

DIAGRAM 26 TWO-WAY SIDETRACK: TWO-WAY ROAD

NOTES TO DIAGRAM 26:

1. The width of side track for traffic lanes should be not less than 6 m (see Clause 4.13.3). Curves should be constructed to suit the approach speed; however, if this is not practicable appropriate curve and advisory speed signs should be placed.
2. If the existing road is sealed and the side track is to be used for an extended period, it and the approaches should be sealed and appropriate temporary linemarking placed. Misleading linemarking should be erased, and for use over an extended period, edge lines marked.
3. High traffic volumes may require duplication of advance warning signs on the right-hand side of the roadway. On multi-lane roads, adapt the two-way signing shown and duplicate the signs used on the left hand side of the roadway(s) on the right hand side of the roadway(s), if practicable.
4. Means of access past temporary barriers should be provided for local traffic if necessary.
5. Because of the nature of the two-way operation, consider whether means should be provided to exclude pedestrians and prohibit parking over the length of the side track.
6. An antiglare screen may be necessary on short sidetracks on straight roads.
7. Consider the need for a temporary speed zone to meet workplace or traffic safety requirements (see Clause 4.2). Cover or alter if inappropriate at night.
8. Consider use of ROADWORK 1 km Ahead and ROADWORK 500 m Ahead signs in advance of the taper at the work site for approach speeds of 90 km/h or greater when the work site requires a reduction in speed of 40 km/h or more see Clause 4.7.2.
9. The distance D for sign spacing is given in Table 4.2.
10. The minimum lane width including trafficable shoulder shall be 3.0 m (see Clause 4.13.3).
11. Advance signs shall be displayed as prominently as possible by selecting the longitudinal location of the sign for best sight distance for approaching traffic. Signs continuously required for works which will be in progress for periods longer than 2 weeks should be erected in a permanent manner, e.g. on posts sunk into the ground, and duplicated on the right side of the road.

Flashing lamps may be used to draw attention to advance signs (see Clause 3.11).

NOTES TO DIAGRAM 27:

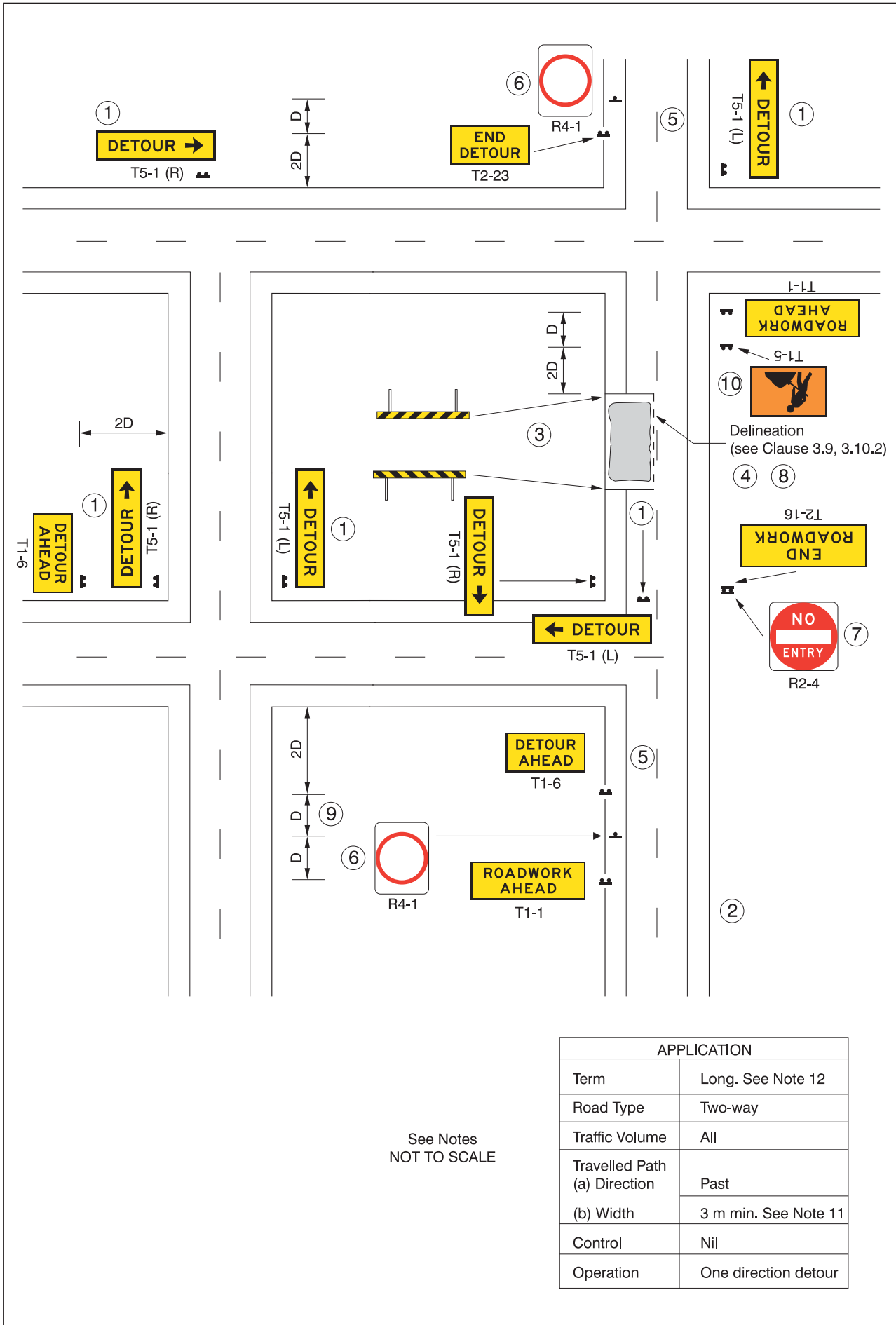
1. Side track pavement width should be not less than 3 m (see Clause 4.13.3). Curves should be constructed to suit the approach speed; however, if this is not practicable appropriate signing should be placed to warn and guide traffic.
2. Misleading linemarking should be erased, and for use over an extended period, edge lines marked.
3. The temporary dividing line on the single open roadway shall be treated with extra delineation as appropriate. Depending on traffic volumes and speeds, the following additional delineation should be considered:
 - (i) Conversion of the dividing line to double unbroken.
 - (ii) Reducing spacing of RRPMS to one half or one quarter of normal spacing.
 - (iii) Use of lane dividers (see Clause 3.9.5).

Alternatively, provision of a safety barrier, appropriately delineated should be considered.

4. An Antiglare Screen should be used where headlight glare may be a problem (see Clause 3.16.6).
5. Depending on length of side track, repeat Two-way Traffic sign (W4-11) as required (see Clause 3.6.8. Two-way Traffic signs are not required if a safety barrier is used to separate opposing traffic.
6. Means should be provided to exclude pedestrians or warn them of the two-way traffic operation (see Clause 4.14.8). Parking should be prohibited over the length of the side track.
7. Means of access past temporary barriers should be provided for local traffic if necessary.
8. The distance D for sign spacing is given in Table 4.2.
9. IMPORTANT (see Clause 4.12.1). For safety reasons every attempt should be made to avoid use of this roadworks arrangement by use of side tracks etc. Elsewhere, prior approval for this arrangement is necessary as follows-
 - (a) Local Government roads - Local Government
 - (b) Roads controlled by Department of Transport and Main Roads - Regional Director

Special attention should be paid to Notes 3 and 5. Further, where possible, avoid use of this arrangement at night or over weekends and public holidays.
10. The maximum length of two-way operations on a one-way roadway is to be 2 km (desirably 1 km).
11. Consider the need for a temporary speed zone to meet workplace or traffic safety requirements (see Clause 4.2). Cover or alter if inappropriate at night.
12. Consider use of ROADWORK 1 km Ahead and ROADWORK 500 m Ahead signs in advance of the taper at the work site for approach speeds of 90 km/h or greater when the work site requires a reduction in speed of 40 km/h or more see Clause 4.7.2.
13. Refer to Table 4.6 for recommended taper lengths.
14. The minimum lane width including trafficable shoulder shall be 3.0 m (see Clause 4.13.3).
15. Advance signs shall be displayed as prominently as possible by selecting the longitudinal location of the sign for best sight distance for approaching traffic. Signs continuously required for works which will be in progress for periods longer than 2 weeks should be erected in a permanent manner, e.g. on posts sunk into the ground, and duplicated on the right side of the road.

Flashing lamps may be used to draw attention to advance signs (see Clause 3.11).



See Notes
NOT TO SCALE

APPLICATION	
Term	Long. See Note 12
Road Type	Two-way
Traffic Volume	All
Travelled Path (a) Direction	Past
(b) Width	3 m min. See Note 11
Control	Nil
Operation	One direction detour

DIAGRAM 28 ONE DIRECTION DETOUR: TWO-WAY ROAD

NOTES TO DIAGRAM 28:

1. Direction and reassurance signs, may be required for through traffic that is required to detour. A Reassurance DETOUR sign (T5-1A) (see Clause 3.6.4) should be used where the route of the detour is not clear.
2. High traffic volumes may require duplication of advance signs on the right-hand side of the roadway. These signs may need to be duplicated on the right hand side of the roadway on multi-lane roads.
3. Means of access for local traffic and pedestrians across the work area should be provided if practicable and suitable signs erected (see Clause 3.6.10).
4. Consider whether parking should be prohibited adjacent to the work area.
5. Consider the use of temporary barrier lines to prevent overtaking on the approaches to the work area (normally a distance of 2D in advance of the start of the detour). Where barrier lines are not used, traffic cones at 5-25 m spacing along the centreline should be used. Traffic cones are not suitable for night operation.
6. Consider the need for a temporary speed zone to meet workplace or traffic safety requirements (see Clause 4.2). Cover or alter if inappropriate at night.
7. The NO ENTRY sign should be erected in accordance with Clause 3.16.8.
8. Traffic arrangements should be set out in accordance with diagrams determined using Table 5.1.
9. The distance D for sign spacing is given in Table 4.2.
10. The Workers (symbolic) sign shall be removed when workers have left the area or are no longer visible to traffic.
11. The minimum lane width including trafficable shoulder shall be 3.0 m (see Clause 4.13.3).
12. Advance signs shall be displayed as prominently as possible by selecting the longitudinal location of the sign for best sight distance for approaching traffic. Signs continuously required for works which will be in progress for periods longer than 2 weeks should be erected in a permanent manner, e.g. on posts sunk into the ground, and duplicated on the right side of the road.

