



Guidelines

on the provisions for all path users at roadwork sites in built-up areas



Government of
Western Australia



mainroads
WESTERN AUSTRALIA

Guidelines

On the provisions for all path users at roadwork sites in built up areas

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preface

This set of guidelines has been prepared to provide guidance for personnel engaged in roadworks in built-up areas. It is applicable to both short-term and long-term works on all types of urban roads other than freeways. It should be used primarily as a field reference guide.

The guidelines have been prepared to cover the specific issue of providing for all path users at roadwork sites in built-up areas. It contains only those areas of AS 1742.3¹ and Austroads publications that are considered to apply to this issue.

The guidelines are not intended to supersede, but rather to complement AS 1742.3. Where matters could be interpreted differently from that Standard, it is intended that the Standard specification, recommendation or interpretation should prevail.

¹ AS 1742.3 – Traffic control for works on roads (2009)

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1 Introduction

Roadworks are essential tasks. However, they can create potential hazards, not just for road users but also for path users, that may result in injury or damage.

The term path user encompasses a wide range of people including cyclists and a variety of pedestrians such as the elderly and people with disabilities. The safety of path users must be upheld at all times, and any party who undertakes work on a site that is accessible by the general public has a duty of care to make provisions that are reasonably necessary to prevent any sort of injury or damage.

This document provides guidelines that should be applied in accordance with Australian Standards to ensure that the provisions of temporary detour facilities at roadwork sites in built-up areas fully cater for all path users.

Main Roads Western Australia seeks to ensure that:

All provisions of temporary detour facilities at work sites in built-up areas must fully cater for all path users.

Information

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2 Traffic Management Plans

Parties undertaking roadworks must prepare a Traffic Management Plan (TMP), and this plan must adequately provide for the safety of workers, road users and all path users. Included in a TMP are the details of the project and Traffic Control Diagrams, which are prepared in accordance with AS 1742.3 and guidelines available from MRWA.

Where path user facilities in built-up areas are affected by roadworks, the TMP must clearly indicate the provisions that will be made for all path users.

When planning for the safe passage of path users in the vicinity of work sites, the following points should be noted:

- All potential path users must be considered in the planning.
- Path users should not be led into the path of work site vehicles and equipment or other vehicles moving through or around the site.
- Path users should be provided with a safe, accessible path that adequately replicates the original path, for the entire duration of the roadworks.
- Path users must be fully aware that the changes to the original path of travel have been made, and for how long the changes will be in effect.
- **References:**
 - MRWA Traffic Management for Works on Roads Code of Practice.
 - Australian Standard AS 1742.3.
 - Austroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths



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3 Surfacing

Important points to consider from AS 1742.3, in regard to surfacing, include:

- Where pedestrians including people with disabilities have to move through, past or around a work site or to cross the road within a work site, they shall be provided with and directed to suitably constructed and protected temporary footpaths and crossing points, or formal pedestrian crossings, or refuges if warranted. (clause 2.3.7)
- Surfacing shall provide for prams, strollers and wheelchairs, and for the visually impaired. (clause 2.3.8 (b))
- Crossings shall be located as near as practicable to established pedestrian routes, and shall be to the same standard with regards to width and surface smoothness as the crossings they replace, including provisions for the visually impaired. (clause 2.3.8 (d))

In addition, any temporary pathway must be maintained for the entire duration of the roadworks. The surface should be smooth, hard, free of loose materials, and remain intact with the passing of wheeled devices such as wheelchairs and bicycles. Temporary hoses or cables that run across paths should be placed at right angles to the path, to minimise the risk to people using wheeled devices. Extremely thick cables that could be a hazard to path users should be protected by a smoothly ramped, solid cover treatment.

After the completion of the works, the affected paths must be returned to pre-construction condition or better.

3.1 Short-Term Roadworks

Short-term roadworks can have a duration of up to a single work shift. It is important that any detour or temporary path through or around a work site should cater for all path users.

Detours on grass or compacted sand around the work site may be used for one day with appropriate signage. Where this is the case in a built-up area, a member of the work crew should be assigned to keeping the detour clear and assisting path users where necessary. Hard surface detours, such as the

examples given in the following section, should be provided for long-term works.

3.2 Long-Term Roadworks

In the case of long-term roadworks in built-up areas that may affect path user movement for several weeks, any temporary path should be of the same standard as a permanent path. The temporary path should be sealed, paved or concreted and swept regularly to get rid of any loose materials.

Austrroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths gives information on the requirements for designing paths. This includes details with regard to dimensions, surfacing requirements, and providing an obstruction-free pathway.

In regard to surfacing, Austrroads recommends:

- Surface treatments should be stable, firm, even, relatively smooth but slip resistant.
- Where concrete or pavers are used, joints must be flush and gaps should not exceed 13mm.
- A gradient of 1:10 should not be exceeded. Australian Standards 1428.1 quotes an absolute maximum gradient of 1:8.
- Concrete surfaces should be brushed perpendicular to the direction of movement to provide increased coefficient of friction.
- Avoid the use of exposed aggregate, gravel, soil, sand, grass and tanbark surfacing on pedestrian routes, other than recreational routes.

Compacted sand or limestone is not a suitable temporary surface unless it is compacted regularly and maintained for the duration of the roadworks. This surface could possibly be used in conjunction with a physical assistant who is always on site to assist path users that require help to navigate through or around the roadworks.

Another option for a temporary pathway involves using roll-out geotextile or rubberised surfaces. Where these are used, care must be taken to ensure that interlocking joints are flush and that no gaps are present. These surfaces must also be usable in all weather conditions. This includes wet weather and extreme heat. In wet weather, the surface should not become too slippery, and in the heat, the surface

should not become too hot for pedestrians or guide dogs to walk on. Therefore, a lightly coloured (nonslip) surface is preferable to a black or very dark surface. This type of surface would be acceptable for both short and long-term works.

References:

Australian Standard AS 1742.3

Austrorads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths



Cantilever Sign A



Temporary Path Surface A

4 Dimensions

Where possible, the width of the detour should be of the same width as the original path.

Austrorads suggests that a general minimum width of 1.2m is required for one-way travel of both wheelchairs and bicycles.

A width of 2m should be the minimum for two-way travel. If there is frequent and concurrent use of the path in both directions by cyclists and pedestrians, the overall width of the path should be at least 3m.



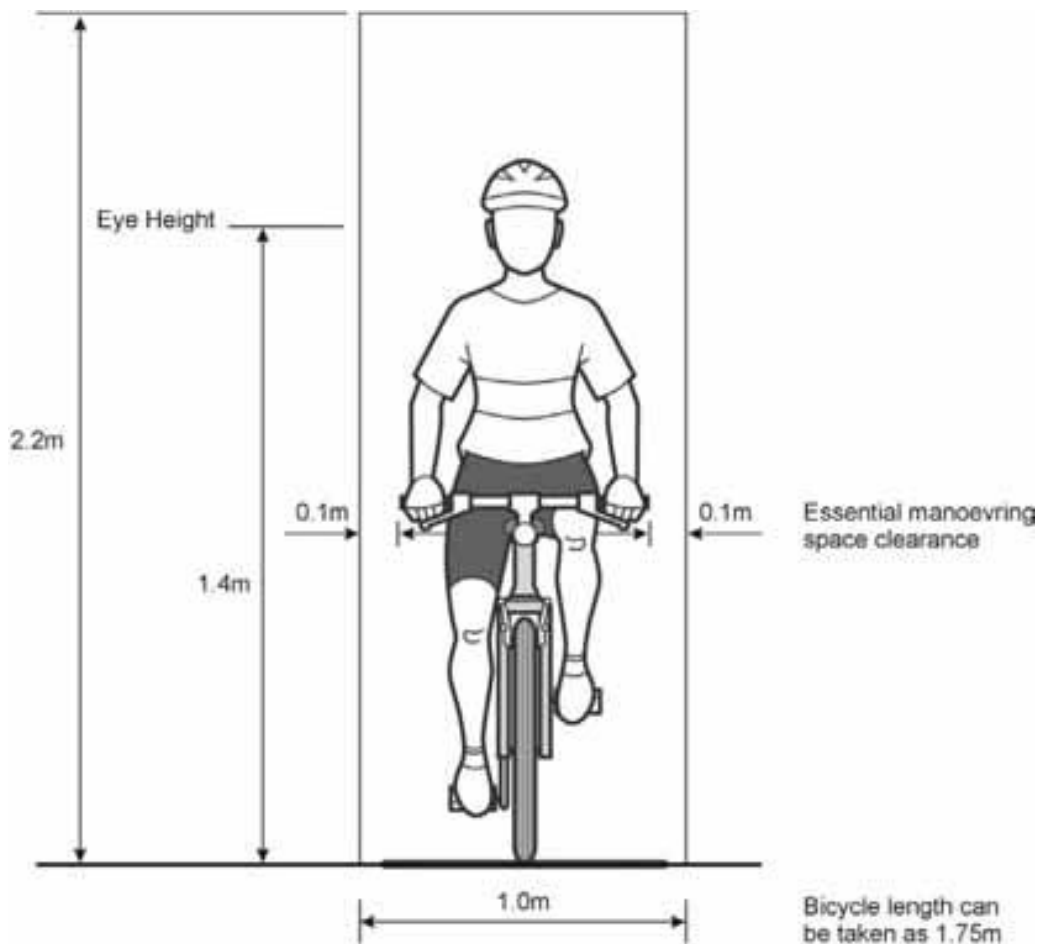
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Height dimensions are defined by requirements for the provision of adequate clearances above the human body height range for the Australian population. A minimum clearance of 2m above the trafficable surface is adopted by Australian Standards, with 2.4m being the preferred clearance.

