects is maximised and hazards of existing roads are identified. It is looking at a project from the perspective of the safety of all road users and identifying the potential risks and hazards posed by the project as proposed (or as is in the case of an existing road). Road Safety Audits are commissioned by the road owner and are conducted by a qualified, independent senior road safety auditor.

In Western Australia the Road Safety Council's Road Safety Around Schools Taskforce developed Road Safety Around Schools Audit Checklists to ensure road safety at schools sites can be addressed systematically in a road safety audit format. Checklists are available from the WA Local Government Association.

13.5. Who to contact for engineering strategies

The following table provides a guide on areas of responsibility relating to school road safety issues and may be useful to consult when developing an action plan.

Organisation	**Responsibilities**
Main Roads WA	Traffic lights (including pedestrian lights)
	Road markings (centre lines, edge lines, lane lines, school crossing markings, zebra crossing markings, stop and holding lines) – responsibility for installing and maintaining may be delegated to Local Governments in some areas.
	Main roads and highways - Road widening, resurfacing, pedestrian median islands, drive way approvals
	Main roads and highways - Parking signs and traffic signs
	Warning signs – children and school signs, intersection warning signs (in metropolitan areas). In areas outside the metropolitan area, contact Local Governments for local roads and Main Roads WA for main roads and highways.
	Regulatory Signs – school zones, speed limits, stop and giveway signs
	Street lighting – in conjunction with Local Government
	No Through Road signs
	Traffic, crash and speed data for main roads and highways
Local Governments	Footpaths, shared paths and bicycle paths (except on freeways)
	Local roads - Road widening, resurfacing, pedestrian median islands, driveway approvals
	Local roads - Parking signs and road signs
	Bus stops – location determined in association with the Department of Planning and Infrastructure
	Street lighting on local roads
	Traffic, crash and speed data for local roads.
School Crossing and Road Safety Committee	Assessment of children's crossings. Contact the Traffic Warden State Management Unit on 9222 1917 for application form or visit www.police.wa.gov.au/Services/Traffic.asp?SchoolCrossingSection

14. Appendix 1: School road safety survey and cover letter

School Letterhead

SCHOOL ROAD SAFETY SURVEY

Dear Family

As part of our commitment to the safety of our children, ... Primary School's School Road Safety Committee will be implementing a range of road safety strategies around our school and local community.

To determine what the key road safety issues are for our school we are collecting vital information from you through the attached data collection form. In addition, drop off and pick up times will be monitored and reviewed to address key road safety issues.

Your co-operation in the completion and return of these forms is greatly appreciated. Should you have any queries, please do not hesitate to contact ..... on (08) …….

We look forward to working with you in creating a safer environment for our children.

Yours faithfully,

<Name>
Principal

14.1. School Road Safety Survey

(One form per family, to be completed by a parent/carer in reference to the student with the next birthday.)

SCHOOL: _____

By completing this questionnaire you will be providing important information to assist in the development of strategies to improve road safety around your school. The information you provide will be collated by RoadWise who will work with the school staff, students and parents in implementing the Safe Routes to Schools program. Please fill in the questionnaire and return it to school by *INSERT DATE.*

STUDENT'S NAME _____**YEAR LEVEL** _____ **AGE**_____

MALE ☐ **FEMALE** ☐

If you have other children at this school, please list for each, their year level and age

Year level	Age
Example Year 5	*10 years*

Year level	Age

1. **How does your child get to and from school on MOST DAYS:**
(Please tick one box only)

In dry weather?	**In wet weather?**
☐ CAR	☐ CAR
☐ WALK OR CYCLE	☐ WALK OR CYCLE
☐ BUS	☐ BUS
☐ WALKING SCHOOL BUS	☐ WALKING SCHOOL BUS
☐ OTHER _____	☐ OTHER _____

2. **How many times LAST WEEK did your child travel to/from school by:**
(Indicate by placing a number in each box)

☐ CAR	☐ BUS	☐ BICYCLE
☐ WALK	☐ WALKING SCHOOL BUS	☐ OTHER_____

3. **Please estimate the distance your child travels from home to school.** (Use the map on the last page, as a guide. Please tick one box only.)