Flashing lamps may be used to draw attention to advance signs (see Clause 3.11).

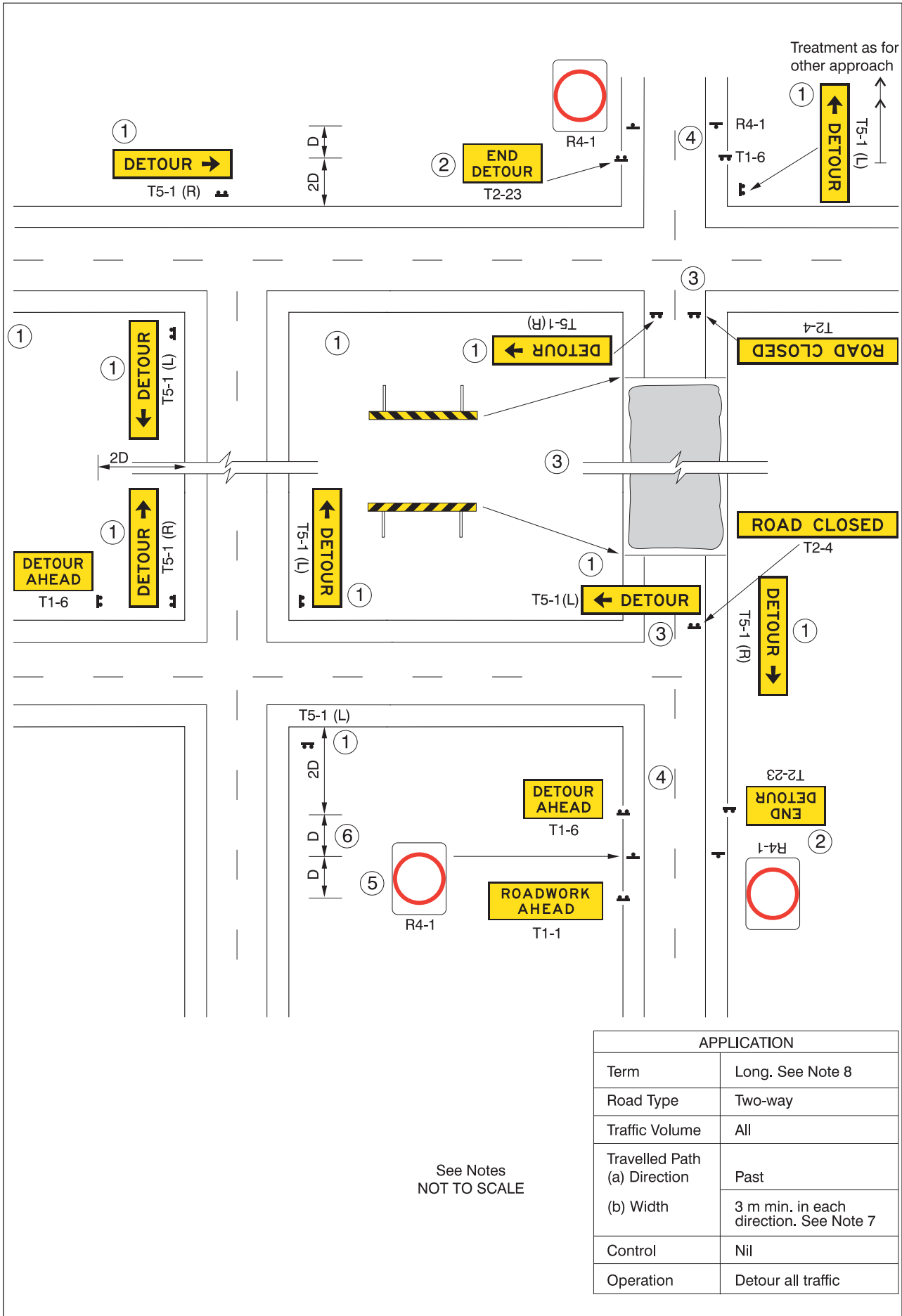


DIAGRAM 29 DETOUR ALL TRAFFIC: TWO-WAY ROAD

NOTES TO DIAGRAM 29:

1. Destination signs may be required for through traffic required to detour. A reassurance DETOUR sign (T5-1A) (see Clause 3.6.4) should be used where the route of the detour is not clear.
2. High traffic volumes may require duplication of advance warning signs on the right-hand side of the roadway. These signs may need to be duplicated on the right hand side of the roadway on multi-lane roads.
3. Means of access for local traffic and pedestrians past barriers should be provided if practicable and suitable signs erected (see Clause 3.6.10).
4. Consider the use of temporary barrier lines to prevent overtaking on the approaches to the work area (normally a distance of 2D in advance of the start of the detour). For short-term works, traffic cones at 5-25 m spacing may be used instead of temporary barrier lines. Traffic cones are not suitable for night operation.
5. Consider the need for a temporary speed zone to meet workplace or traffic safety requirements (see Clause 4.2). Cover or alter if inappropriate at night.
6. The distance D for sign spacing is given in Table 4.2.
7. The minimum lane width including trafficable shoulder shall be 3.0 m (see Clause 4.13.3).
8. Advance signs shall be displayed as prominently as possible by selecting the longitudinal location of the sign for best sight distance for approaching traffic. Signs continuously required for works which will be in progress for periods longer than 2 weeks should be erected in a permanent manner, e.g. on posts sunk into the ground, and duplicated on the right side of the road.

Flashing lamps may be used to draw attention to advance signs (see Clause 3.11).

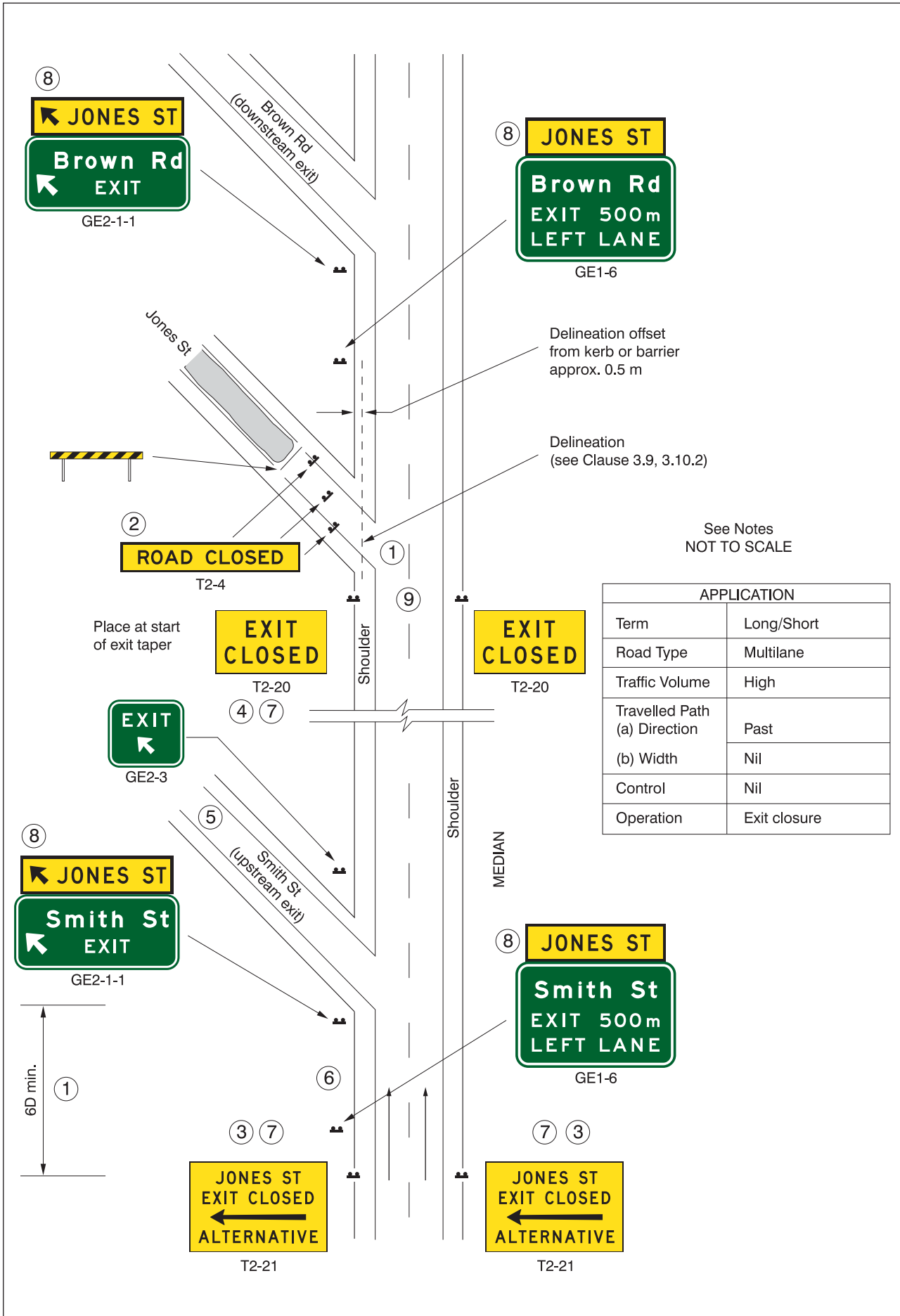


DIAGRAM 30 EXIT CLOSURE: MULTILANE, ONE-WAY ROADWAY

NOTES TO DIAGRAM 30:

1. The distance D for sign spacing is given in Table 4.2.
2. Barriers and the ROAD CLOSED sign (T2-4) (see Clause 3.8.2b) should be placed at right angles to exit ramp direction.
3. The destination from which traffic has been diverted may need to be added to the alternative exit advance direction signs.
4. Warning of the exit closure should be given in advance of the preceding on-ramp when the associated exit is the alternative route.
5. A suitable route should be signed to guide diverted traffic to its original destination.
6. The ... EXIT CLOSED - ALTERNATIVE sign may need to be repeated a distance 3D in advance of the alternative exit to advise vehicles in the right hand lane(s) to change lanes.
7. Where the alternative exit is beyond the closed exit, the ... EXIT CLOSED - ALTERNATIVE signs are omitted and the EXIT CLOSED sign should be supplemented with a specially designed temporary alternative exit sign.
8. Temporary warning signs (black on yellow) with the destination name(s) of the closed exit should be mounted in conjunction with exit direction and advance exit direction signs (see Clause 4.14.9).
9. Existing exit signing to the destination should be covered.

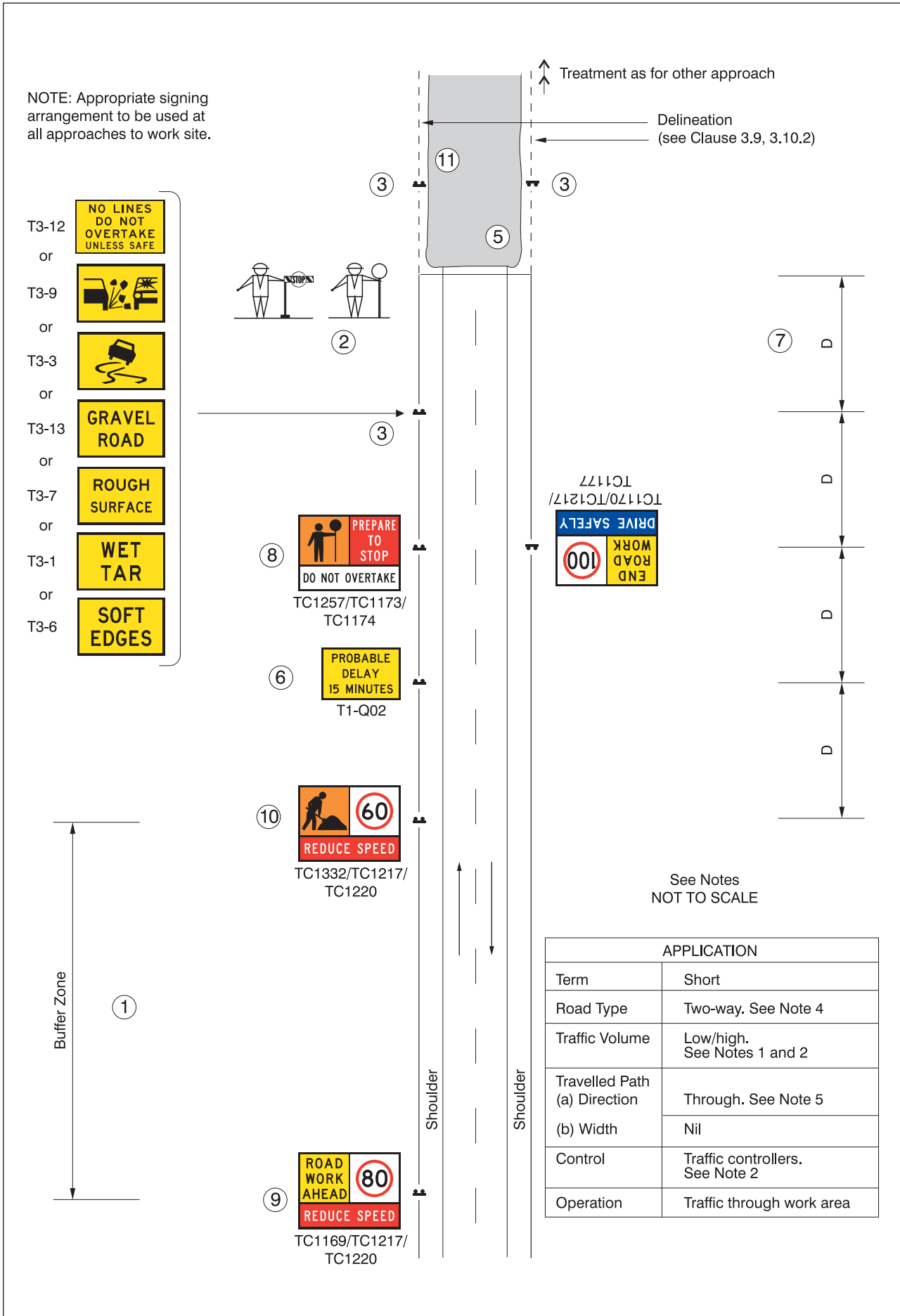


DIAGRAM 31 ROAD TEMPORARILY CLOSED: TWO-WAY ROAD

NOTES TO DIAGRAM 31:

1. Advance warning shall be provided by means of a buffer zone comprising either the Speed Limit AHEAD sign or a speed zone (see Clause 4.9.5).
2. Traffic controllers and Traffic Controller Ahead/PREPARE TO STOP signs should always be used for bituminous surfacing operations where traffic volumes are less than 800 vehicles per day. Where traffic volumes are greater than 800 vehicles per day, consideration should be given to the use of a boom barrier in lieu of STOP/SLOW sign. Traffic controllers must be on duty when workers are actually working on the travelled path.
3. Appropriate signs are used and spaced as required and covered when not appropriate. Advisory Speed signs may be used in conjunction with these signs see Clause 3.7.3. Where traffic is approaching a haul road crossing (see Diagram 21).
4. For works on unsealed roads see Clause 4.5.
5. Where work is confined to a single lane only, traffic operating in the unobstructed lane may be controlled by using a Workers (symbolic) sign and Speed Limit sign on the approach to the works. At the other end of the works an END ROADWORK sign and appropriate Speed Limit sign would be needed.
6. Use PROBABLE DELAY 15 MINUTES sign where expected delays are considerable.
7. The distance D for sign spacing is given in Table 4.2.
8. The Traffic Controller Ahead/PREPARE TO STOP sign should only be used where traffic controllers are on duty. It should be covered or removed at all other times.
9. Consider use of ROADWORK 1 km Ahead sign 1 km in advance of the work area for approach speeds greater than 80 km/h and sight distance less than 150 m.
10. A maximum speed limit of 60 km/h shall be used (see Clause 4.10.4).
11. All machinery operating on the roadway under traffic must be equipped with appropriate devices (see Clause 3.12).

NOTES TO DIAGRAM 32:

1. The cab-mounted sign (T6-Q06) should have the chevron panel correctly adjusted depending on operation (see Clause 3.12.3). An illuminated flashing arrow sign may be used in lieu of a chevron panel.
2. Work vehicles should operate with headlights illuminated.
3. For edge lining right hand side of pavement of a one-way roadway, use LINE MARKING sign T6-Q06(L). This sign should also be used for lane lining where appropriate.
4. Static linemarking operations such as intersection painting should be regarded as the same as other works areas and treated in accordance with the relevant short-term works arrangement given in Diagrams 4, 6, 7, 8 and 11.
5. The location of the work vehicles and associated signing may need to be adjusted depending on the configuration and/or operation of the linemarking machine. Such adjustments may be necessary where the shoulder is unsealed or where the edge line is marked from the centre line using an outrigger.
6. A lead vehicle shall be used where an outrigger is used off the centre line.
7. The chevron panel may be cab-mounted below the LINE MARKING (T6-Q07) sign, or mounted on the vehicle body facing to the rear (see Clause 3.12.3).
8. Consideration should be given to the fitting of CB radios in work vehicles to give heavy vehicles prior warning of linemarking operations and to advise the safe passage through the work.
9. This signing arrangement may also be used for laying of pavement markers. In this case, the LINE MARKING sign is replaced by the Workers (symbolic) sign on the vehicles (see Clause 3.12.3).