References:

Australian Standard AS 1742.3.
Austroads Guide to Road Design
Part 6A: Pedestrian and Cycle Paths.



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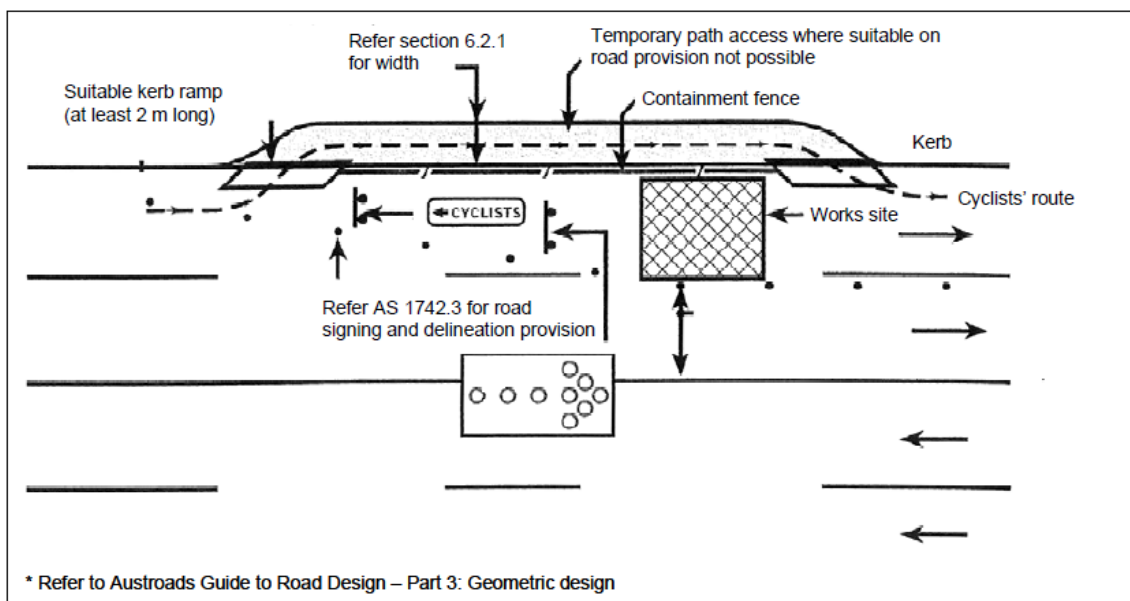
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5 Signage

Consideration should be made to separate the movements of path users from both road users and work site activity. In regard to bicycles and other wheeled devices such as wheelchairs and scooters, reference should be made to Appendix B of Austroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths. Figures B-3, B-4 and B-5 highlight the desired level of provision required in the vicinity of works, depending on the circumstances.