☐	5 km	☐	1 to 2 km	☐	3 to 5 km
☐	.5 to 1 km	☐	2 to 3 km	☐	5 km or more

4. **Please list any reasons which might prevent you from walking or cycling to school.**

_____

_____

5. **If your child walks or cycles, are they accompanied to school?**

☐ NO (go to question 6)
☐ YES

BY:
☐ ADULT (parent/carer/other)
☐ OLDER BROTHER OR SISTER - AGE: _____
☐ YOUNGER BROTHER OR SISTER - AGE: _____
☐ OTHER STUDENT/S - AGE: _____

6. **Please indicate on the scale below how important you believe road safety is, compared to other issues at the school?** (please circle one only)

Very important	Important	Moderately important	Somewhat important	Not important
1	**2**	**3**	**4**	**5**

7. **How would you rate your understanding of road safety issues?** (please circle one only)

Very high	Above average	Average	Below average	Limited
1	**2**	**3**	**4**	**5**

8. **In your opinion, how safe is the road environment and the people who use the road near your school?** (please tick one box only)

☐ Very safe
☐ Fairly safe
☐ Not sure
☐ Fairly unsafe
☐ Very unsafe

9. (A) ***INSERT STREET NAME*: Do you believe there are any traffic problems affecting road users (drivers, cyclists and pedestrians) in the drop off/pick up area, in this street, next to the school?** (tick as many boxes as apply)

- ☐ CONGESTION
- ☐ DOUBLE PARKING
- ☐ PARKING IN NO STANDING OR NO PARKING ZONES
- ☐ PARKING ON THE VERGE
- ☐ PARKING IN THE BUS BAY
- ☐ PARKING OR DRIVING THROUGH THE TEACHERS CAR PARK
- ☐ U-TURNS IN FRONT OF THE SCHOOL
- ☐ LACK OF PARKING
- ☐ CHILDREN CROSSING THE ROAD TO CARS PARKED ON THE OPPOSITE SIDE OF THE ROAD TO THE SCHOOL
- ☐ PULLING INTO AND REVERSING OUT OF PRIVATE DRIVEWAYS
- ☐ OTHER (Please specify below)

_____

_____

_____

9. (B) ***INSERT STREET NAME:* Do you believe there are any traffic problems affecting road users (drivers, cyclists and pedestrians) in the drop off/pick up area, in this street, next to the school?** (tick as many boxes as apply)

- ☐ CONGESTION
- ☐ DOUBLE PARKING
- ☐ PARKING IN NO STANDING OR NO PARKING ZONES
- ☐ PARKING ON THE VERGE
- ☐ PARKING IN THE BUS BAY
- ☐ PARKING OR DRIVING THROUGH THE TEACHERS CAR PARK
- ☐ U-TURNS IN FRONT OF THE SCHOOL

☐ LACK OF PARKING

☐ CHILDREN CROSSING THE ROAD TO CARS PARKED ON THE OPPOSITE SIDE OF THE ROAD TO THE SCHOOL

☐ PULLING INTO AND REVERSING OUT OF PRIVATE DRIVEWAYS

☐ OTHER (Please specify below)

_____

_____

_____

10. **Please mark your normal route to and from school on the map below. Please use different colours to specify mode of transport (ie red = car, blue = bicycle, green = walk).**

11. **Have you noticed any other road safety danger spots in the area or on your regular route to & from school?**

(Please use the map provided should you wish to indicate the exact location/s.)

_____

_____

_____

_____

_____

_____

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS FORM, PLEASE RETURN IT TO ***INSERT WHERE & WHO*** BY ***INSERT DATE DUE***

15. Appendix 2: School road safety action plan

What are our key issues?	How will we address this issue?	Who will do this?	By when?

16. Appendix 3: Newsletter tips

Contained in this appendix are over 50 articles with a road safety theme that may assist in reducing road safety issues at your school or broader community. These short articles can be reproduced in weekly school newsletters, in your School Road Safety and Traffic Guide or wherever the committee decides that this education strategy is appropriate.

An electronic version of this appendix (that can be cut and pasted) is available on the CD ROM that accompanies this handbook.