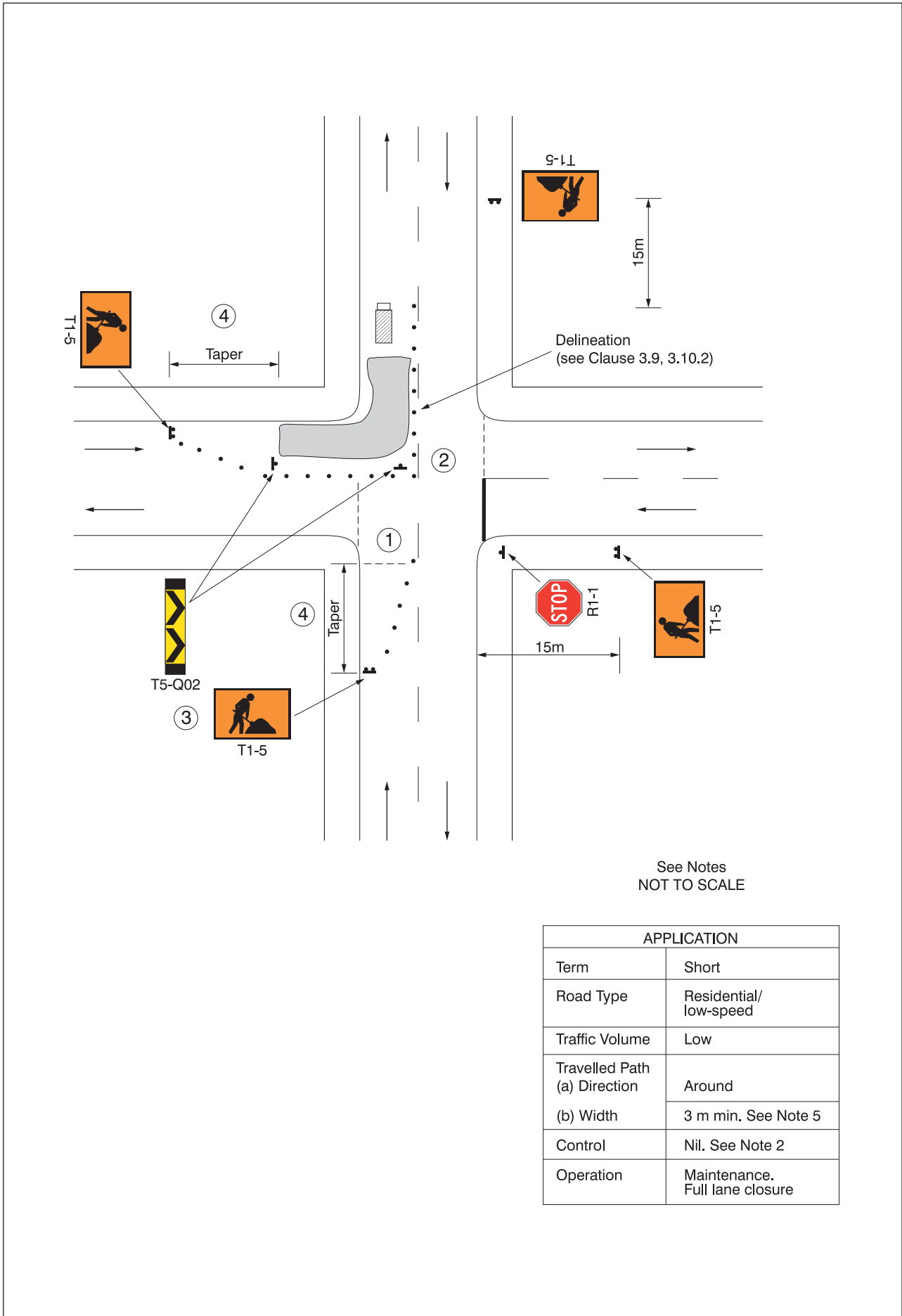


DIAGRAM 33 KERBSIDE WORK: INTERSECTION OF A MINOR AND A LOW SPEED ROAD

NOTES TO DIAGRAM 33:

1. Leave sufficient space here for a vehicle to wait when another vehicle is coming out of the street.
2. If traffic control at the intersection is a problem, traffic controllers or a Police officer may be needed. In this case a Traffic Controller Ahead/PREPARE TO STOP sign should be erected in advance of the work area (normally 2D (see Table 4.2) metres).
3. The Workers (symbolic) sign shall be removed when workers have left the area or are no longer visible to traffic.
4. Refer to Table 4.6 for recommended taper lengths.
5. The minimum lane width including trafficable shoulder shall be 3.0 m (see Clause 4.13.3).

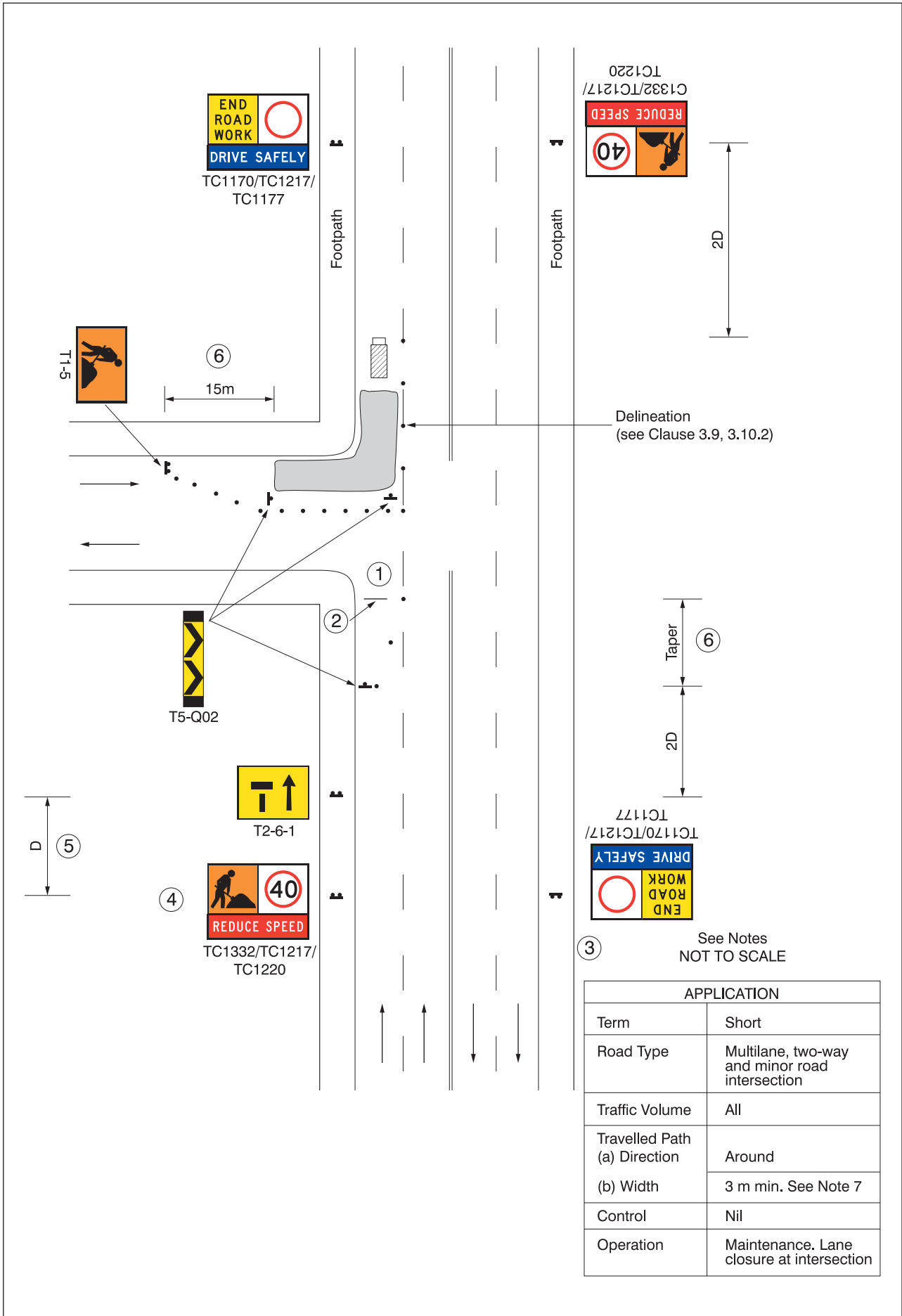


DIAGRAM 34 KERBSIDE WORK: INTERSECTION OF A MINOR AND A HIGH SPEED ROAD

NOTES TO DIAGRAM 34:

1. Leave sufficient space here for a vehicle to wait when another vehicle is coming out of the street.
2. An illuminated flashing arrow may be used in the approach taper.
3. Advance warning signs may need to be duplicated on the right-hand side of the roadway where the traffic volume is 10 000 vpd or greater.
4. Consider the need for a temporary speed zone to meet workplace or traffic safety requirements (see Clause 4.2). Cover or alter if inappropriate at night. Remove when workers have left the work area.
5. The distance D for sign spacing is given in Table 4.2.
6. Refer to Table 4.6 for recommended taper lengths.
7. The minimum lane width including trafficable shoulder shall be 3.0 m (see Clause 4.13.3).

NOTES TO DIAGRAM 35:

1. Consider local traffic access. Parking restrictions should apply adjacent to barrier lines. Provision should be made for pedestrians.
2. An illuminated flashing arrow may be used in the approach taper.
3. Advance warning signs may need to be duplicated on the right-hand side of the roadway.
4. Consider the need for a temporary speed zone to meet workplace or traffic safety requirements (see Clause 4.2). Remove when workers have left the work area.
5. The distance D for sign spacing is given in Table 4.2.
6. Refer to Table 4.6 for recommended taper lengths.
7. The minimum lane width including trafficable shoulder shall be 3.0 m (see Clause 4.13.3).