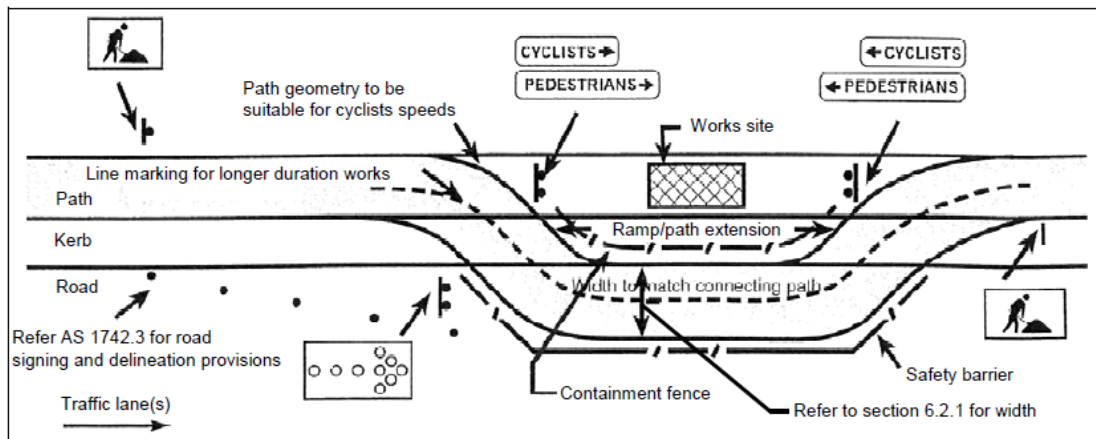
Reference should be made to AS 1742.3 in regard to the condition and positioning of signs and devices at work sites. The following should be noted:

- Signs shall be properly displayed, unobscured and securely mounted, before the commencement of any work.
- Signs should not become a possible hazard themselves or direct users into wrong or dangerous paths



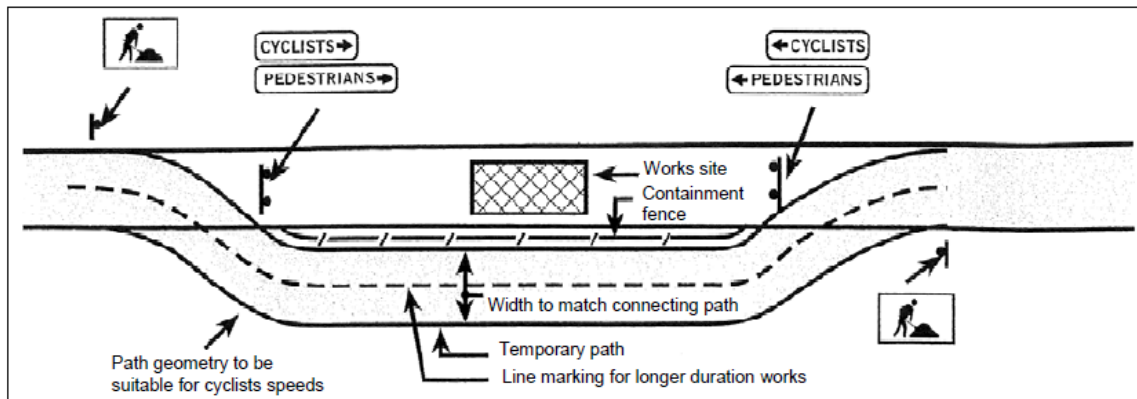
Source: Based on Austroads (1999).

Figure B 3: Works on roads – exclusive bicycle path diversion



Source: Based on Austroads (1999).

Figure B 4: Works on paths adjacent roads – shared use path diversion



Source: Austroads (1999).

Figure B 5: Works on paths – shared use path diversion

- Signs should be placed at least 1m clear of the travelled path.
- Signs shall be regularly checked and maintained.
- Signs shall be removed as soon as practicable after all work is completed.

Signs for work site approaches are given in section 3.4 of AS 1742.3, and signs that are available for pedestrian control are given in section 3.14 and in the Traffic Management for Works on Roads Code of Practice. A listing of these signs and others that may be used around work sites to warn and direct path users is given in Appendix A of this document. Care must be taken to ensure that the signs themselves do not encroach on the temporary pathway, thus leaving adequate room for bicycles, wheelchairs and scooters.

The signs should also cater for all path users in regard to their readability. Signs should be clear and include text, arrows and pictures for those users that cannot read English, or those that cannot read at all. They should be clean and consist of reflective material with a colour contrast for people with vision impairment. In the case of long-term roadworks, the signs should be more permanently mounted on posts in the ground, to ensure that they are not moved and do not obstruct the path.

