



# SAFE TRAFFIC CONTROL AT ROAD WORKS

# FIELD GUIDE



DEPARTMENT OF WORKS  
THE INDEPENDENT STATE OF PAPUA NEW GUINEA

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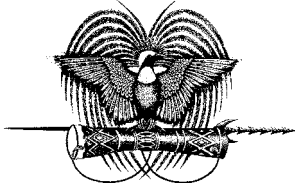
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# FIELD GUIDE



DEPARTMENT OF WORKS  
THE INDEPENDENT STATE OF PAPUA NEW GUINEA

# Foreword

Safety at road works is important for everybody. This field guide has been developed to be an “easy-to-use” reference to assist DOW engineers, contractors, supervision consultants and other road workers to improve road safety at work sites on the roads and highways of Papua New Guinea.

It reflects an accumulation of knowledge and experience in this field, both national and international, presenting the best practise regarding road safety for road work sites. It is a small ready-to-use document that emphasises:

- The “four zone” concept when designing, implementing and reviewing Traffic Management Plans (TMP’s).
- Strict attention to the safety of road workers as well as of road users.

Several practical safety tips are included to help you to make your work sites safer.

This field guide is an essential tool for safer road works in our country. I commend it to you; keep it close to you when working on-site.

**David Wereh**

Secretary - Department of Works PNG

# Contents

<b>Chapter 1: Elements of Safe Road Work Sites</b>	<b>6</b>
1.1 The need for road safety at work sites	7
1.2 Responsibilities at road work sites.	8
1.3 General road safety issues for Contractors.	10
1.4 Signage at work sites	13
1.5 Multi message signs	15
1.6 Delineation of your work site	17
1.7 Provide a safe and forgiving road work site	18
1.8 Setting out and recovering signs and devices	19
<b>Chapter 2: Traffic Management Plans</b>	<b>23</b>
2.1 What is a Traffic Management Plan?	24
2.2 A TMP must be approved before work begins	25
2.3 The Zone Concept	26
2.4 The Advance Warning Zone	28
2.5 The Transition (or Taper) Zone	29
2.6 The Work Zone	31
2.7 The Termination Zone	32
2.8 The Length of a TMP	32
2.9 Roadworks hidden around curves	34
<b>Chapter 3: Setting Out Diagrams</b>	<b>35</b>

## CHAPTER 1

# Elements of Safe Road Work Sites



# The need for road safety at work sites

Road safety and work site traffic management are important but neglected parts of road construction and road maintenance on roads and highways throughout Papua New Guinea. Road safety at your road work sites can be improved at little cost. The key objectives of a safe worksite are to:

- Provide a safe working environment for road workers;
- Ensure safety for all road users;
- Warn all approaching road users of the road works and guide them safely through, past or around the work site;
- Provide minimum inconvenience for the travelling public;
- Provide minimum inconvenience to work at the road work site.

Road workers can improve safety at road work sites by putting themselves “into the shoes of the road user” and by empathising with their needs. An experienced road worker will always ask the question – “What will the road user make of this?”

This field guide is to be used to influence the design, construction, maintenance and operation of safer road work sites in PNG. It is for use by contractors, safety engineers, road workers as well as supervision consultants and DoW engineers.

International research has shown that the risk of a serious crash at or in a work site is three times higher than on any other section of the road.

## 1.2

# Responsibilities at road work sites

The Department of Works, consulting firms, contractors and other road authorities have a responsibility to create a safe working environment for their employees and for the traveling public.

They have a responsibility for the safety of all persons moving through or around road work sites under their control. Employers must therefore ensure the proper training of supervisors and workers, as well as the provision of the correct equipment, protective clothing and resources for them to carry out their work in a safe manner.





## Employers shall:

- Be familiar with the provisions in this field guide and act on them.
- Be aware of their responsibility to provide safe and convenient travelling conditions for the public, and safe working conditions for personnel and machinery under their control.
- Ensure the personnel involved in signage and traffic control are aware of their responsibilities.
- Inform other road stakeholders, especially local Police, about the road works well before they are set up.
- Inform road users of the road works. For long-term work sites information about the expected duration of the works should be posted well in advance so road users can anticipate possible effects (such as delays) and make decisions about using other routes.
- Establish the position of Safety Officer to be responsible for all occupational health and safety as well as road safety matters during the road work. This is mandatory for long-term road works.

## Road workers shall:

- Be familiar with the provisions in this field guide and act on them.
- Wear the protective clothing provided for their safety.
- Take responsibility for their own safety by looking out for risks.
- Take care of the safety of other personnel and visitors to the work site.
- Not engage in work practices that put themselves or any other person at risk.
- Follow the lawful instructions of their employer in carrying out the safety requirements of this field guide.
- Report immediately to the Safety Officer any incidents, deficiencies or shortcomings with the safe operation of the TMP.

# General road safety issues for contractors

A Traffic Management Plan shall be designed by the Contractor, and approved by the Client, prior to any work beginning. Chapter 2 contains details for designing a TMP.

“A Traffic Management Plan (TMP) is a drawing (or series of drawings) showing the traffic control devices proposed for use at a work site, together with a list of the programming of the works – stating the days and times the work site will operate”.

Regardless of the size of the project, and how long the road works are expected to last, there are seven general safety issues that must always be applied:

- 1 Safe speeds (See tables opposite)
- 2 Safe signs (See Section 1.4)
- 3 Safe delineation (See Section 1.6)
- 4 Safe roadsides and devices (See Section 1.7)
- 5 Safe set up each TMP (See Section 1.8)
- 6 All workers and engineers on site shall wear a high visibility vest at all times.
- 7 A Safety Officer shall be appointed by the contractor to be responsible for all road safety matters at the work site.



POSTED SPEED LIMIT	BUFFER ZONE	ROADWORK SPEED LIMIT
Up to and including 80km/h	N/A	40km/h
Above 80km/h	60km/h	40km/h

SPEED LIMITS TO BE USED AT PNG ROAD WORKS WHERE WORKERS ARE ON THE ROAD OR WITHIN 1.5M OF MOVING TRAFFIC

.....

POSTED SPEED LIMIT	BUFFER ZONE	ROADWORK SPEED LIMIT
Up to and including 80km/h	N/A	60km/h
Above 80km/h	N/A	60km/h

SPEED LIMITS TO BE USED AT PNG ROAD WORKS WHERE WORKERS ARE NOT WORKING ON THE ROAD NOR WITHIN 1.5M OF MOVING TRAFFIC

## Key Points for Contractors to Provide Safer Road Works

- Always prepare a Traffic Management Plan (TMP).
- Use the “four zone concept” to guide you.
- Make sure each zone is long enough. Use the tables on page 48 of this field guide for guidance.
- For larger projects, have your TMP audited by an independent audit team and submit the audit report to the Client (or the Road Authority) together with your TMP for approval.
- Have sufficient reflective signs, cones and barriers to fully install your TMP. Have an adequate store of replacement signs and cones to use if any go missing from the work site.
- Set consistent speed limits in your work zones. 40km/h is the roadwork speed limit for use on PNG highways and roads. On high speed highways (posted higher than 80km/h) you will need a 300m long 60km/h buffer zone in between the existing speed limit and the 40km/h work zone speed limit.
- Work with local Traffic Police to keep speeds at or below 40km/h through each work site.
- Assign one person to be your Safety Officer.
- He/she is to inspect your work site twice every day, and to be responsible for repairing or replacing any missing or damaged sign or device.
- Train your traffic controllers. Ensure they have safety clothing and equipment. Ensure they have been trained in the use of the Stop/Slow baton.
- Train your road workers in safety methods. Have them all wear reflective safety vests.
- Never allow concrete blocks/ branches/rocks or other unforgiving objects to be used for delineation.
- Sweep the road regularly (as appropriate, to minimise the risk of skidding).
- Keep construction machinery and materials out of the safety buffer zone.
- Always put yourself into “the shoes of the road user.”