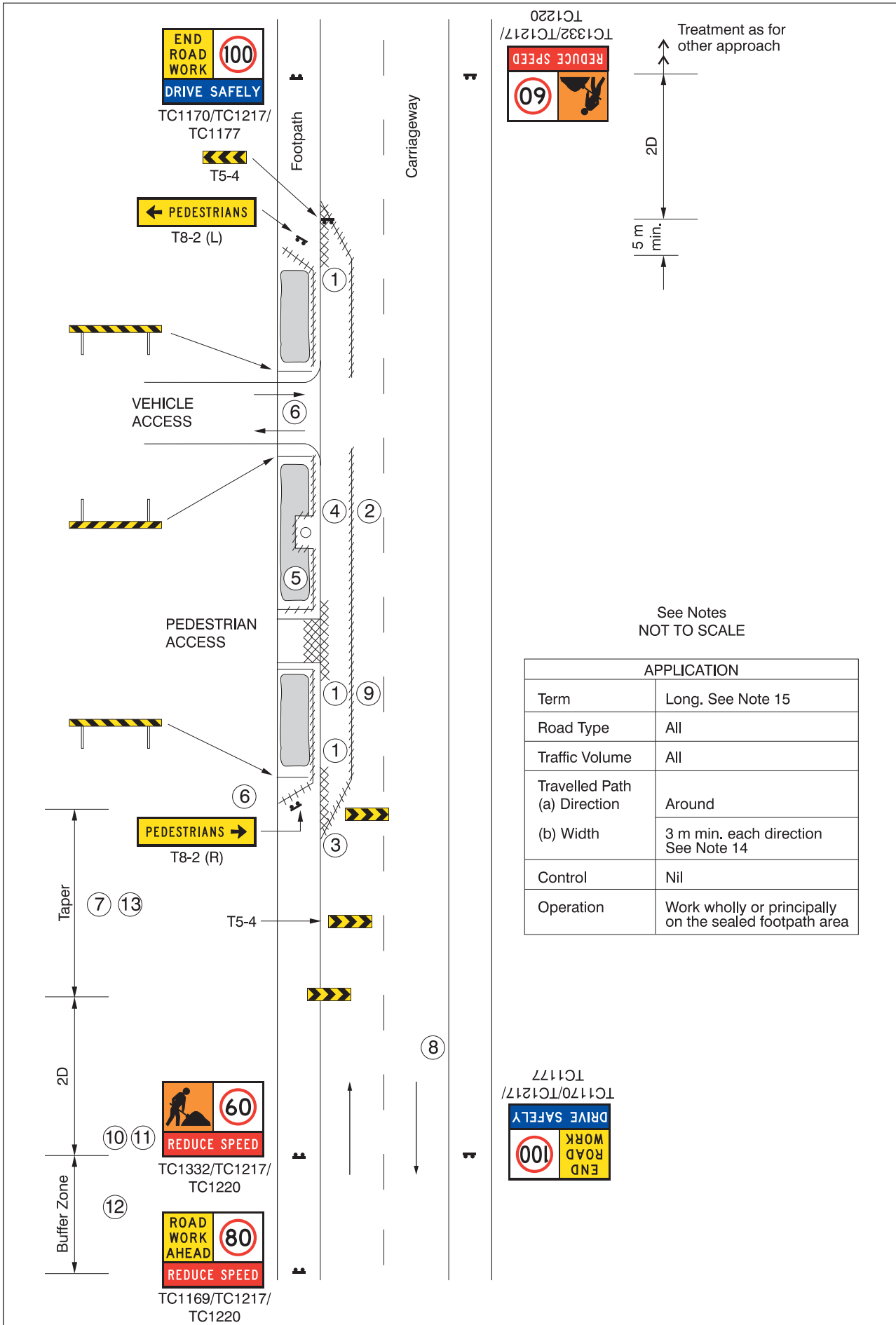


DIAGRAM 36 WORK OCCUPYING THE FULL WIDTH OF A FOOTPATH

NOTES TO DIAGRAM 36:

1. Provide a full width temporary ramp for prams and all-weather surface on unpaved pedestrian areas.
2. Prohibit vehicles stopping along length of narrowed roadway, unless a safety barrier is used (see Note 3).
3. Where pedestrians will be required to divert onto the roadway for an extended period, consider the use of a safety barrier. In such cases, the retention of parking beside the work area may be appropriate where the residual road width can adequately cater for the anticipated traffic use.
4. A clear width of not less than 2 m should be provided for pedestrian traffic.
5. Separate trees and other facilities from the work area where damage may otherwise occur.
6. Arrange vehicular access to the work site, e.g. by using movable barriers or sections of mesh fencing, so that pedestrians are not able to enter the work site inadvertently.
7. The distance D for sign spacing is given in Table 4.2.
8. High traffic volumes, particularly on multi-lane roads, may require duplicate advance signs on the right hand side of the roadway.
9. The remaining width of the lane affected by the works should be in accordance with Clause 4.13.3.
10. Consider the need for a temporary speed zone to meet workplace or traffic safety requirements (see Clause 4.2). Cover or alter if inappropriate at night.
11. The Workers (symbolic) sign shall be removed when workers have left the work area or are no longer visible to traffic.
12. Advance warning shall be provided by means of a buffer zone comprising either the Speed Limit AHEAD sign or a speed zone (see Clause 4.9.5).
13. Refer to Table 4.6 for recommended taper lengths.
14. The minimum lane width including trafficable shoulder shall be 3.0 m (see Clause 4.13.3).
15. Advance signs shall be displayed as prominently as possible by selecting the longitudinal location of the sign for best sight distance for approaching traffic. Signs continuously required for works which will be in progress for periods longer than 2 weeks should be erected in a permanent manner, e.g. on posts sunk into the ground, and duplicated on the right side of the road.
Flashing lamps may be used to draw attention to advance signs (see Clause 3.11).

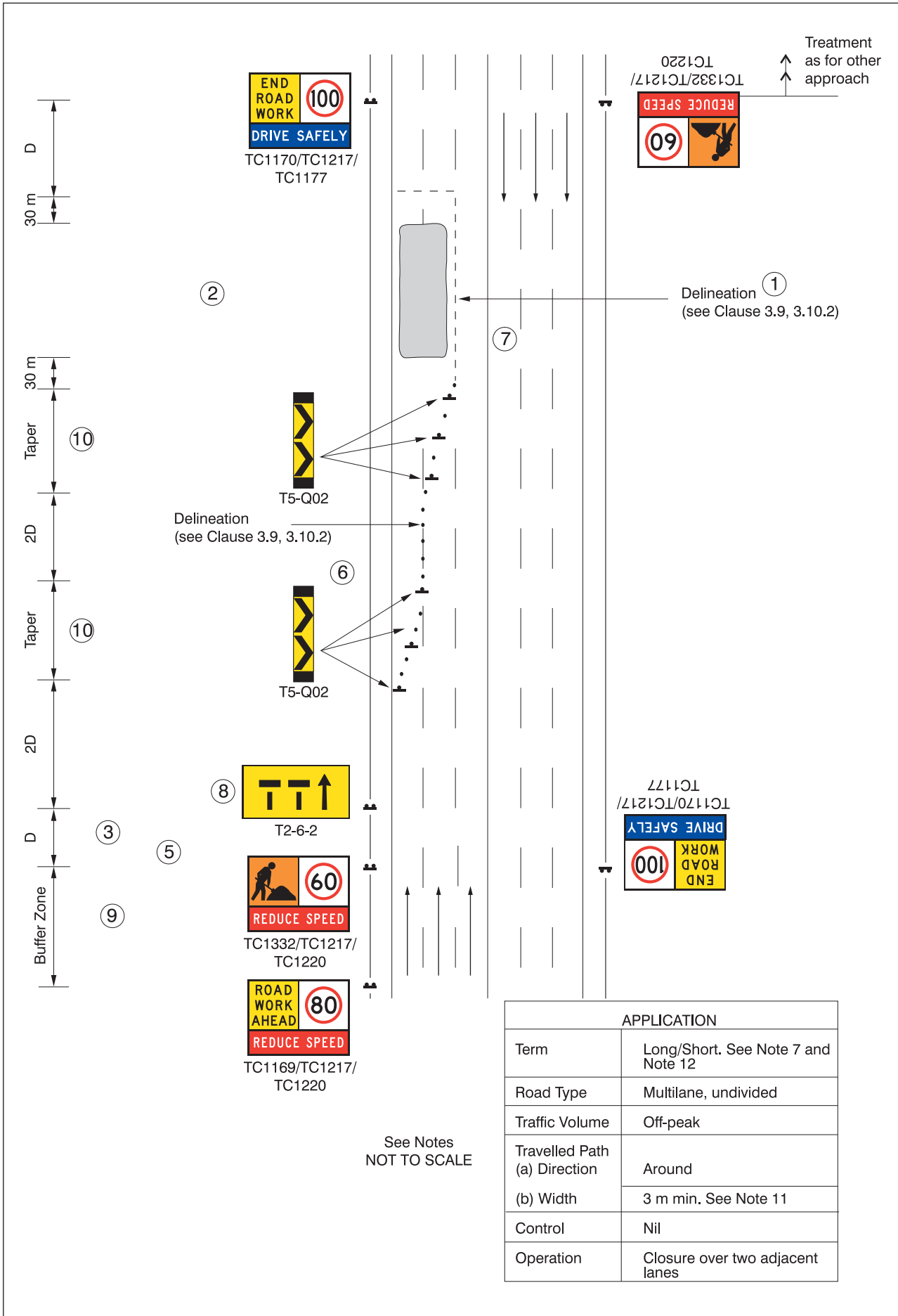


DIAGRAM 37 CLOSURE OF TWO OUTER LANES: ONE DIRECTION - MULTILANE ROAD

NOTES TO DIAGRAM 37:

1. Where excavation is involved, longitudinal delineation such as mesh fencing or closely spaced delineators should be used.
2. Consider local traffic access requirements.
3. The distance D for sign spacing is given in Table 4.2.
4. Use ROADWORK 1 km Ahead sign 1 km in advance of the first taper at the work site for approach speeds greater than 80 km/h.
5. Consider the need for a temporary speed zone to meet workplace or traffic safety requirements (see Clause 4.2). Remove when workers have left the work area.
6. Illuminated flashing arrow (see Clause 3.12.2) may be used in the approach taper.
7. For works of long-term duration, adapt Diagram 28 and replace traffic cones with temporary edge line and use barrier line along centreline of road.
8. Adopt a similar treatment for closure of right lanes. Use the Lane Status sign (with appropriate bars and arrows). Also, consider the need for parking restrictions in the vicinity of the work site.
9. Advance warning shall be provided by means of a buffer zone comprising either the Speed Limit AHEAD sign or a speed zone (see Clause 4.9.5).
10. Refer to Table 4.6 for recommended taper lengths.
11. The minimum lane width including trafficable shoulder shall be 3.0 m (see Clause 4.13.3).
12. Advance signs shall be displayed as prominently as possible by selecting the longitudinal location of the sign for best sight distance for approaching traffic. Signs continuously required for works which will be in progress for periods longer than 2 weeks should be erected in a permanent manner, e.g. on posts sunk into the ground, and duplicated on the right side of the road.

