

Guidelines for Road Safety Around Schools



Local Government
Edition



SPEED AND RED LIGHT
CAMERA FUNDED PROJECT



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The WA Local Government Association extends thanks to the author of this publication, Peter Metropolis, Metropolis & Associates Pty Ltd.



2. Acknowledgements

The assistance of many people who helped with the preparation of these guidelines is acknowledged.

The author, Peter Metropolis would like to thank:

- David Harris (IPWEA)
- Brad Harris (City of Gosnells)
- 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)
- Kim Chute (Department of Education and Training)
- Terri-Anne Pettet (WA Local Government Association)
- Elizabeth Kelly (WA Local Government Association)
- Richard Bloor (Department of Education and Training)

The WA Local Government Association would like to acknowledge the following organisations for reviewing the text included in this publication:

- Main Roads WA
- 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 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 schools¹ and a review of guidelines, policies and procedures for road safety at new and existing schools². 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.

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>	
<ul style="list-style-type: none"> 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 <i>Road Traffic Code 2000</i>) 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.
<ul style="list-style-type: none"> 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 <i>Road Traffic Act 1974</i>) and Main Roads WA for installing crossing markings and signs (regulation 297 of the <i>Road Traffic Code 2000</i>).
<ul style="list-style-type: none"> 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 <i>Road Traffic Code 2000</i>). 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>	
<ul style="list-style-type: none"> Road widening, resurfacing, medians, pedestrian refuge islands, pedestrian bridges and subways, driveways (approvals) 	Main Roads WA (<i>Main Roads Act 1930</i>).
<ul style="list-style-type: none"> Parking signs (any restrictions on parking or permissive parking) 	Main Roads WA (<i>Road Traffic Code 2000</i> regulation 297) albeit that in rural towns on main roads and highways, Local Government may have been delegated the responsibility by Main Roads WA.
<ul style="list-style-type: none"> Bus stops 	Main Roads WA in conjunction with Local Government and the Department for Planning and Infrastructure (<i>Road Traffic Code 2000</i> regulation 297).
<ul style="list-style-type: none"> Street lighting 	Main Roads WA in conjunction with Local Government (<i>Main Roads Act 1930</i>)
<u>Local Roads</u>	
<ul style="list-style-type: none"> Road widening, resurfacing, medians, pedestrian islands, 	Local Government (<i>Local Government Act 1995</i>)

Road Next to School	Responsibility and Legislation
pedestrian bridges and subways, driveways	
<ul style="list-style-type: none"> 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).
<ul style="list-style-type: none"> Parking signs (any restrictions on parking or permissive parking) 	Local Government where they have adopted a Local Law under the <i>Local Government Act 1995</i> 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).
<ul style="list-style-type: none"> Bus stops 	Same as for parking signs (above). Location determined in association with Department for Planning & Infrastructure.
<ul style="list-style-type: none"> Street lighting 	Local Government (<i>Local Government Act 1995</i>) 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 <i>Road Traffic Act 1974</i>).
<ul style="list-style-type: none"> 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)
- Serpentine/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



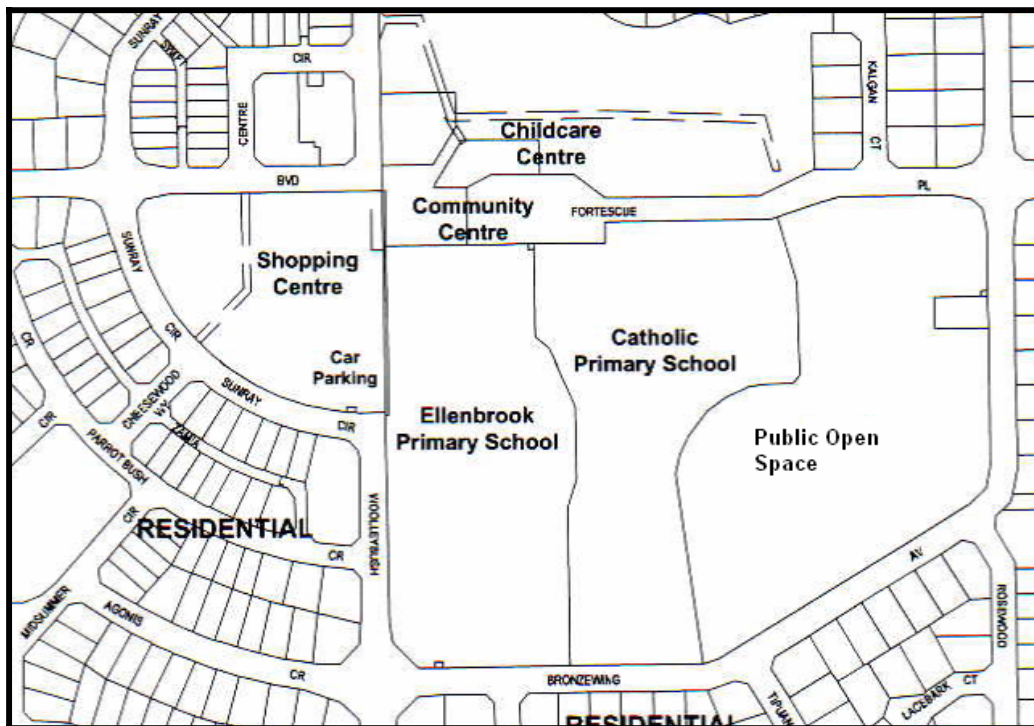
Photograph 8: Embayed parking



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)