# 1.4

## Safe signage at work sites

If a sign is damaged it is to be replaced immediately.

Road signs are the most important devices at your road works. They should be used consistently and correctly at all work sites. You should give careful attention to the type of sign used, its condition (reflective, clean, and undamaged) and its location according to the Traffic Management Plan (TMP).

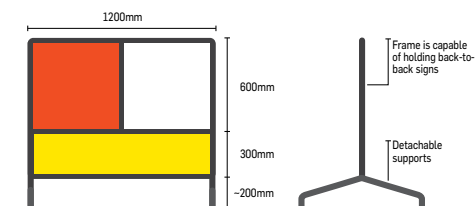


## The Contractor shall:

- Use only reflective signs – with Class 1 reflective sheeting for legends/symbols and Class 2 reflective sheeting for background.
- Preferably use multi message frames and signs (see Section 1.5 below).
- Ensure that all signs satisfy the 6 C's of good signage (see Page 16).
- Place signs correctly and safely. Exact locations shall be in accordance with the TMP and shall be agreed with the Road Authority two days before set up. All signs shall be placed at least 1m clear of traffic paths.
- Ensure that all signs are within drivers and/or riders line of sight – not blocked by trees, grass, works vehicles, machinery or other obstructions.
- Not allow any sign to obscure a driver/riders view of another sign.
- Make sure signs do not restrict sight distance for drivers entering from side roads or private driveways.
- Check that signs cannot divert traffic into wrong or dangerous paths.
- Check the correctness and condition of each sign twice every day (at the beginning and the end of the shift).
- Never cause drivers and/or riders to break road rules by using signs incorrectly. Ensure for example that traffic diversions do not force drivers and/or riders to cross double lines, or to disobey any regulatory sign.
- When the work is finished for the day, remove (or cover) all signs that are not needed. In particular, when workers have left the site, remove the symbolic Road Worker Ahead warning signs and replace them with Road Works Ahead signs or similar.
- When work is finished for the day, return the road to the posted speed limit if the road surface is adequate and safe, and provided there are no deep excavations or work equipment left close to the traffic lane.

## Multi message signs

Multi message signs are authorised for use at road works in PNG. These are lightweight modular steel frames into which plastic coated signs are inserted according to the requirements of the TMP. With detachable support legs these signs provide lightweight and flexibility with messages. They are a commonly used sign at road work sites in Australia and are recommended for use in PNG.



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DIMENSIONS AND ARRANGEMENT OF A  
MULTI MESSAGE FRAME AND SIGNS

### Guidelines for using multi message signs in PNG roadworks:

- All three cells must be filled with signs when in use.
- Any regulatory signs (particularly speed restriction signs) must be placed in the upper cell closest to the road.
- The first multi message sign in a series shall have a pair of orange flags affixed to the top of the frame to aid conspicuity.
- Duplicate signs are recommended for all road works but they shall be used at all road works on divided roads and on all roads where the operating speed is estimated to be 80km/h or above.
- Multi message frames provide for back to back signs to be inserted. The reverse side of the multi message sign therefore offers an opportunity to provide information and warnings to road users traveling in the other direction.

# The Six C's of Good Road Signs

TO BE EFFECTIVE ALL SIGNS USED AT YOUR ROAD WORK SITE  
MUST CONFORM TO THE SIX C'S OF GOOD SIGNAGE.

REQUIREMENT	SIGN REQUIREMENT	CONTRACTOR TO ENSURE
Conspicuous	Each sign shall be able to be readily seen.	All signs can be seen by approaching drivers and/or riders. This requires all signs to be reflective, and in good condition, and located suitably.
Clear	Each sign shall be easy to read.	All signs are to be kept in good, clean condition.
Comprehensible	Each sign shall be easy to understand	All signs used comply with DoW standards.
Credible	Each sign shall be reasonable and believable for the situation	No sign shall be used that does not show a credible (believable) message.
Consistent	The same sign shall be used for the same situation at all road works everywhere across the country	Standard signs shall be used at road work sites so drivers/riders can quickly understand the message.
Correct	The sign shall be the correct sign for that situation – there are some warning signs that appear the same but have quite different meanings.	Only correct signs are used. Near enough is not good enough. Do not use “any” sign if the correct one is missing. Rather, get a correct one and install it.



## Safe delineation of your work site

Contractors shall ensure that:

- All signs and delineators shall be maintained in good, clean condition.
- All signs and delineators that are used at night shall be reflective with at least Class 1 grade reflective words and symbols on a Class 2 grade retro-reflective background. All sign faces are to be maintained in clean, undamaged condition.
- The Work Zone and Transition Zone (if any) shall be clearly delineated with reflective devices including soft plastic bollards, guide posts, hazard markers and other approved devices.
- Plastic bollards 1m high, with Class 1 reflective bands are the preferred delineator into, through and out of the work site. Alternatively plastic traffic cones, at least 450mm high, with Class 1 reflective bands may be used.
- Drivers and/or riders are given sufficiently long tapers to allow them time and distance to safely diverge/merge.
- No alternative paths for road users shall be allowed. Any possible optional routes are to be closed with strong delineation and signs.

## 1.7

# Provide a safe and forgiving road work site

Contractors shall ensure that:

- Dangerous items (such as concrete blocks, tree branches, individual concrete barricades or star pickets) are not used at any work site.
- Machinery, vehicles, stock piles of gravel, sand, or steel bars or any other materials are not stored inside the “safety buffer zone” at the work zone.
- The roadway is kept clear of sand, mud and gravel so as to minimise the risk of a vehicle skidding or sliding.
- If an excavation (more than 2m deep and within 3m of the traffic lane) is to exist for more than one day, safety barrier is installed to shield the excavation. The barrier shall be installed in accordance with the DoW road works manual.

## 1.8

# Setting out and recovering signs and devices

Before road work commences, and to assist with the correct spacing of each device, all the required signs and delineators should be set out along the footpath or road side in accordance with the approved Traffic Management Plan.

- 1 Place the advance warning and regulatory signs, starting with the signs that are the greatest distance away from the work zone. Work inwards towards the work zone.
- 2 Place the signs in advance of the transition zone and/or the start of the work zone.
- 3 Install all delineators required for the transition taper and the work zone.
- 4 Place any other warning and/or regulatory signs including termination and end of temporary speed zone signs.
- 5 Cover any permanent regulatory signs that conflict with the Traffic Management Plan.
- 6 Drive through the site to check the setting up.