Flashing lamps may be used to draw attention to advance signs (see Clause 3.11).

APPENDIX A

DAILY ROUTINE TASKS AND RECORD KEEPING

A1 SCOPE

This Appendix sets out example procedures and guidelines for the daily routine tasks, inspections and record keeping required for the overall safety and smooth operation of a traffic guidance scheme.

A2 RECORD KEEPING

Supervisory personnel engaged on works which require the use of a traffic guidance scheme shall keep the following records:

(a) *Daily records*

Daily records of the sign arrangement or traffic guidance scheme, should be kept in a diary or in work sheets.

As a minimum, the diary or work sheets should include the following:

- (i) Date.
- (ii) Location.
- (iii) Identification of job (including reference numbers, if applicable).
- (iv) Time of inspection.
- (v) Detail of changes made and by whom.
- (vi) Name of person authorising the changes.
- (vii) Comments.
- (viii) Reference number of traffic management plan or traffic guidance scheme.

Special attention should be given to recording the installation, alteration and removal of all regulatory signs and devices, including speed restriction signs. For short-term works, reference to the diagram number(s) in Section 5 which generally applies to the layout used or to a documented procedure will usually be sufficient. The records should include the hours of operation and the surface condition of the road. Any significant departures from, or additions to, the signs and devices included in the relevant diagram(s) should also be noted.

(b) *Incidents*

In the case of incidents (e.g. crashes, collisions), either witnessed or reported, involving the public or from which legal proceedings might arise, the actual type, size and location of signs and devices in use at the time of the accident should be recorded and the sign arrangement photographed for subsequent reporting. Details of the actual width and condition of the travelled path and weather conditions should also be recorded.

NOTE: This information may be critical should legal proceedings result from an accident. In such cases, the organisation is often requested to provide details of signs and devices erected at works carried out in the distant past and which cannot be accurately answered unless detailed records are kept.

A3 DAILY ROUTINE TASKS

A3.1 General

Supervisory personnel should establish a daily routine which allots specific tasks to personnel, including supervisors, so that-

- (a) signs and devices are at all times adequate for the safety of personnel and traffic;
- (b) the surface of the travelled path is maintained in a satisfactory condition.
- (c) plant operations are not disrupted; and
- (d) loss of production time is minimised;

The supervisor's role in this routine procedure is coordination, inspection and correction.

A3.2 Before work starts

The following routine should be undertaken before work starts each day:

- (a) An inspection of all traffic signs and devices should be made and a note made of signs out of place or damaged during the night for subsequent rectification.
- (b) All lamps should be checked and cleaned, if necessary.
- (c) An inspection should be made of all water ballasted safety barrier or containment fence modules and a note taken of any out of position modules, low water levels and damaged modules for subsequent rectification.
- (d) After adjustments have been made to the traffic management provisions for the day they should be checked for safety and effectiveness by an inspection drive through the job, and a record made of the signs erected and their locations (see Paragraph A2).

A3.3 During hours of work

The following routine should be followed while work is in progress:

- (a) Periodically drive through the work site to check that all signs, markings and delineating devices as seen by other road users are satisfactory and in their correct position.
- (b) Attend to minor problems as they occur.
- (c) During work breaks, e.g. tea breaks, move personnel clear of the work area; park plant clear of traffic lanes and remove from view or cover inappropriate signs such as Traffic Controller Ahead / PREPARE TO STOP or Workers (symbolic) if workers leave the site or cannot be seen.
- (d) Where there are traffic hazards or where only one lane is open to traffic, instruct traffic controllers to remain on the job and relieve them as necessary.
- (e) Reposition barriers, signs and tapers as necessary, e.g. adjust the length of single lane traffic operation as necessary to keep it to a minimum, and keep records of changes made and the time these occurred.
- (f) Coordinate maintenance of the travelled path with other job operations.

A3.4 Closing down at the end of the day

Special provisions are required if less than one lane in each direction is available after working hours, during weekends or holidays, or if the traffic flow in one direction on a multilane highway exceeds the figures shown in Table 4.4, for the number of lanes available. Special provisions can only be determined with a full knowledge of the situation. These could include traffic controllers working in shifts for the full period of the obstruction, illumination of the site or the installation of portable or temporary traffic signals.

In general the following action is required at the end of a day's work:

- (a) Carry out a pre-closedown inspection allowing time for urgent maintenance to the travelled path.
- (b) Remove Traffic Controller Ahead/PREPARE TO STOP, Workers (symbolic) and other inappropriate signs.
- (c) Drive through the work site to confirm that signs and devices are in position and operating before leaving the site.
- (d) Finally, record any changes that have been made to the previously recorded sign arrangement or traffic guidance scheme.

A3.5 After hours

During the hours when work is suspended:

- (a) Carry out periodic after-dark inspections on low headlight beam to ensure that all devices are visible and performing their correct function.
- (b) Provide after hours contact so that arrangements can be made to replace damaged signs, delineators or barriers.
- (c) Ensure that a record is kept of signs found damaged, missing or out of place (and their location) at night, weekend or holiday inspections (see Paragraph A2).

APPENDIX B

ERECTION AND REMOVAL OF REGULATORY TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS

B1 GENERAL

An essential adjunct to the erection or removal of any regulatory sign/device, is the recording and filing of the circumstances for use in connection with any prosecutions or litigation resulting from traffic offences, or traffic accidents, in the area of the particular sign/device. This procedure particularly applies when regulatory signs/devices are used as a traffic control aid at, or adjacent to, road construction and maintenance work sites.

This Appendix outlines example procedures for long-term and short-term traffic arrangement plans. Variations to these procedures can be implemented to address Quality Management and Administration Practices.

B2 EXAMPLE PROCEDURES

B2.1 Implementation of traffic management plans

For the implementation of a traffic management plan requiring the temporary use of regulatory signs/devices

- (a) Prior to the implementation of each plan, a fully documented traffic guidance scheme is to be prepared providing the following information:
 - the types, sizes and numbers of regulatory signs/devices to be used;
 - a sketch or description of the exact location of the regulatory signs/devices giving details of the extremities of the roadworks;
 - the date on which each regulatory sign/device is first required;
 - the anticipated date when each regulatory sign/device will no longer be required.
- (b) If considered necessary:
 - advise the public via the media, of the presence, nature, and duration of the proposed roadworks and, in particular, the temporary use of any regulatory signs/devices;
 - advise the local Police accordingly, and, in certain situations, include the Police in discussions on proposed traffic control measures.

B2.2 Use of work method statements

For short-term works and works involving relatively simple part-roadway closures, requiring the temporary use of regulatory signs/devices

- (a) a work method statement is to be prepared supported if necessary by a standard plan, or
- (b) a sketch of the protective devices and delineation required, on a road construction or similar plan is to be prepared.

B2.3 Roadwork signing records

Recording of all work site signing and delineation

- (a) may use
 - a Form M994, or
 - traffic management plans, suitably annotated, or
 - daily records as per Appendix A2(a), for short-term works.
- (b) should be retained to ensure the required evidentiary standard may be established by the police in prosecuting offenders.

APPENDIX C

PROTECTIVE EQUIPMENT AND CLOTHING

C1 INTRODUCTION

Because of the potential hazards associated with working on or adjacent to road and bridge work sites, all persons working on or authorised to enter such work sites, shall be supplied by their employer with the relevant high visibility protective equipment and clothing and shall be instructed to wear same at all times when required.

This equipment and clothing shall comprise the following items:

- Safety helmets (hat or cap type)
- High visibility cloth hats
- High visibility garments
- Approved skin protection (sun screens)

Details on the selection and use of such equipment and clothing are outlined below.

C2 SAFETY HELMETS

High visibility safety helmets which comply with the requirements of the current Australian Standard shall be worn by personnel working on or entering work sites where there is a danger of the wearer receiving head injuries as a result of striking or being struck by objects.

C3 HIGH VISIBILITY CLOTH HATS

Where safety policy permits, high visibility cloth hats may be worn by field personnel as an alternative to the standard safety helmets provided they are not on a work site where there is any danger of the wearer receiving head injuries as a result of striking or being struck by objects.

C4 HIGH VISIBILITY GARMENTS

Recommendations for the selection and use of high visibility garments are listed in Table C1.

C5 SKIN PROTECTION

Broad spectrum protective sun screens, lotions and creams for skin protection should be worn by all personnel required to work regularly in the sun. With respect to their use, reference should be made to the manufacturers instructions.