16.1. Information about Roadwise and your School Road Safety Committee

Welcome from your School Road Safety Committee

Recently our school formed a School Road Safety Committee. This Committee consists of _____, _____, _____, _____, _____, _____ *(names and position in school community e.g. teacher, parent, students etc.)*. The committee members, with your help, will be identifying and addressing local road safety problems around our school. To do this task effectively we ask that you complete the School Road Safety Survey that will be sent home this week with your child. For more information please contact (school contact number).

Road Safety Action Plan

Thanks for the information you provided the School Road Safety Committee. The committee has developed an action plan for road safety around our school which includes: *(list key aspects of action plan)*

- Amend with any additional activities

For more information please contact <insert school phone number>.

Your RoadWise Committees

Throughout the State of Western Australia, there are currently over 73 Local Government areas that have active RoadWise Committees who work on local projects to improve road safety in their area.

These committees consist of interested members of the local community, including Local Government representatives, police and teachers.

If you would like to become involved with your local RoadWise Committee or would like further information about RoadWise, please telephone 9213 2066 or call your Local Government.

16.2. Information about vehicle movement around schools

Using the safest routes to schools

Parents, teachers and students have recently been involved in the school's Safe Routes to School Program by painting blue footprints and red and yellow stop smiley faces on the most commonly used footpaths leading to and from school. The Safe Routes to Schools Program aims to develop a safer environment for children to walk to and from school and also encourage more children to walk and cycle safely to school.

The blue footprints show the safest and quickest way to walk or cycle to school. The yellow and red stop smiley face at intersections have been placed at the safest crossing points on the safe routes and remind children to:

- STOP back from the kerb
- LOOK in all directions
- LISTEN for traffic
- THINK about when it safe to cross

We ask you to:

- be aware and supportive of the use of these designated safe routes with your children;
- avoid parking on footpaths or verges marked with the Follow me footsteps or safest crossing points which are identified with a Stop sign and a Smiley Face;
- remember that no child under the age of 10 should walk unsupervised to school.

School 40 km per hour zones

In 1997 Main Roads WA introduced a new speed zone applicable only to roads located around schools.

Today the 40km/h school zones are still in place and are working towards their aim of a reduction in road trauma for school aged children. The zones are applicable from 7.30am-9am and 2.30pm-4pm on school days and normal speeding penalties apply.

If you do speed you can expect a fine and the loss of demerit points. Please take care when driving around our school and observe the 40km/h limit for the safety of all children.

For more information please contact Main Roads WA on 138 138.

No stopping signs

No Stopping signs are located around our school to help your children stay safe. They mean that cars cannot park or drop off/pick up children at all or in some instances during the hours specified on the sign. It may seem convenient to park or stop in these areas but it may also endanger the lives of children, especially small children, who cross the road or walk through this area to school. This sign consists of a red 'S' in a circle with a line through it.

Double Parking

Double parking is unfortunately a problem that places the lives of our young children at unnecessary risk. Double-parked vehicles are visual obstructions for young children trying to cross to the other side of the road. They also place children getting in or out of the car at risk, as they must venture to the middle of the road to do so. Please refrain from double parking around our school and use the other safer parking options available to you.

Park on which side?

Many of us never give a second thought as to which side of the road we should drop off or collect our children. ***It is much safer for your children and other motorists if your children leave the car from the rear kerb side door.*** Your child will know this door as 'the safety door'. This stops children getting out of the car into oncoming traffic and reduces their risk of being injured. It is safer if you park on the school side of the road. Please take care not to park in the 'No Parking' and 'No Stopping' areas marked around our school as this places children at unnecessary risk.

Pick up areas

When picking up children in the afternoon, here are a few suggestions for you to help ease traffic congestion around our school.

- Pre arrange a pick up place with your children
- If possible, arrange to meet your children a little further away from the school
- Arrange to meet your children 5 to 10 minutes later than school finish time to avoid congestion.
- If this is not possible, then always attempt to park on the school side of the road to collect your children.
- Use the Kiss and Drive pick up area – if your child is not there, move through the area and go around the block
- Otherwise park your car further away and walk into the school ground to meet your children.

How does 'Kiss and Drive' and 'Stop and Chat' work?

We have recently installed some *Kiss and Drive* and *Stop and Chat* Bays along …….Street to help overcome the traffic congestion that occurs before and after school.