At any time when the road works stop (overnight, public holidays, weekends) make sure all your signs are placed into “after hours” mode. Retain all necessary warning signs that warn approaching drivers of unsealed roads, single lane operation or other critical issues. Remove (or cover) any other signs that are only needed when work is taking place (such as “Prepare to Stop” or “Traffic Controller Ahead” symbolic signs).

When your work is finished, remove all the signs and delineators in the reverse order to the above. Have someone drive through the entire worksite to make sure all signs have been removed.

# Regulatory Signs for Use at Road Works in PNG

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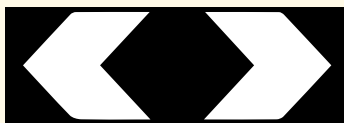
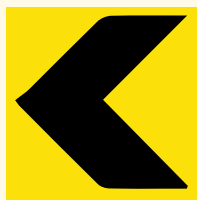
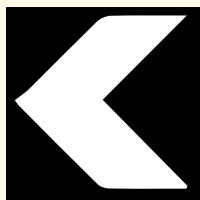
# Warning Signs for Use at Road Works in PNG

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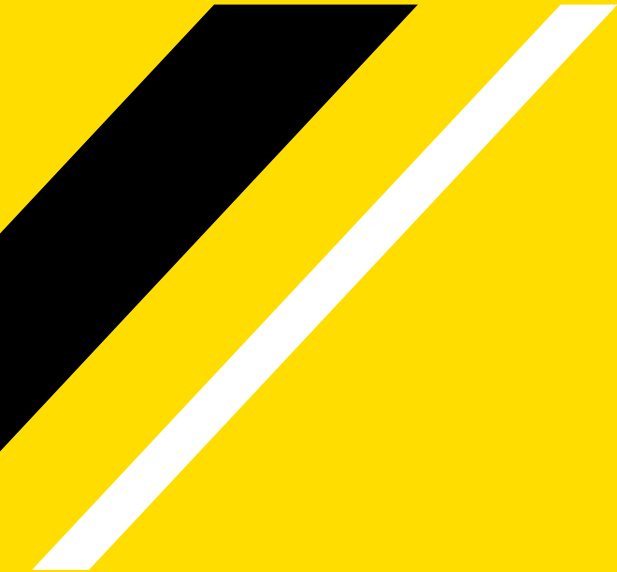
# Traffic Instruction Signs for Use at Road Works in PNG

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## CHAPTER 2

# Traffic Management Plans (TMPs)



## What is a Traffic Management Plan?

“A Traffic Management Plan (TMP) is a drawing (or series of drawings) showing the traffic control devices proposed for use at a work site, together with a list of the programming of the works – stating the days and times the work site will operate”

It must be prepared by the Contractor and must be approved by the Client or the Road Authority (for the Client) before it can be implemented and before the works may begin.

If the work has a number of stages, there should be a TMP for each stage that is expected to last longer than one week.

Your TMP shall also include full details of the signs/devices you will use to manage traffic through your worksite outside normal working

hours (i.e. when workers are not present). This may include the removal or covering of any signs that are not applicable at those times, particularly temporary worksite speed limits.

In developing the TMP, the Contractor shall consider the staging (sequence) of the road works, and what is to be done in each stage. This helps the Contractor to identify the resources needed and to think carefully about what will happen to the traffic.



## 2.2

# A Traffic Management Plan must be approved before work begins

For example the Contractor should ask:

- Will the lanes be narrowed?
- Will any lanes need to be closed?
- Will there be any median cross over, with contra-flow operation?
- Will there be any detours?
- Will there be any temporary diversions or by-passes?
- Will there be any intermittent closures?
- Will the shoulders (or median) be used by traffic?
- Will the site be used by many pedestrians, especially school aged pedestrians?

Contractors shall allow at least ten (10) working days for the Road Authority to receive, read and review the TMP they have submitted. In this time the Road Authority shall assess the TMP, possibly meet with the Contractor's Safety Officer to discuss the TMP (if needed) and approve the TMP.

At least two (2) days prior to the work commencing the Supervising Engineer and the Contractor's Safety Officer shall meet on-site to determine the exact location of all signs, device and delineators for the first stage of the work. Only when the TMP is approved in writing by the Road Authority may it be installed and the road works commence.

## 2.3

# The Zone Concept

The “Zone Concept” is a method of breaking a work site down into four individual zones.

Each zone has a particular purpose. It follows the path of the road users as they approach, pass through and depart from a work site. The four zones are detailed on the next page. The length of each zone depends on the approach speed of vehicles.

A TMP shall show clearly that these four zones have been considered during the design of the TMP. It shall show that signs, delineators and other safety devices have been planned around these four zones.

“The “Zone Concept” breaks a work site down into four separate zones and provides a simple clear way to think about your Traffic Management Plan”

# The “Four Zone Concept”

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ZONE	PURPOSE OF THIS ZONE
<b>Advance Warning zone</b>	To alert drivers and/or riders of the road works ahead, and to instruct them how to safely proceed (the signs advise of speed restrictions, lane closures, lane narrowing's, traffic controllers and more)
<b>Transition zone (Used only where there is a need to direct traffic into another lane).</b>	To guide drivers and/or riders into the correct alignment in which they should remain in order to pass safely through the work zone. If the work is not causing any change to the traffic path this zone is not necessary.
<b>Work zone (This zone is where the work is being carried out – it can range from a few metres up to several kilometres long)</b>	To control drivers and/or riders through the area where the work is taking place at a speed and in a lane that is safe for them and which is also safe for the road workers. There is a “buffer zone” within this zone that serves as a safety area surrounding the workers. It is always 20m in front of the work zone and 1.2m along the side of the zone.
<b>Termination zone</b>	To inform drivers and/or riders that they have departed the work zone, to inform them of the new speed limit that applies on the road ahead, to thank them for driving carefully through the works, and to remind them to always drive safely. In PNG this zone is always 50m long where the normal posted speed zone is 60km/h or less, and 100m in higher speed zones.

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## The Advance Warning Zone

The function of the Advance Warning Zone is to give advance warning to drivers and/or riders of a road work site ahead.

Drivers/riders need to be able to see the warning signs, understand the conditions ahead and know what is expected of them to safely move towards, through and past the work site.

The need for the display of advance warning signs and/or devices depends on factors such as the speed of approaching traffic, the amount of diversion required in the travel path (which will take place in the Transition zone), and the sight distance available to the work site.

A common failing in PNG is to place warning signs only a few metres in advance of the works site. This is inadequate and unsafe. The advance warning signs must be located well in advance of the works site so that drivers and/or riders are given adequate time to recognise the work site and to take necessary action.

Any speed reduction required at any work site must be placed and implemented within the advance warning zone. Drivers/riders must enter the transition zone (or if there is no transition zone – the work zone) at the agreed road work speed limit. This will typically be 40km/h.

**For the minimum length of advance warning zones refer to Table 1 on page 48.**

## 2.5

# The Transition (or Taper) Zone

The Transition (or taper) zone is the length of road where drivers are directed away from their normal path of travel.

If no diversion is needed at a work site, a transition zone is not necessary. In such cases, the advance warning zone leads straight into the work zone.