References:

Traffic Management for Works on Roads Code of Practice
 Australian Standard AS 1742.3.
 Austroads Guide to Road Design
 Part 6A: Pedestrian and Cyclist Paths

6 Fencing

Barriers and fencing should be used in all situations where there is a serious hazard adjacent to a pedestrian or cyclist facility. Any temporary detour in the vicinity of roadworks should be delineated by fencing where necessary. Fencing should be provided at detour ends and intermediate access locations, and maintained daily for the duration of the works.

AS 1742.3 states:

- Barricades or mesh fence may be used to control pedestrian movements at a work site.
- Where pedestrian traffic has been diverted onto an existing roadway, a safety barrier may be required (clause 3.10.3). Barrier boards or tapes shall not be used for pedestrian containment adjacent to moving traffic.
- Where pedestrian traffic has been diverted onto an existing roadway the pedestrian path may be separated from vehicular traffic by a mesh fence, provided that – (i) the clearance to the delineated edge of the traffic lane is at least 1.2m and the speed limit is 60km/hr or less; or (ii) the clearance to the delineated edge of the traffic lane is less than 1.2m and the speed limit is 40km/hr or less. (clause 2.3.8 (a))

In addition, the temporary pathways should provide the following provisions:

- Obstructions and hazards are well guarded.
- Adequate lighting of the site at night.
- Continuous barriers to define the temporary route.
- Solid barriers at low level for people with vision impairment.
- Free standing handrails with a rigid bar close to walkway.

Excavations and other severe work site hazards should be guarded by more than just a flexible tape, rope or mesh fence. The fencing used must be sufficient to contain errant cyclists and pedestrians. Flexible fencing is often unsuitable for cyclists and people with a vision impairment, as it can be hard to detect and can trap walking canes and bicycle pedals. Therefore, solid, continuous fencing should be used on all temporary detour facilities.

References:

Australian Standard AS 1742.3.

Austrroads Guide to Road Design –

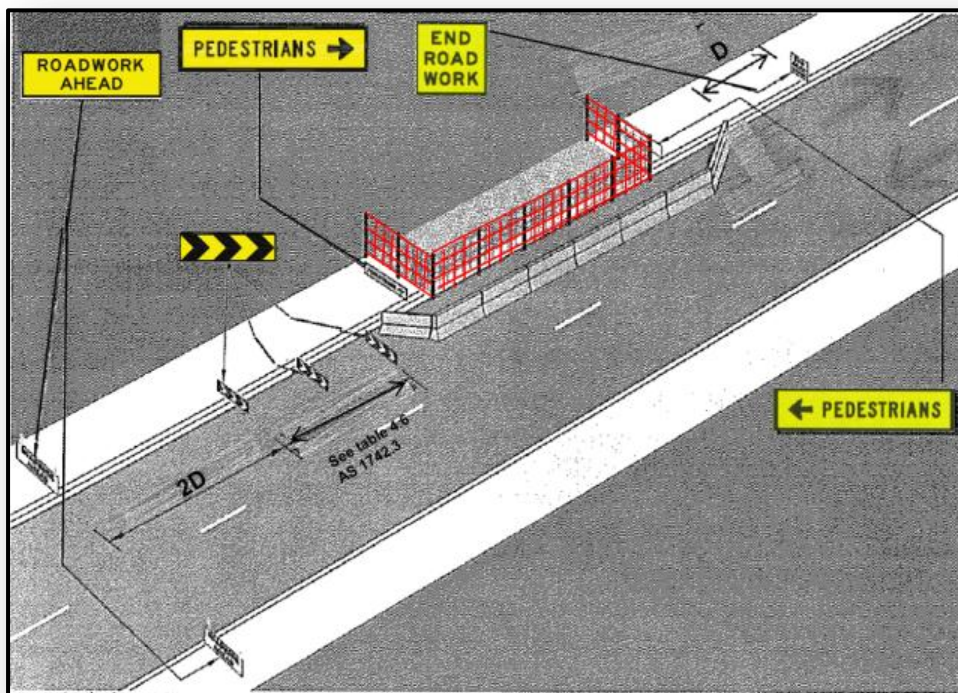
Part 6A: Pedestrian and Cyclist Paths.

7 Advanced Warnings at the site

In regard to signs and devices warning of temporary detours, these should be placed on both sides of the roadworks, and also at intermediate positions. They should be placed at available pedestrian crossing points on either side of the work site to prevent mid-block crossings or backtracking.

Adequate warnings about the existence of an obstacle must be provided for people with sight impairments, by using tactile strips, barriers and bollards. Where temporary signs or bollards are to be erected, it is suggested that the same standards for their location be adopted as for permanent fixtures.