Kiss and Drive

In the morning:

- Move to the forward most bay in the Kiss and Drive area
- Ask your children to get out of the rear left hand side door (the safety door)
- Parents and carers must remain in the vehicle
- When children are clear of the vehicle, indicate and enter traffic flow.

In the afternoon

- Only enter the Kiss and Drive area if you can see your child is ready to be picked up
- Remain in the car with your engine running and handbrake on
- If you can not see your child, drive on around the school and rejoin the queue.

Stop and Chat

- For those parents/carers who need to park for extended periods of time before or after school, please park in these designated bays.

Please discuss with your children your most preferred pick up point.

Motorists and Guard Controlled Children's Crossings

When driving around schools, motorists need to be aware of children's crossing locations. When the orange Children Crossing flags are displayed, the crossing is in operation, and all drivers should be prepared to stop. Here are a few rules to adhere to:

- Look out for the advanced warning Children Crossing signs and flags.
- When you see the warden entering the road, you must prepare to stop your vehicle at the stop line just before the crossing.
- Remain stationary until all pedestrians and the warden are safely on the kerb or median.
- Do not overtake any other vehicle stopped at a Guard Controlled Children's Crossing.

For further information please contact Traffic Warden State Management Unit, Police Traffic and Operations on 9222 1922.

Disabled parking

We have disabled parking bays reserved near our school. Please do not park or stand in these bays if you do not have an ACROD sticker in your vehicle. Even dropping your children off in these bays can be inconvenient for those people who need to use these bays. Please be considerate when around these reserved bays for the safety and convenience of others.

School Holidays

School holidays are a time to relax and enjoy the break from school, however they are also a time when many children are injured on our roads. As parents we have a responsibility to ensure our children are properly supervised when on or near roads, car parks and driveways, as this is where many injuries and fatalities occur. Please keep watch over children during this time, as we want to see you and your family back after the break.

School Road Safety Reminder

As we embark on a new school term, it is important to remember the importance of some basic road safety rules around school. Please drive carefully remembering the 40km/h speed zones. Be mindful of children and their parents walking and cycling to school, as well as those students catching buses or waiting to be picked up by parents in vehicles. Schools can be very busy places at drop off and pick up time, and your courtesy and patience are appreciated.

16.3. Information about pedestrian and bus safety

Walking to school

While walking to school is encouraged for school children, here are some hints for parents to follow to ensure your children enjoy a safe trip to and from school every day:

- Where possible, walk to school with your children, especially if children are under the age of 10.
- Arrange for another adult or a group of older friends to walk with your children.
- Walk your children along the safest route to school and identify hazards and appropriate crossing locations along the way.

Crossing at a marked pedestrian crossing

Pedestrian Crossings are designated by road markings (either painted white lines or concrete centre islands) that warn motorists that a crossing is ahead, to take care and give way to pedestrians.

To use a crossing safely you must;

- Walk up to the crossing
- Stop
- Look
- Listen
- Think
- Keep looking and listening whilst crossing
- Do not run, ride or skate across

Crossing at a guard controlled children's crossing

Following are some simple steps to ensure you and your children use guard controlled children's crossings safely.

- When approaching a Guard Controlled Children's Crossing, stop back from the edge of the kerb.
- Wait for the attendant to blow the whistle for you to cross.
- Keep your eyes on the traffic and warden whilst crossing.
- If you are on a bike, skateboard or scooter get off the vehicle and wheel/carry it across the road.

Safer playing areas

Most of us know that children will play anywhere at any time. However there are places where children should be discouraged from playing. Playing in driveways, car parks and even local cul-de-sacs should be strongly discouraged as these have all been designed for vehicle movement, not as child play areas. Suggest that your children play in the back yard, in a local park or skateboard facility instead.

Picking up your children from the bus stop

When picking up children at their bus stop, there are a few tips for you to follow to get your children home safely.

- Park your car on the same side of the road as the bus stop.
- If you are not driving or cannot park your car on the same side as the bus stop, ensure you wait for your child at the bus stop and accompany them across the road.
- Encourage your children to get off the bus, take five steps away from the road and wave goodbye to the driver as a signal they have alighted safely.
- If required, always cross the road with your child ***after*** the bus has driven away.