There are two types of tapers:

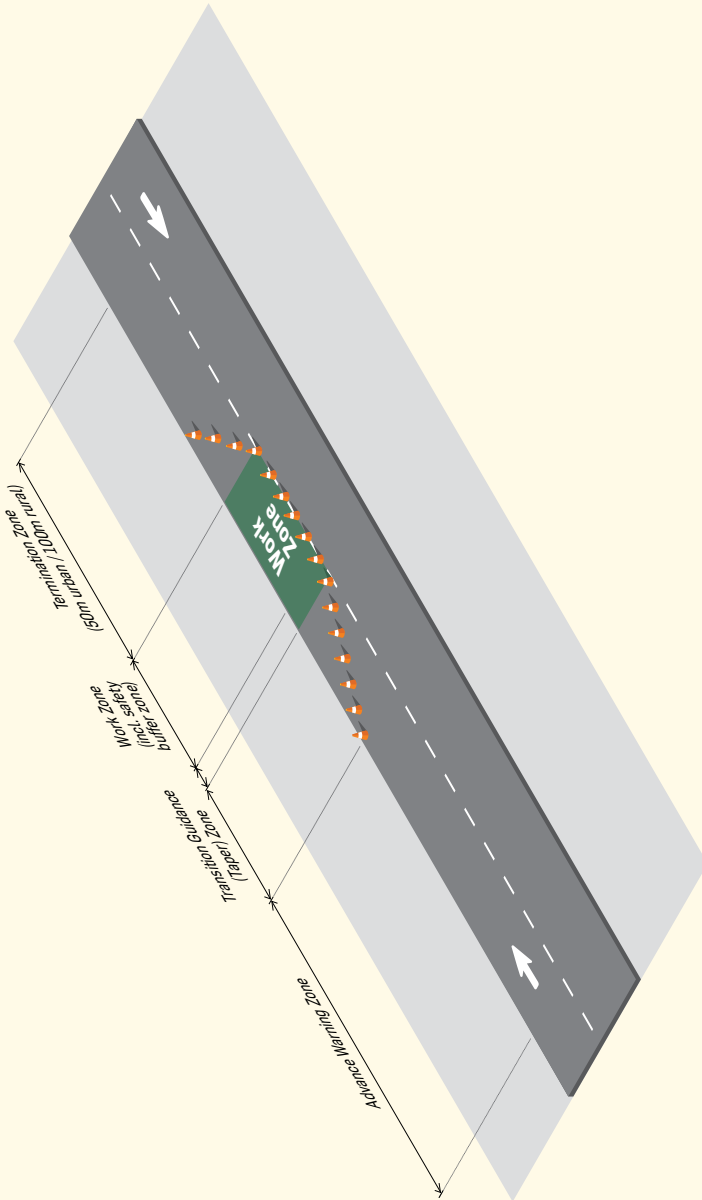
- 1 A diverge taper shifts a line of traffic sideways when it does not need to merge with another line of traffic travelling in the same direction.
- 2 A merge taper shifts a lane of traffic sideways where it must join (merge with) another line of traffic travelling in the same direction. A merge taper requires a longer distance because drivers are required to combine two lanes of traffic into one.

The taper that guides drivers to the new travel path clear of the worksite is provided fully within the transition zone. The amount of taper to be provided depends on the width of road that needs to be closed. Desirably the full length of the taper should be visible to the approaching motorists.

**For the minimum length of advance warning zones refer to Table 2 on page 48.**

# The four zones at a road work site

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## The Work Zone

The Work Zone is the area where the work is being carried out and where there is the most chance of a vehicle coming into direct contact with workers and work equipment.

It includes the work site plus a small surrounding area (called the “safety buffer zone”) that should be kept clear of moving traffic and roadside hazards.

The “safety buffer zone” offers an area (20m in front of and 1.2m beside) between vehicles and workers at the work site.

Vehicle speeds must be controlled past the work site to reduce the risk that a vehicle will inadvertently enter the work area.

If excavations more than 2m deep are within the clear zone for the road, suitably safe barrier should be used to shield the work site both day and night. Refer to the DoW Safe Traffic Control at Road Works Manual for barrier details.

## 2.7

# The Termination Zone

The Termination Zone is where traffic resumes normal operation after passing the work zone.

It is important to advise the road users that they have reached the end of the work zone and that they may return to their normal driving conditions and route.

Signs are used to do this and to inform drivers of the next speed limit (usually returning to the posted speed limit). A standard length of termination zone of 50m (in 60km/h zones and urban areas) and 100m in higher speed (and rural) areas shall be used in PNG.

## 2.8

# The Length of a TMP

The length of a traffic management layout is measured from the Work Zone along the road towards approaching traffic.

- Measure a consistent Safety Buffer Zone (20m) back from the Work Zone.
- Add on to that the required length of the transition zone (if one is needed). Refer to Table 2 on page 48.
- Add on to that the required length of the advance warning zone. Refer to Table 2 on page 48.



An example:

A culvert is to be constructed across a two lane two way rural highway, where operating speeds are around 80km/h. The work will close half of the highway at a time (for approximately 3 weeks each side) and will cause traffic in one direction to diverge by 4m and to give way to the on-coming traffic.

From Tables 1 and 2 (above) the following lengths will be needed for each zone for the first direction:

Safety buffer zone – 20m

Transition zone - 80m

Advance warning zone – 225m (as some drivers will need to stop to let traffic from the opposite direction pass).

Total length of traffic management layout for the first direction =  $20 + 80 + 225 = 325\text{m}$  measured from the culvert works. In addition a 100m termination zone will be necessary.

From Tables 1 and 2 (above) the following lengths will be needed

for each zone for the second direction (which will not require a transition zone):

Safety buffer zone – 20m

Transition zone - 0m (traffic from this direction does not need to change lane)

Advance warning zone – 170m (for drivers to reduce their speed from around 80km/h to the required 40km/h through the work zone).

Total length of traffic management layout for the second direction =  $20 + 0 + 170 = 190\text{m}$  measured from the culvert works. In addition a 100m termination zone will be necessary.