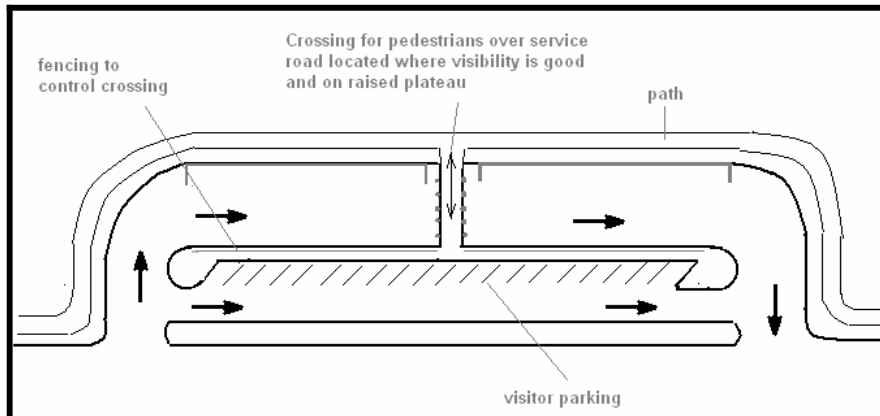


Photograph 12: Off-road parking



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)



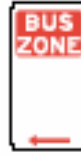
Bus Facilities

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.

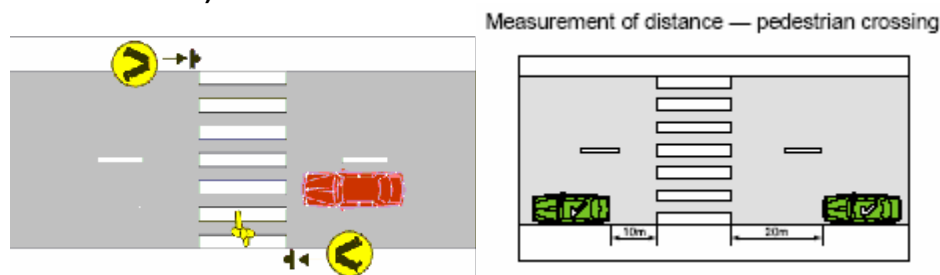
Photograph 15: Marked foot crossing



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



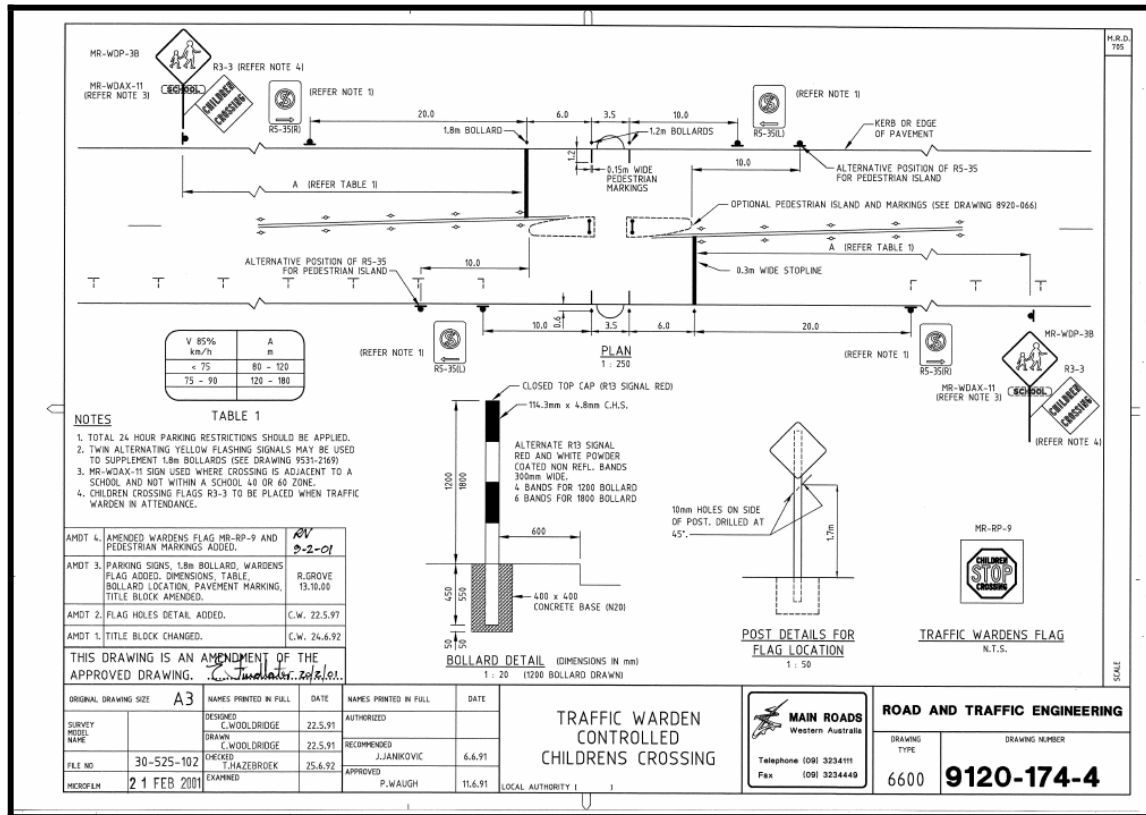
Photograph 16: Children's Crossing Warning Signs (with flags installed by the warden)