Dropping your children off at their bus stop

Below are some hints for dropping your children off safely at their bus stop:

- Always arrange for an adult to accompany your child to the bus stop.
- Always drop your children off on the same side of the road as the bus stop.
- Encourage your child to wait quietly for the bus and to refrain from playing games or with toys by the side of the road.

Getting off the bus

It is extremely important that children are taught how to get off a bus safely to avoid confusion for the driver. Small children can be very hard for the driver to see, and often cross the road in front of the bus, without the driver seeing them. Here are some tips for your children:

- Get off the bus once it has stopped moving.
- Take 5 steps away from the bus.
- Wave goodbye to the driver.
- Wait away from the bus for the bus to leave – then find a safe place to cross the road.

Bus Rules – O.K.!!

Bus safety is extremely important and your child should be aware of how to travel safely on buses. All children catch a bus, either to or from school or on excursions. The following are good tips to remind your children about bus travel:

- Always sit quietly on the bus.
- Do not distract the driver.
- Do not put any part of your body outside the bus windows.
- Stay seated.
- Place schoolbags etc. out of other people's way.

Road Trains

Road trains can weigh up to 170 tonnes or the same amount as 113 cars and therefore can take more time to stop. This is why our children need to take special care when road trains are passing. The following are some tips to give to your children:

- Stand well back from the side of the road if a road train is passing to avoid the wind draught.
- If you are riding your bike, get off your bike and wheel it off the road to avoid the wind draught.
- Allow plenty of time for a road train to pass.
- Always look for cars behind the road train before crossing.

For further information please contact Main Roads Heavy Vehicle Section on 9311 8450.

Crossing at railway lines

Do your children have to cross a railway line to get to school? The following tips will help you and your children reach school safely:

- Only ever cross at designated crossing points
- Obey all warning bells, signs and boom gates
- Wait until the boom gate has risen and the bells and lights stopped before crossing.

Ask your children if they know these rules, and if not, take them out to the nearest railway crossing and demonstrate the correct way to use the crossing.

Where to walk on gravel roads

If there is no footpath along a gravel road that your children use often, the following tips may be useful for them to ensure they get home safely.

- Always walk in together away from the edge of the road.
- Walk on the right hand side of the road to face any oncoming traffic.
- The adult or older child should walk closest to the road.
- Always keep your eyes and ears open for approaching traffic.

Crossing between parked cars

Crossing the road between parked cars is not recommended. The potential for danger of being hit by a car whilst crossing between parked cars is enormous. Drivers cannot always see pedestrians (particularly small children) waiting to cross the road. Parents and children should plan their route to and from school to allow them to cross roads at the safest possible locations such as school crossings, pedestrian islands or traffic lights with pedestrian phasings.

School Crossings – general

For the safety of children and parents across Western Australia, Children's Crossings have been installed at over 465 locations. Pedestrians and motorists alike share responsibility for using the crossing appropriately:

- Pedestrians must wait one metre back from the crossing and wait for two short blasts of the whistle to cross.
- When crossing, all pedestrians are required to cross in front of the traffic warden and keep to the left.
- Motorists must not park or stop in the area 20 metres before and 10 metres after the school crossing.

For further information, please contact Traffic Warden State Management Unit, Police Traffic and Operations on 9222 1917.

16.4. Safety on wheels information

Cycling to school

Road safety experts recommend that children under the age of 10 should not be cycling to and from school unaccompanied. Here are some tips for you to ensure your children get to and from school safely every day:

- Cycle to school with your children
- Arrange for another adult to cycle to school with your child
- Encourage your child to ride with older children.

- Children under 12 years can legally ride on footpaths, which is a safer option. Cyclists must give way to pedestrians
- Always make sure that your child is wearing an approved helmet that is fitted correctly.

Bicycle Helmets

In 2001, one third of cyclists seriously injured were not wearing a helmet at the time of the crash. Studies show helmet use decreases the risk of head injury by 85% and brain injury by 88%. The following will help to ensure your children are adequately protected:

- Adults and children alike must wear approved bike helmets when cycling.
- The helmet should fit the child's head securely, without being too tight or too loose.
- A helmet should not be worn if it has been previously involved in a crash or fall.
- The outer shell of the helmet should not be cracked or broken.
- The polystyrene foam lining should be uncracked and should not be able to be depressed with a finger.
- It is also important to adjust the straps and buckles to assist with comfort.
- All helmets bought must carry the Australian StandardsMark™ AS2063.2 and logo.