## 2.9

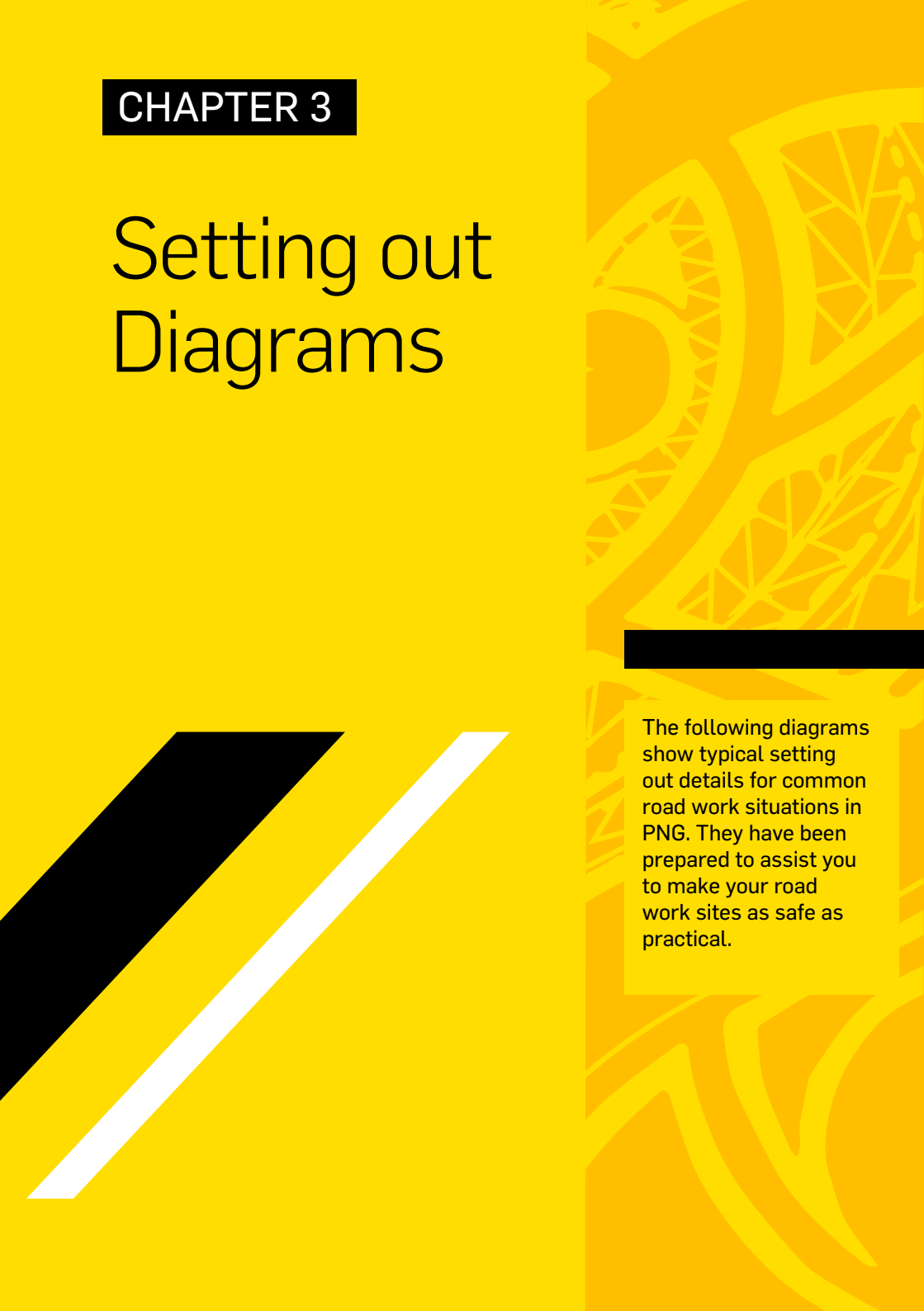
# Road works hidden around curves

Where a work site is located around a curve, you should extend one or more of the zones towards on-coming traffic to a suitable location where drivers/riders can clearly see them, be alerted to the works ahead and to the correct path to take.

Usually this is best done by ensuring the advance warning zone begins on a straight section of road with good visibility. If a lateral shift is needed the transition zone should also start on the straight and then be extended as necessary to lead into the work zone.

## CHAPTER 3

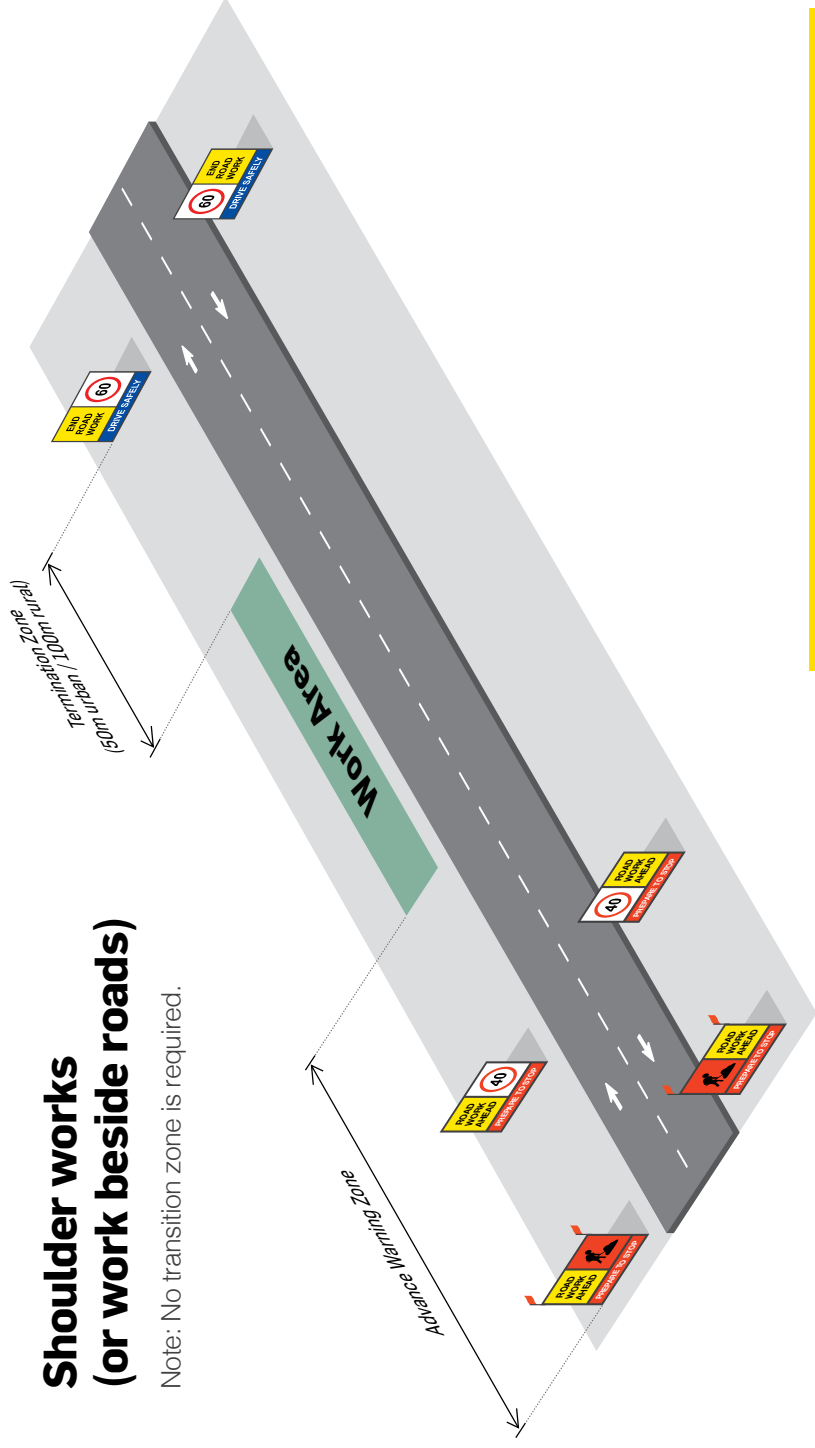
# Setting out Diagrams



The following diagrams show typical setting out details for common road work situations in PNG. They have been prepared to assist you to make your road work sites as safe as practical.