Flashing beacons and other warning devices are also highly desirable wherever possible. For roadworks affecting a large number of pedestrians for many weeks, the possibility of audio warnings should also be considered for people with vision impairment. These may consist of a sensor activated audio announcement advising path users of the changes.



Closing a Footpath

Notes:

1. Roadwork Ahead signs must not obstruct footpath
2. Lane widths and edge clearances shall be in line with the Code of Practice (section 6.12)
3. Illustration does not show all signs and devices that may be required
4. Safety barriers must inhibit penetration of out of control vehicles
5. Solid, continuous fencing, sufficient to contain errant cyclists and pedestrians should be used.



Desirable pedestrian crossing point
Note: Pedestrian refuge island



8 Protection in Contra-Flow situations

Performing works on dual carriageway roads will sometimes divert traffic onto adjoining carriageway, so that traffic is required to travel temporarily in the wrong direction. This can create a risk to pedestrians who may not think to look in both directions before crossing the affected carriageway.

In these instances use of the signs LOOK BOTH WAYS, TWO-WAY TRAFFIC (T8-5) should be used and the following options should be considered:

- Channelling pedestrians to safe crossing points using containment fencing and/or pedestrian mazes;
- using warning signs to warn road users of pedestrian crossing points, e.g. MR-TAW-31; and/or
- having dedicated personnel assisting pedestrians to cross safely.

(see section 6.6 of the Code of Practice and clauses 3.10 and 4.14.8 of AS 1742.3).

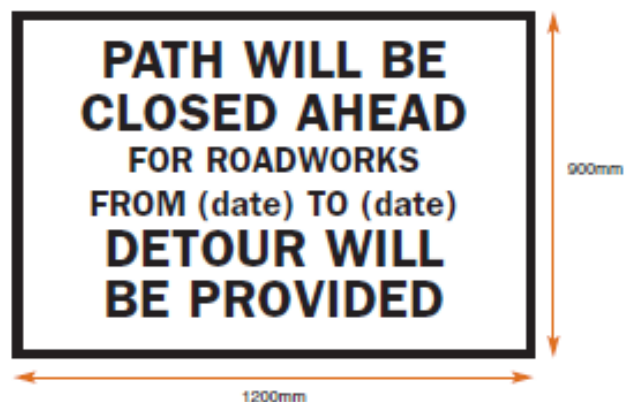
9 Advanced Public Notice

Advanced public notice of roadworks should be provided at least a week before the commencement of work. This may include notices in state newspapers such as “The West Australian”, local newspapers, on the internet and on the radio.

Written notification should be given to specific commercial or residential premises affected by the roadworks, and various disability groups for distribution. These include, but are not limited to, the Disability Services Commission, the VisAbility, Blind Citizens WA and the WA Deaf Society.

For long-term works, or short-term works that affect a very busy area, large signs indicating the location and duration of the works should be installed at least a week in advance near the affected area. These signs should be placed so that they do not obstruct the path and become a hazard themselves.

If the roadworks require complete closure of a path, notification should also be provided in the form of signs at both ends of the work site. Once again, care must be taken to ensure that the signs themselves do not create a hazard. An example could be as follows:



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Appendix A – Listing of Applicable Signs



T1-1 Needed in advance of all works left overnight. Flashing yellow lights are required with this sign.



T1-31 Narrower version preferred for urban area works.



T1-16 Advance warning sign. Used where additional warning is necessary.



T1-5 Needed when workers are on site. Must be either reflective orange or combined fluorescent reflective orange.



T2-16 Required at the end of all work sites where the ROADWORK AHEAD sign has been used.



T2-17 Narrower version preferred for urban area works.



T1-6 Used in addition to T1-1 in advance of a detour.

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T2-23 Used to show where a detour has ended and traffic is back on its original route.



T5-1 Used at the point where a detour begins and at intersections along the detour.



T5-6 Detour marker. Used to guide and reassure road users along the route of a detour.



T5-4 Large temporary hazard marker. Used to form the leading side of tapers and elsewhere to divert traffic past an obstacle.



T5-5 Small temporary hazard marker. Used in locations where the T5-4 will not fit.



T8-1 Used where the route for pedestrians across incomplete works could be hazardous because of roughness, level differences, or loose or other surface material.