Table C1 SELECTION OF HIGH VISIBILITY SAFETY GARMENTS

Work Site	Safety Garment Used (1)	Headwear	Worn By
Traffic Control	Refer to Approved Procedure for Controlling Traffic		Traffic Controller
On or adjacent to all road/bridge work exposed to traffic and/or plant. (Day Use Only)	Fluorescent high visibility vest or shirt	Safety Helmet where necessary	All Personnel
		Cloth hat may be used elsewhere (2)	
On or adjacent to road/bridge work exposed to traffic and/or plant. (Night Use Only)	Retro-reflective Vests	Safety Helmet where necessary	All Personnel
		Cloth hat may be used elsewhere (2)	
On or adjacent to blasting sites. (Day Use Only)	Fluorescent high visibility vest or shirt	Safety Helmet must be worn	All Personnel

NOTES:

1. High Visibility Safety Garments must be the outer garment worn.
2. Subject to risk assessment.

APPENDIX D

MULTI-MESSAGE SIGN SYSTEM

D1 SCOPE

This Appendix sets out the requirements for the approved panel configuration, size of sign and typical arrangement diagrams.

D2 PANEL CONFIGURATION

Multi-message signs can convey up to 3 messages in the one sign. These will include, as required:

- Warning of works activity, road condition, works personnel;
- Regulatory restriction (e.g. restrict speed);
- Provision of advice to motorists or advising motorists of recommended actions.

Multi-message panel configuration guidelines are as follows:

- At least one of the 600 x 600 mm panels in a three panel arrangement should be symbolic;
- Conflicting messages shall not be used;
- Messages shall be linked logically;
- Speed signs, where used, to be closest to traffic and reflect conditions;
- Letters and symbols to be in accordance with the MUTCD provisions for minimum readability in the order of 75 metres.
- Colour combinations for sign legend and background are to:
 - (a) match existing practice including colour and reflectivity;
 - (b) have high contrast between panels when used as a multi-message sign (i.e. close colouring should be avoided, where practicable, on adjacent panels).

NOTE: The use of "Speed" panels with "ON SIDE ROAD" panels is not permitted.

D3 PHYSICAL ARRANGEMENT

The multi-message sign consists of three linked messages on a single 1200 x 900 mm frame, comprising two panels of 600 x 600 mm and one of 1200 x 300 mm. At least one panel shall be displayed at all times. The 1200 x 900 mm panel size is used irrespective of the speed environment.

Sign mountings shall comply with Clauses 2.5.2 and 3.3 of this Part of the Manual.

Typical arrangement diagrams are shown in Figure D1. These may be appropriately extended to suit other short-term and long-term roadwork situations.

TABLE D1 MULTI-MESSAGE SIGN PLATES

LEGEND	SIZE	COLOUR	REMARKS
	600 x 600	Black on Yellow	TC1169
	600 x 600	Black on Yellow	Sign T1-2 reduced size: TC1270
	600 x 600	Black on Yellow	Sign T1-3-1 reduced size: TC1214
	600 x 600	Black on Yellow	Sign T1-4 reduced size: TC1215
	600 x 600	Black on Fluorescent Retroreflective Orange	TC1332
	600 x 600	Black on Fluorescent Retroreflective Orange	TC1465-1
	600 x 600	Black on Yellow	TC1465-2
	600 x 600	White on Red	TC1173
	600 x 600	White on Red	TC1712
	600 x 600	Black on Yellow	TC1527
	600 x 600	Black on Yellow	Sign T1-28 Note: 'NEXT 5 km' - sign T1-Q03

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TABLE D1 MULTI-MESSAGE SIGN PLATES (cont.)













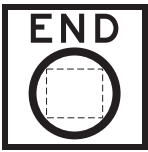














LEGEND	SIZE	COLOUR	REMARKS
	600 x 600	Black on Yellow	Sign T1-30 reduced size: TC1216
	600 x 600	Black on Fluorescent Retroreflective Orange	TC1257
	600 x 600	Black & Red & White on Yellow	TC1452
	600 x 600	Black on Yellow	TC1170
	600 x 600	Black on Yellow	TC1218
	600 x 600	Black on Yellow	TC1219
	600 x 600	Black on Yellow	TC1467
	600 x 600	Black on Yellow	TC1172
	600 x 600	Black on Yellow	Sign T2-6-1 reduced size: TC1359
	600 x 600	Black on Fluorescent Orange	Sign TC9250 reduced size: TC1312
	600 x 600	Black on Yellow	Sign T4-6 reduced size: TC1396

TABLE D1 MULTI-MESSAGE SIGN PLATES (cont.)

LEGEND	SIZE	COLOUR	REMARKS
	600 x 600	Black on Yellow	TC1803
	600 x 600	Black on Yellow	TC1475
	600 x 600	Black on Yellow	TC1819
	600 x 600	Black & Red on White	TC1818 (L)
	600 x 600	Black on Yellow	Sign TC1097 reduced size: TC1398
	600 x 600	Black on Yellow	TC1526
	600 x 600	Black on Yellow	TC1667
	600 x 600	Black on Yellow	TC1668
	600 x 600	Black on Yellow	Sign T5-5
	600 x 600	Black on White	TC1817
	600 x 600	Black & Red on White	Sign R4-1B reduced height: TC1217

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TABLE D1 MULTI-MESSAGE SIGN PLATES (cont.)

LEGEND	SIZE	COLOUR	REMARKS
	600 x 600	Black on White	Sign R4-12 reduced size: TC1419
	600 x 600	Black on Yellow	TC1804
	600 x 600	Black on Yellow	TC1414
	600 x 600	Black on Yellow	TC1820
	600 x 600	Black on Yellow	TC1821
	1200 x 300	Black on Yellow	TC1822
	1200 x 300	Black on White	TC1174
	1200 x 300	White on Blue	TC1177
	1200 x 300	White on Red	TC1220
	1200 x 300	Black on Yellow	TC1221
	1200 x 300	Black on Yellow	TC1325
	1200 x 300	Black on Yellow	TC1529
	1200 x 300	White on Red	TC1362
	1200 x 300	Black on Yellow	TC1403
	1200 x 300	Black on Yellow	TC1425

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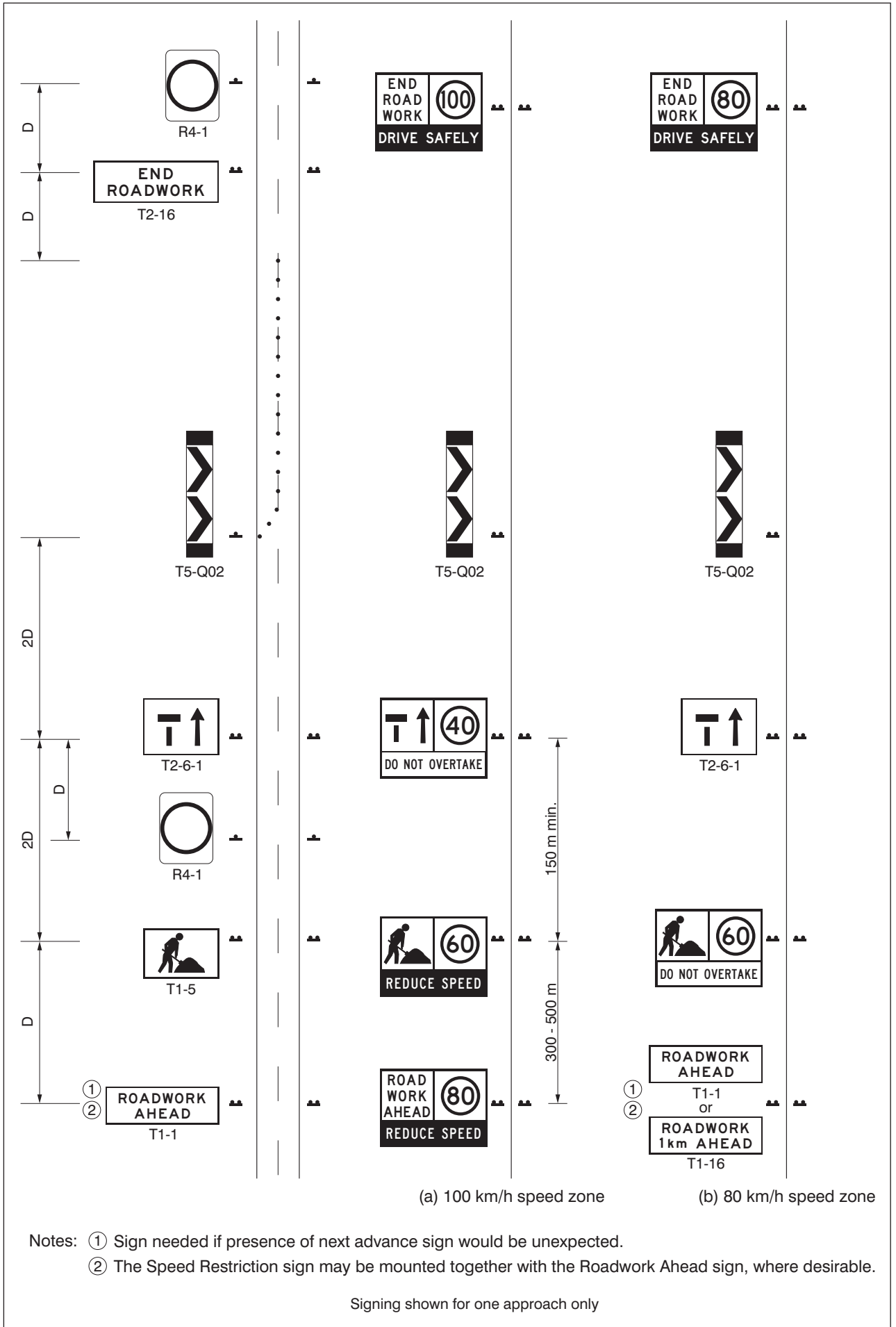


Figure D1 LEFT LANE CLOSURE - MULTILANE, DIVIDED ROAD

APPENDIX E

PROTECTION AND DELINEATION AT EXCAVATION WORKS

E1 DETERMINATION OF NEED

The need for traffic protection or delineation, or both, adjacent to longitudinal excavations shall be established through application of a risk assessment based on-

- (a) length of excavation parallel to the roadway;
- (b) duration of exposure; and
- (c) road alignment.