## Shoulder works (or work beside roads)

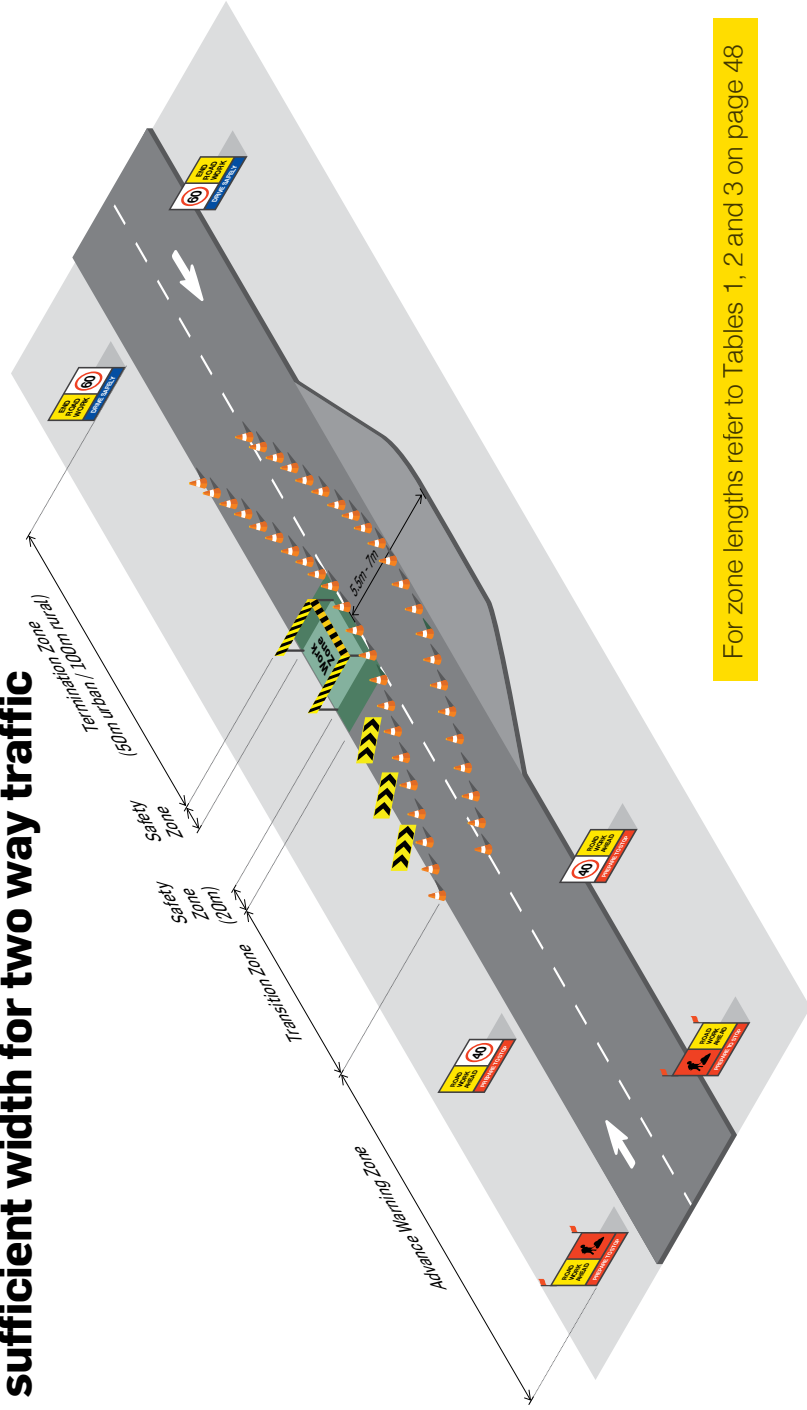
Note: No transition zone is required.



For zone lengths refer to Tables 1, 2 and 3 on page 48

**FIGURE 2**

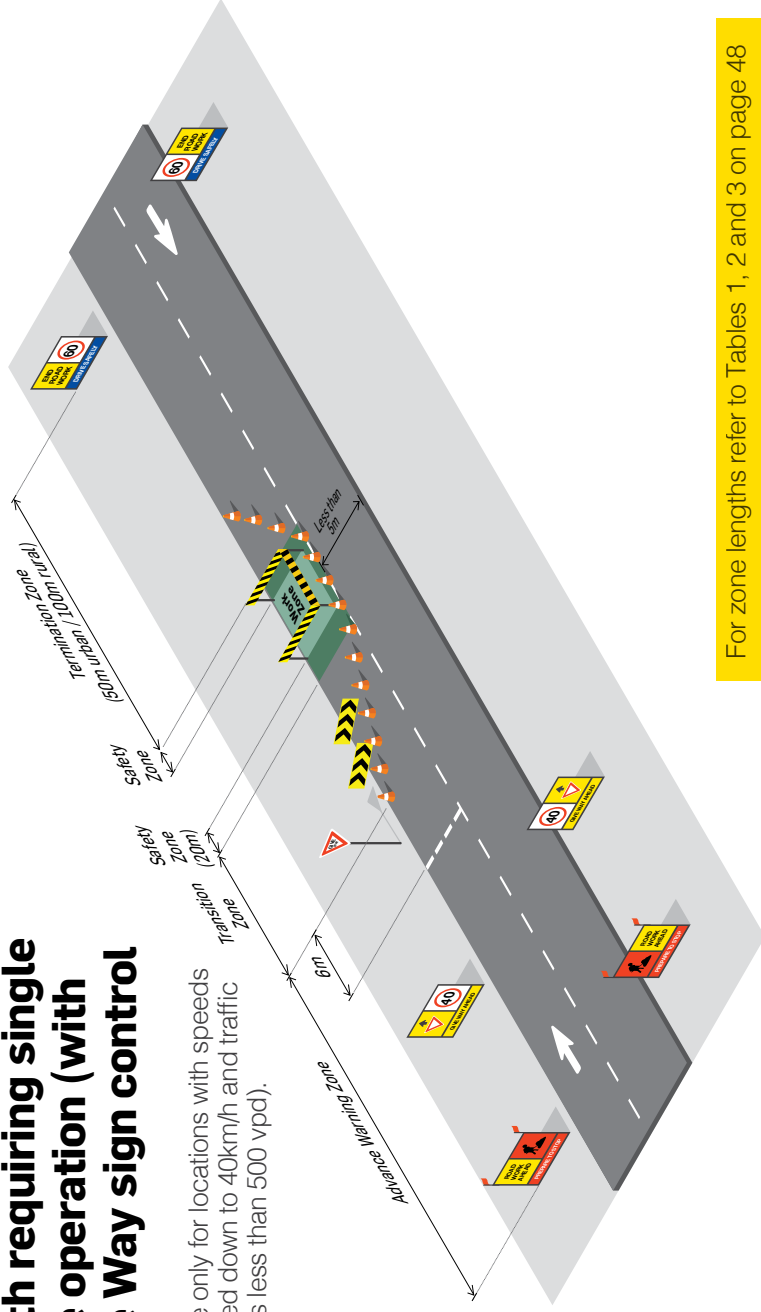
## A reduction in road width but with sufficient width for two way traffic