Bicycle maintenance

A bike is just like a motor vehicle and should be constantly maintained to ensure it will perform as designed whilst riding. Below are some of the things you and your children should check regularly:

- Make sure brakes are working by trying to wheel the bike forward whilst activating the brake.
- Check that wheel nuts are not loose.
- Check tyres for pressure and wear.
- Check that pedals turn smoothly and are not broken.
- Ensure the bike has wheel and pedal reflectors and a rear red reflector.
- Check that the chain works smoothly and is free of grease.

If you have any concerns with your child's bike, please see your local police or bike shop.

Bicycle Statistics

In Western Australia during 2000, there were two bicycle fatalities recorded and 749 hospitalisations as a result of bicycle injuries. It is interesting to note that both fatalities and an enormous 80% of the bicycle hospitalisations were males.

These numbers are a huge improvement on the previous five years. Some of this reduction can be attributed to the increase in shared paths and on-road cycling lanes, bicycle helmet legislation and education of children about bike safety.

Cycling on gravel roads

Cycling on gravel and unsealed roads can be made safer by following these helpful hints:

- Don't ride narrow tyred bicycles on loose surfaces.
- Avoid riding along ridges and hollows in the road or path.
- Try to avoid turning sharply on loose surfaces.

- Concentrate on the road surface ahead, ride at lower speeds and avoid rapid braking.
- Always wear a helmet and, where practicable, wear clothes that protect the arms and legs in the event of a fall and closed-in shoes.

Bike, skateboard and scooters – where can they play?

For most children riding on their bike, skateboard or scooter with their friends is a great past time. Quiet streets and driveways have been popular choices in the past, but these are designed for cars, not as play areas. Here are some places you can suggest your children play on their bikes, skateboards and scooters:

- Backyard
- Oval or park
- Bike training tracks/facilities
- Bike paths.

Rollerblades, skateboards, scooters

Under the Road Traffic Code 2000, scooters, skateboards and rollerblades when being used are not permitted:

- On a carriageway with a dividing line or median strip.
- On a one-way carriageway with more than one marked lane.
- On a carriageway with a speed limit exceeding 60km/h.
- On a carriageway during the hours of darkness.

16.5. General road safety information

What's your rush?

One of the most common contributing factors in fatal and serious car crashes is speed. Speeding not only puts *you* at risk, but also endangers the life of your passengers, other motorists, pedestrians, your car and your wallet.

Figures show that speed was a factor in 35% of fatal crashes in Western Australia during 2001; with more speed related fatal crashes occurring in rural Western Australia. Remember, every 5km/h makes a difference.

Drink Driving

Alcohol and driving do not mix. In 2000, 35% of all fatal crashes that occurred had at least one driver (or rider) involved in the crash with a BAC of over 0.05%.

Even small amounts of alcohol can affect your reaction time, stopping distances, can impair your vision and severely affect your coordination.

Remember some hangovers last a lifetime.

For more information, please contact RoadWise on 9213 2066.

First Aid

It is most important that you establish some rules with your children if they are ever the first on the scene of a road trauma.

- Always make sure ***you*** will not be in danger before you offer help.
- Make sure the injured person is away from any danger (e.g. help to protect them from further injury).
- Always get an adult to help straight away.

- Call an ambulance if necessary.
- Stay with the injured person until an adult arrives to help you.

All children should be taught the basics of first aid. For more information please contact the Australian Red Cross on 9325 5111, your local St Johns Ambulance Sub-Branch or the Road Trauma Counselling Service on 131114.

Child Restraints

Every person travelling in a motor vehicle must use an appropriate approved restraint.

Penalties apply for drivers carrying an illegally unrestrained child passenger under 16 years in their vehicle.

Selecting an appropriate child car restraint

Child car restraints offer crash protection appropriate for the weight and height of the child. **Age is not an indicator for changing the type of restraint**. The following is a guide. Always check the restraint manufacturers guide for exact weights.