For the purposes of this Appendix, an excavation should be regarded as a longitudinal depression with the slope of the side adjacent to traffic 1.5 vertical to 1 horizontal or steeper.

E2 LATERAL CLEARANCE

Where the need for traffic protection or delineation at excavation works adjacent to a traffic lane is established as in Paragraph E1, it shall be provided in accordance with Table E1. The Table shows clearances below which protection or delineation is required.

Clearances to delineating devices and safety barriers are specified in Clause 4.13.4.

E3 MEANS OF PROTECTION OR DELINEATION

The means of protection or delineation specified in Table E1 shall be provided as follows:

- (a) *Standard delineation* - Traffic cones or temporary bollards provided in accordance with Clause 3.9.1.
- (b) *Close delineation* - Traffic cones or temporary bollards as for Item (a) but spaced at 4 m maximum in all cases.
- (c) *Safety barrier* - Barriers in accordance with Clause 3.10.2.

TABLE E1 PROTECTION/DELINEATION ADJACENT TO EXCAVATIONS

Speed of traffic (Note 1) km/h	Traffic volume (Note 2) vpd	Clearance to excavation (Note 3) m	Protection required (Note 4)		
			Depth of excavation, mm		
			50 to 250	260 to 500	> 500
< 70	All	< 2.5	Standard delineation	Close delineation	Safety barrier
		2.5 to 5.0	Standard delineation	Standard delineation	Close delineation
		> 5.0	None	None	None
≥ 70	≤ 1500	≤ 5.0	Standard delineation	Close delineation	Safety barrier
		> 5.0	None	None	None
	> 1500	≤ 6.0	Standard delineation	Close delineation	Safety barrier
		> 6.0	None	None	None

NOTES:

- 1 Posted speed limit during roadworks.
- 2 For multilane roads, one way volume. For 2-lane, 2-way roads, sum of both directions.
- 3 Clearance to nearest edge of traffic lane or nominal edge if the edge is not marked.
- 4 See Paragraph E3.

APPENDIX F

ROADWORKS AT INTERSECTIONS

F1 GENERAL

Whenever it is necessary to undertake roadworks within an intersection, advance warning signs should be erected on each of the approaches to the intersection. Signs are required also depending upon the situation and the extent of works affecting each approach to the intersection. It is necessary to investigate each approach in turn and select an appropriate method of signing. Most practical situations are covered by the diagrams included in this document.

Traffic should be guided through the intersection by traffic cones and, if necessary, by temporary hazard markers (see Clause 3.9.3) located so that the trafficable area of pavement retains the form of an intersection although reduced in size. If the obstruction is long term, barriers, delineators and other devices should be used as necessary for this purpose. Adequate tapers in advance of closed areas of roadway are essential.

At intersections with minor roads or streets, consideration should be given to closing the minor street entrance temporarily and detouring traffic by other routes. At intersections with major routes, it may be necessary to ban some turning movements if there is insufficient space to accommodate them adequately or if they would be difficult to provide for at times of high traffic volumes.

On approaches to intersections carrying mainly through traffic and where the obstruction occurs on the far left side of the intersection, it is desirable to create a taper on the approach side of the intersection so that merging manoeuvres take place in advance of, rather than within, the intersection.

A central obstruction within the intersection should have signs to indicate the path by which both through and right-turning traffic, if any, may negotiate it. Traffic controllers or police may be needed in such locations. Small median or channelising islands formed with traffic cones or temporary kerbs may be required on one or more of the approaches.

APPENDIX G

SUPPLEMENTARY LIST OF TEMPORARY ROADWORKS SIGNS

This appendix describes the use of signs for special situations at temporary roadworks. Further details of the design of the signs may be obtained from the Department of Transport and Main Roads, Brisbane.

(a) Roadwork Ahead



T1-Q06

This is used only on narrow medians and shoulders where the standard T1-1 or T1-31 Roadwork Ahead signs would be an obstruction to traffic. The sign size is 600 x 900.

(b) Roadwork on side road (arrow)



T1-Q07

This sign may be used in advance of a 4-way intersection where work is being carried out on a side road, there is insufficient distance to provide appropriate signing of the work on the side road and it is desired to indicate which side road is subject to roadworks. The sign is used in lieu of the ROADWORK ON SIDE ROAD (T1-25) sign in this case. The sign size is 900 x 600.

(c) Linemarkers on road



T1-Q08

This sign may be used to warn approaching traffic that linemarkers are working on the road ahead. This sign is used in addition to, not to replace, other temporary signs. The A size sign is 1500 x 600; B size is 1800 x 600.

(d) Mobile linemarking ahead



T1-Q09

This sign may be used to warn approaching traffic that line marking machines are working on the road ahead. It may be mounted on a job support vehicle travelling behind or ahead of the line marking machine in which case a panel of chevrons is incorporated into the sign, or an illuminated flashing arrow sign used with the sign, to indicate the side of the vehicle to which traffic should pass. The sign size is 900 x 600.

(e) Tractor/Slasher mowing



T1-Q10

This sign is used at frequently changing work areas where grass mowing is being carried out. The sign size is 900 x 600.

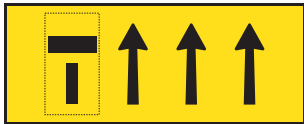
(f) Surveyors ahead



T2-Q06

This sign is used to warn traffic of the presence of survey parties on or in the vicinity of the road. The A size sign is 900 x 600; B size - 1200 x 900.

(g) Lane status



T2-Q07

This sign is used where one or more lanes are closed on a 4 lane roadway. It gives only advance warning of the lane closure and is used in conjunction with appropriate roadwork signing for the work site. The sign size is 2230 x 900.

(h) Wet paint (left, right)



T6-Q08

This sign is used as required to protect freshly painted pavement markings while paint is drying. It may be used on intermediate vehicles in a mobile line marking convoy. LINEMARKING (T6-Q06) sign is required on leading and trailing vehicles.

When the vehicle is equipped with an illuminated flashing arrow sign, the chevron panel is not required.

The A size sign is 1200 x 600; the B size is 1800 x 750.

(i) Traffic signal not in use



T3-Q02

This sign is erected over lanterns at a new traffic signal installation prior to commencement of normal operation. The sign size is 300 x 900.

(j) Signals under repair



T3-Q03

This sign is erected where it is desired to advise approaching traffic that the signals are not operating and are under repair. The sign size is 1200 x 700.

APPENDIX H

EMERGENCY AND UNPLANNED WORKS

(Normative)

H1 GENERAL

This Appendix specifies procedures for the safe control of traffic and the safety of road authority workers attending emergency and unplanned work sites.

Whilst as indicated below, initial and short term measures will in many cases be taken by police, the primary security of the site and the follow-up control and protection measures for longer term situations will often be provided by the road authority. Because of the speed at which it will usually be necessary to deploy road authority resources, frequently outside working hours, specific work methods and procedures for attending emergency closures or part closures should be developed, and work units likely to be allocated to these tasks trained in their use. The procedures should include the following:

- (a) Duties of workers attending the site.
- (b) Modified duties where there are initially, insufficient workers available for optimum control of the site, e.g. the need for a single traffic controller to control traffic in two directions.
- (c) Procedures for contacting police, emergency services, back-up assistance from the road authority and any other needed help, including when usual communication (mobile telephone) is not available or not working.
- (d) Equipment that is to be ready at all times on potential call-out vehicles.

H2 INITIAL RESPONSE

Initial attendance at an incident site will often be by police, fire or emergency services personnel trained and equipped for incident management. They will not necessarily remain on site for the entire length of the closure.

Where a road authority work unit is to provide the initial attendance or is to take over from police or other emergency service units the following shall apply:

(a) *Minor partial road closure*

For closures where traffic can continue to flow in both directions (two-way road) or at least one lane in each direction is open (divided road) a vehicle with a vehicle-mounted warning device in accordance with Clause 3.12.1 shall be placed to shadow the closure at one or both ends of the incident site as necessary.

(b) *Major partial road closure*

For closures where traffic is restricted to one-way movement past the incident site, the vehicle as in Item (a) and traffic controllers in accordance with Clause 4.10 shall be provided at both ends of the site. Where the posted speed limit is more than 60 km/h, high priority shall be given to the provision of advance signs -

- (i) TRAFFIC HAZARD; and
- (ii) Traffic Controller Ahead/PREPARE TO STOP.

(c) *Complete road closure*

The requirements of Item (b) together with barricades in accordance with Clause 3.8.3 across the entire roadway shall be provided.

As far as practicable the positioning of the closure point in Item (b) and the barricade position in Item (c) should be at least distance D from the incident site, and traffic controller positions placed so as to be visible to approaching traffic for a distance of at least 2D.

Typical location of devices for initial response protection purposes is shown in Figure H1.

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