For zone lengths refer to Tables 1, 2 and 3 on page 48

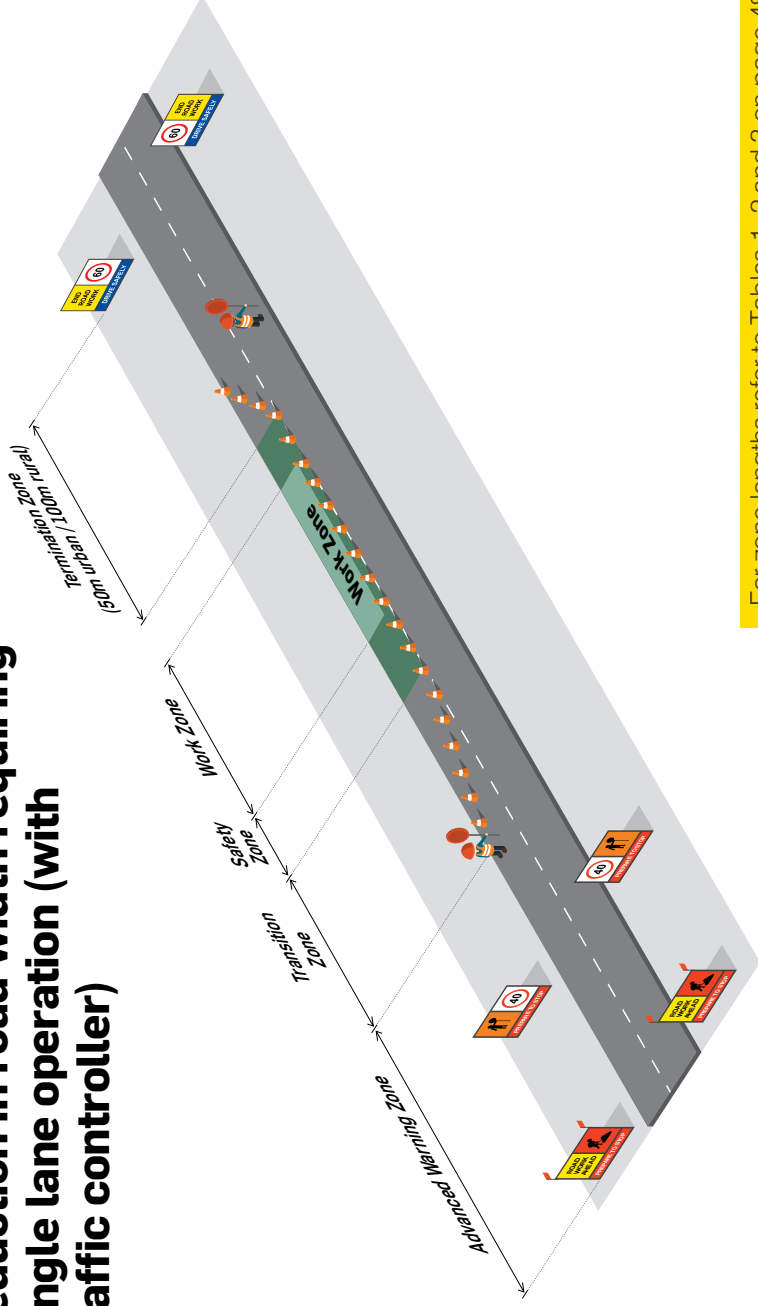
## Reduction in road width requiring single lane operation (with Give Way sign control)

Suitable only for locations with speeds managed down to 40km/h and traffic volumes less than 500 vpd).



**FIGURE 4**

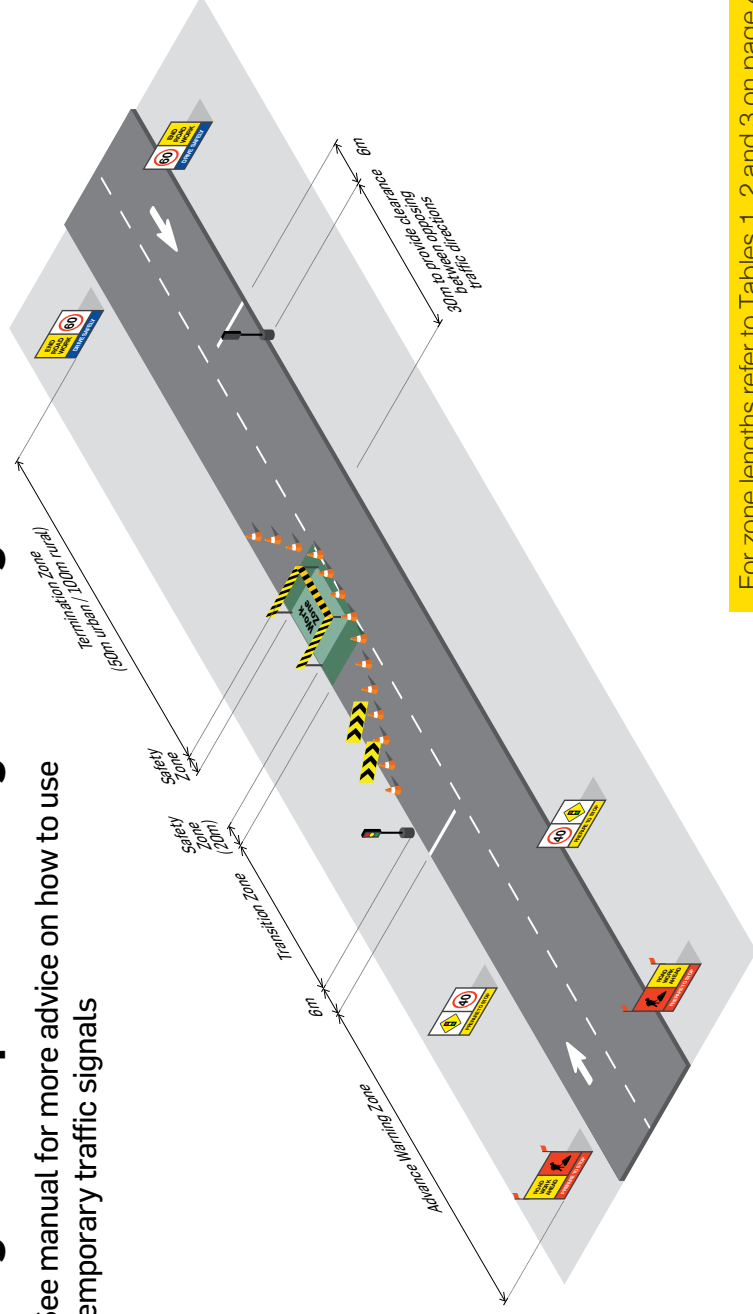
## Reduction in road width requiring single lane operation (with traffic controller)