- **Birth to 9kg – Rearward Facing Restraint**

- **8kg-18kg – Forward Facing Restraint**

- **14kg to 26 kg – Booster seat with a lap sash belt or child harness**
  As a general rule it is safer to use a rigid booster seat with a back, side wings and sash guide to keep the belt in place. Once a child's eyes are level with the top of the booster seat, it no longer provides protection for the child's head and neck and the child should be moved to a child harness without a booster.

- **14kg to 32 kg – Child harness**

- **32kg + - Adult seatbelt**
  When using lap sash belts it is important to tighten the belt and remove the slack. A lap sash belt offers more protection than a lap only belt. A harness is recommended.

Braking Distances

To ensure you have enough stopping distance between you and the car in front under ideal conditions, it is recommended you leave at least a 2-second gap. To estimate this:

- Pick a stationary object that will soon be passed by the vehicle ahead of you.
- Once that vehicle passes the object, count two full seconds.
- It should take at least 2 seconds for you to reach that same object.
- When roads are wet it's a good idea to keep a four second gap behind the car in front.

Riding in the open space of utes and trucks

Travelling as a passenger in the open load space (on the back of utes, trucks etc) is extremely dangerous. The risk of death or serious injury is much greater than to passengers correctly restrained inside a vehicle.

Regulations were introduced in Western Australia in January 2006 which made it illegal to carry passengers in the open load space of a vehicle, whether a rollover protection device is fitted or not.

Parents influence on kid's future driving

New research being conducted by road safety experts suggests that children begin to develop their road safety behaviours and attitudes as young as three and four years of age. Most parents know that children are very keen to learn at this age, but may not consider that their driving habits now, may influence their child's attitudes and behaviours towards road safety in the future. Next time you get in the car, think about practising appropriate road safety behaviours and encourage your children, however old, to do the same.

For more information, please contact School Drug Education and Road Aware Program on 9264 4743.

Driving on gravel roads

Below are some tips for driving on gravel roads:

- Always drive to the conditions at the time.
- Don't brake excessively.
- Don't make sudden steering changes.
- Stay a reasonable distance behind another vehicle to avoid dust and stones.
- Be careful of soft verges in winter.
- Ensure you fill your windscreen washer bottle to allow you to regularly clean your windscreen.

Fatigue

Fatigue, often dubbed the hidden killer, is a major problem on our roads. Fatigue has earned this name because we often do not know that we are tired until it is too late.

To help avoid fatigue on long trips you can:

- Have a good night sleep before travelling
- Start your trip early in the morning
- Don't travel more than 8 hrs in one day
- Take breaks at least every two hours
- Share the driving
- Don't drink any alcohol before, or during the trip
- Drink plenty of fluids.

50km/h Speed limit on local streets

Up to a third of all fatalities and serious crashes in WA happen on local residential streets. Research shows a lower speed limit in built-up areas will save lives and reduce injury from road trauma.

In December 2001 a new default speed limit of 50km/h in built–up areas was introduced in WA. Local streets are the smaller roads in built-up areas that carry neighbourhood traffic, or give direct property access. Remember, unless otherwise signed the speed limit on local streets is 50km/h.

Road Condition Report Number – 1800 013 314

After heavy rains many roads (especially gravel roads) are closed by local Councils or Main Roads WA. This is to stop the road surface from being needlessly damaged.

Before heading off on your trip, take a minute to call the Main Roads WA road condition report number above - it's free. This will ensure that you do not have a stressful trip and inadvertently damage our roads.

17. Appendix 4: Useful road safety agencies and websites

Agency	Contact details	Information available
Western Australian Local Government Association (RoadWise Program)	9213 2066 roadwise@walga.asn.au www.roadwise.asn.au	Provides: • assistance in the coordination of road safety efforts at local and regional levels. • facilitation of community participation in road safety. • information on the Type 1 Child Car restraints fitting service. • administration of the Community Road Safety Grants Program.
State Traffic Coordination and Enforcement Division	9222 1922 traffic.warden.state.management.unit@police.wa.gov.au	Branch of WA Police Service that coordinates traffic wardens and children's crossing requests.
Main Roads WA – Traffic and Safety Section	138 138 www.mainroads.wa.gov.au	Branch that coordinates the installation of 40km school zone signs and replacement of damaged road signs.
TravelSmart (Department for Planning and Infrastructure)	9216 8306 www.dpi.wa.gov.au	Program encouraging primary and secondary students to reduce their car dependency, thereby increasing physical activity. Includes the Walking School Bus initiative.
Public Transport Authority	9326 3970 www.pta.wa.gov.au	DVD, education resource and presentation on all facets of public transport including how to travel safely and responsibly.