T8-2 Used to guide pedestrians along temporary footpaths.



T8-3 Used where works make it necessary to deny use of the footpath on one side of the road.



T8-4

Used where works make it necessary to deny use of the path on one side of the road.



T8-5

Used at non-signalised pedestrian crossings in contra-flow situations to ensure pedestrians look in both directions before crossing.



MR-TAW-31

Used to warn motorists approaching pedestrian crossings during the works.

Multi message signs



MMS-PED-1

Used the same as T8-4.



MMS-PED-2

Footpath trip hazard. Used to warn pedestrians of trip hazards on the footpath.



MMS-PED-3

Used the same as T8-2.



MMS-PED-4

Used the same as T81.



MMS-PED-5

Slippery footpath. Used to warn pedestrians of slippery surface of the path



MMS-PED-6

Used the same as T8-3.



MMS-RC-13

Rough surface (cyclist).Used to warn cyclists of rough surface of the path.

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Appendix B - Definitions

Defined in accordance with the Road Traffic Code 2000 (Western Australia) and AS 1742.3 – Traffic control devices for works on roads.

Bicycle

A vehicle with 2 or more wheels that is built to be propelled by human power through a belt, chain or gears (whether or not it has an auxiliary motor) –

- a) including a pedicab, penny-farthing and tricycle; but
- b) not including a wheelchair, wheeled recreational device, wheeled toy, scooter or a power-assisted pedal cycle (if the motor is operating).

Built-Up Area

The territory contiguous to and including any road –

- a) on which there is provision for street lighting at intervals of not over 100m for a distance of at least 500m or, if the road is shorter than 500m, for the whole road; or
- b) which is built up with structures devoted to business, industry or dwelling houses at intervals of less than 100m for a distance of one half kilometre or more.

Long-term

The description which applies when a traffic guidance scheme is required to operate both day and night and may be left unattended.

Path

Includes bicycle path, footpath, separated path and shared path.

Path User

Any person that may use a path, including pedestrians (as defined below) and cyclists of all ages, whether they are mounted on bicycles or not.

Pedestrian

Any person on foot or in a perambulator, or a physically disabled person in an unmotorised wheelchair or in a motorised wheelchair, and includes:

- a) a person pushing a perambulator or wheelchair;
- b) a person wheeling a bicycle or a wheeled toy, if the person is completely dismounted from the bicycle or wheeled toy;
- c) a person in or on a wheeled recreational device; and
- d) a person under 12 years of age in or on a wheeled toy.

Short-term

The description which applies when a traffic guidance scheme is required only while work personnel are in attendance and is generally limited to the duration of a single work shift or lesser period where road conditions are returned to normal when the shift or lesser period ends.

Wheeled Recreational Device

A wheeled device, built to transport a person, propelled by human power or gravity, and ordinarily used for recreation or play –

- a) including –
 - i) in-line skates, rollerskates, a skateboard or similar wheeled device;
 - ii) a scooter being used by a person aged 12 years of age or older; and
 - iii) a unicycle, but
- b) not including a golf buggy, pram, stroller or trolley, or a bicycle, wheelchair or wheeled toy.

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Wheeled Toy

A child's pedal car, a tricycle, a scooter or a similar toy, but only if it is being used by a child under 12 years of age.

Work

Refers to construction and maintenance work on the road surface, along the verges, over the road and under the road. It includes work by MRWA, the Local Authority, an Authorised Body, their agents or other party carrying out work within road reserve boundaries and providing public utilities. It includes the delivery of building construction materials to adjoining properties where it is necessary to temporarily close a portion of the road. It does not include events such as vehicle repair/removal, loading or unloading furniture or shop items intended for resale to an adjoining property, parades, processions or meetings that are provided for in other legislation relevant to those events.

Work shall include unloading of delivery vehicles by forklift type vehicles or cranes, tree pruning activities, or any other situation where persons are working around a vehicle such as concrete pumping activities, and unloading of delivery vehicles by any means when the vehicle is stopped on sections of roads designated No Parking or No Standing. Work shall exclude unloading of vehicles by hand in any other location.

Work excludes minor maintenance activities on verges such as mowing or reticulation installation or repairs undertaken on verges. It also excludes survey works when the works are confined to the verge or footpath areas in all locations, or involves only occasional encroachment on the road in low speed low volume roads.

(As defined by MRWA Traffic Management Requirements for Works on Roads)