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 Funds⁶.

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.

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 review⁷ 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 routes 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Advise parents/caters 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	<p>Vehicles parking illegally (double parking, parking on paths, across driveways, pedestrian ways, or contrary to signs)</p> <p>Vehicles parking on the nature strip or parking on side opposite to school and allowing children to cross road</p> <p>Visitor parking inadequate</p>	<ul style="list-style-type: none"> • 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. • 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 <i>No Parking on Nature Strip</i> signs or <i>No Stopping</i> signs where stopping is not appropriate on the road. • 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. • Education through school newsletter.
Paths	<p>Pedestrians obstructing</p> <p>Damaged</p>	<ul style="list-style-type: none"> • Repair path. • Schedule maintenance checks.
Intersection	<p>Traffic queues</p> <p>Poor sight distance</p> <p>Pedestrian safety problem</p> <p>Vehicle crashes</p> <p>No ramps for pram/wheelchair access</p>	<ul style="list-style-type: none"> • 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. • Install if local road or refer to Main Roads WA if Main Road or Highway.

Issue	Problems	Possible Solutions
Bicycles	<p>Children not wearing helmets, riding incorrectly/dinking</p> <p>Bicycle parking racks not available at school</p> <p>Bicycles badly maintained</p> <p>Bicycles using road rather than paths</p>	<ul style="list-style-type: none"> • Advise school Principal. • Advise parents/carers through school newsletter of benefits of wearing helmets. • Advise school principal. • Examine options to install <i>shared path</i> in context of Safe Routes to School Program.
Bus	<p>Bus stop in dangerous place, requires relocation/modification</p>	<ul style="list-style-type: none"> • 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	<p>Failure to wear seatbelts, inappropriate behaviours leaning out of windows</p>	<ul style="list-style-type: none"> • Police enforcement
Road surface	<p>Alighting road-side</p>	<ul style="list-style-type: none"> • Advise parents/carers through school newsletter of dangers.
Road markings	<p>Pot holed / cracked surface</p> <p>Inadequate or faded road markings, broken reflective markers</p>	<ul style="list-style-type: none"> • Maintenance issue – schedule repair and regular checks. • Advise Main Roads WA.
Advertising sign	<p>Obscuring visibility/obstructing</p>	<ul style="list-style-type: none"> • 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_a_dvert
Trees and shrubs	<p>Obscuring visibility</p>	<ul style="list-style-type: none"> • Remove/prune if on nature strip or median. • Contact Principal if on school land.
Heavy vehicles	<p>Inordinate use of road</p>	<ul style="list-style-type: none"> • Undertake area counts and liaise with Main Roads WA on options



Issue	Problems	Possible Solutions
<p>Pedestrians</p>	<p>Children not using crossings Concern with closeness of traffic and older pedestrians</p>	<ul style="list-style-type: none"> • 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
<p>Traffic-control signals</p>	<p>Faulty Long queues Pedestrian demand high (WALK lights required)</p>	<ul style="list-style-type: none"> • Contact Main Roads WA (Attachment 1).

12. Attachment 1

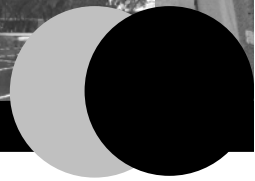
12.1. Contact Details

**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 Koorengewel	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 Kostadinovski	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/roadsid_e_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/>

Austrroads

Home page: <http://www.austrroads.com.au/>

Publications: <http://www.onlinepublications.austrroads.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)