Australian Red Cross	9325 5111	First aid courses, poster, videos and display materials.
St John Ambulance	9334 1222	First aid courses and information.
Health Promotion Centre (Edith Cowan University)	9273 8207	Research on a range of road safety issues e.g. child pedestrian safety, school bike safety, and role of parents in road safety.
Injury Control Council of WA	9420 7212 iccwa@iccwa.org.au www.iccwa.org.au	Injury fact sheets available on the web site. The Council advocates to effectively reduce the incidence and severity of injury in WA. It highlights physical, mental, social and economic issues that result from injury.
School Drug Education and Road Aware	9264 4743 www.sdera.wa.edu.au sdera@det.wa.edu.au	Provides • Road safety education resources including *Challenges and Choices* for early and middle childhood and early adolescent students • Professional development for school staff • Support for schools and community throughout the State

Australian based websites	Interactive	For children	For parents	For teachers
www.sdera.wa.edu.au Information for parents and teachers on road safety. Interactive site for kids to use at home and school.	✓	✓	✓	✓
www.kidsandtraffic.mq.edu.au Information for parents and teachers on road safety including resources, fact sheets, information for families, FAQS and useful links.			✓	✓
www.transperth.wa.gov.au Interactive web-based resource covering the use of bus transport in Western Australia. Contact details and timetable information also available	✓	✓	✓	✓
www.giddygoanna.org Resources covering a variety of safety issues for parents and teachers to order.	✓		✓	✓
www.kidsafewa.com.au Fact sheets covering a variety of safety issues including road safety.	✓	✓	✓	✓
www.constablecare.org.au Information on the Constable Care Child Safety Program including the road safety puppet theatre. Interactive online activities, puzzles and colouring sheets. Information for parents and teachers. Primary school students can enter in their own “Constable Care” safety messages to be published in the West Australian newspaper.	✓	✓	✓	✓
www.abc.net.au/children/play/grownup/prognot/series85htm Information for teachers about teaching younger children up to pre-primary age about road safety. Suggested activities, books and songs.				✓
www.roadsafety.net Interactive web-based resource covering all issues of road safety including games for children and fact sheets for parents/teachers.	✓	✓	✓	✓
www.officeofroadsafety.wa.gov.au Fact sheets on road safety issues.	✓		✓	✓
International based websites	**Interactive**	**For children**	**For parents**	**For teachers**
www.roadsense.co.nz Interactive web-based resource covering road safety issues for New Zealand primary schools.	✓	✓	✓	✓
www.bmweducation.co.uk Interactive web-based resource covering road safety issues for UK primary schools.	✓	✓	✓	✓
www.aap.org/family/bicycle.htm Information about use of bicycles and encouraging children to wear helmets. Minimal games for older primary school children.			✓	✓

18. Appendix 5: Safe Routes to Schools templates

19. Appendix 6: References

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19.1. Websites

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www.nrma.com.au/reversing

www.maa.nsw.gov.au/campaigns

www.kidsafewa.com.au/factsheets/Safety_in_the_Driveway_SGIO_2003.pdf

www.atsb.gov.au/road/stats/pdf/mrf032005.pdf (ATSB Road Deaths Bulletin March 2005)

www.kidsafewa.com.au/factsheets/Bicycles%20&%20Helmets.pdf (Kidsafe WA, Bicycle and helmet safety, 2003)

www.kidsafewa.com.au/factsheets/Skateboarding%20Rollerblading%20&%20Rollerskating.pdf (Kidsafe WA, Skateboarding, roller blading and roller skating, 2003)

www.roadwise.asn.au (RoadWise, Western Australian Local Government Association)