For zone lengths refer to Tables 1, 2 and 3 on page 48

## Single lane operation using traffic signals

See manual for more advice on how to use temporary traffic signals

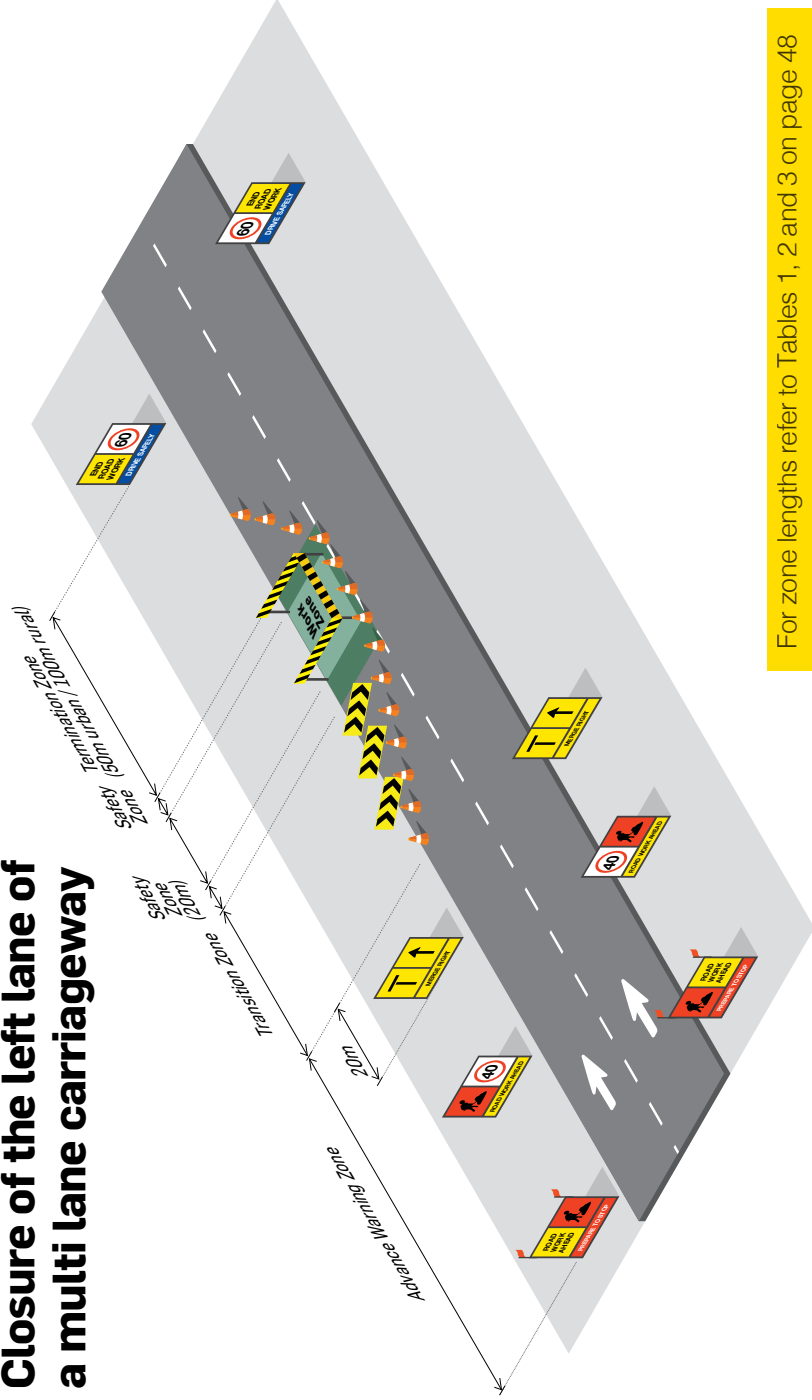


For zone lengths refer to Tables 1, 2 and 3 on page 48



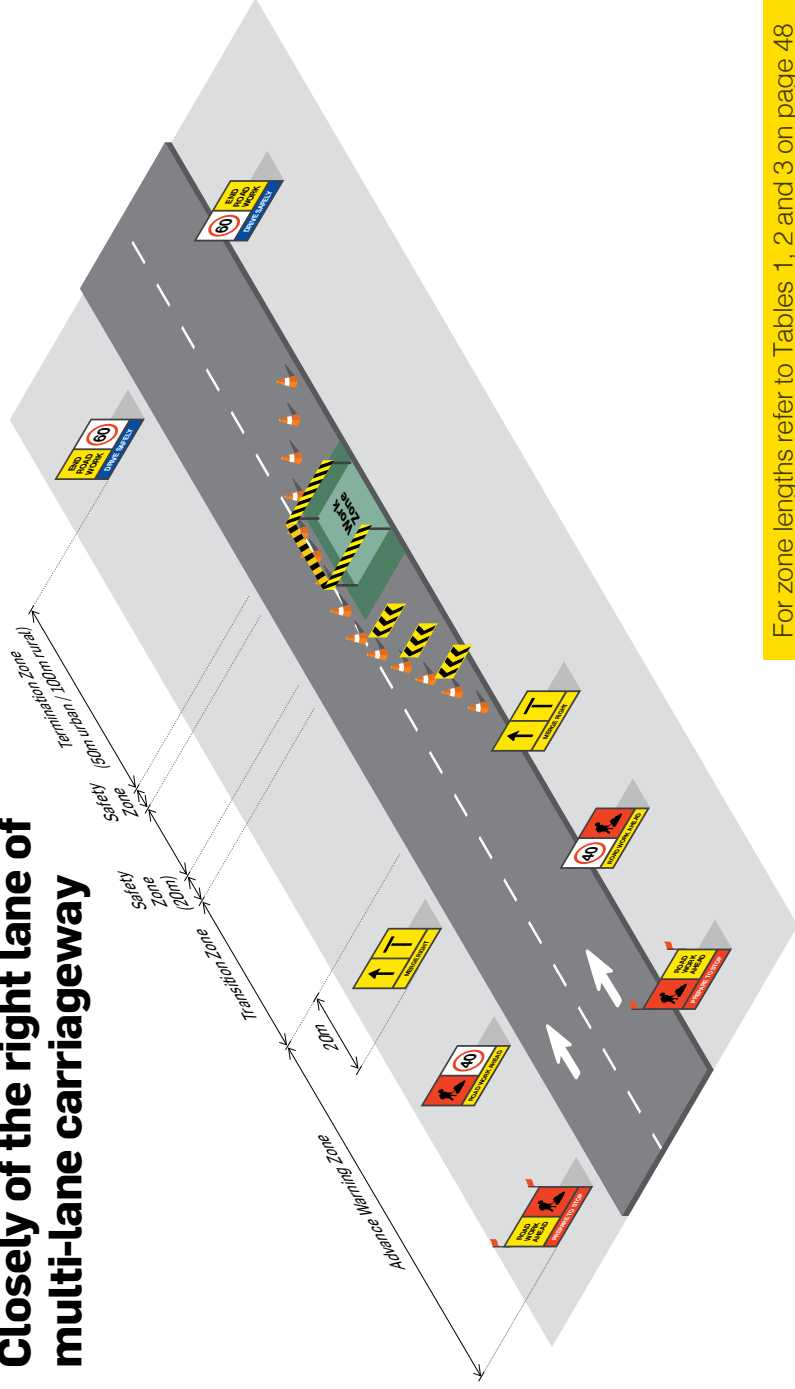
**FIGURE 6**

## Closure of the left lane of a multi lane carriageway



For zone lengths refer to Tables 1, 2 and 3 on page 48

## Closely of the right lane of multi-lane carriageway

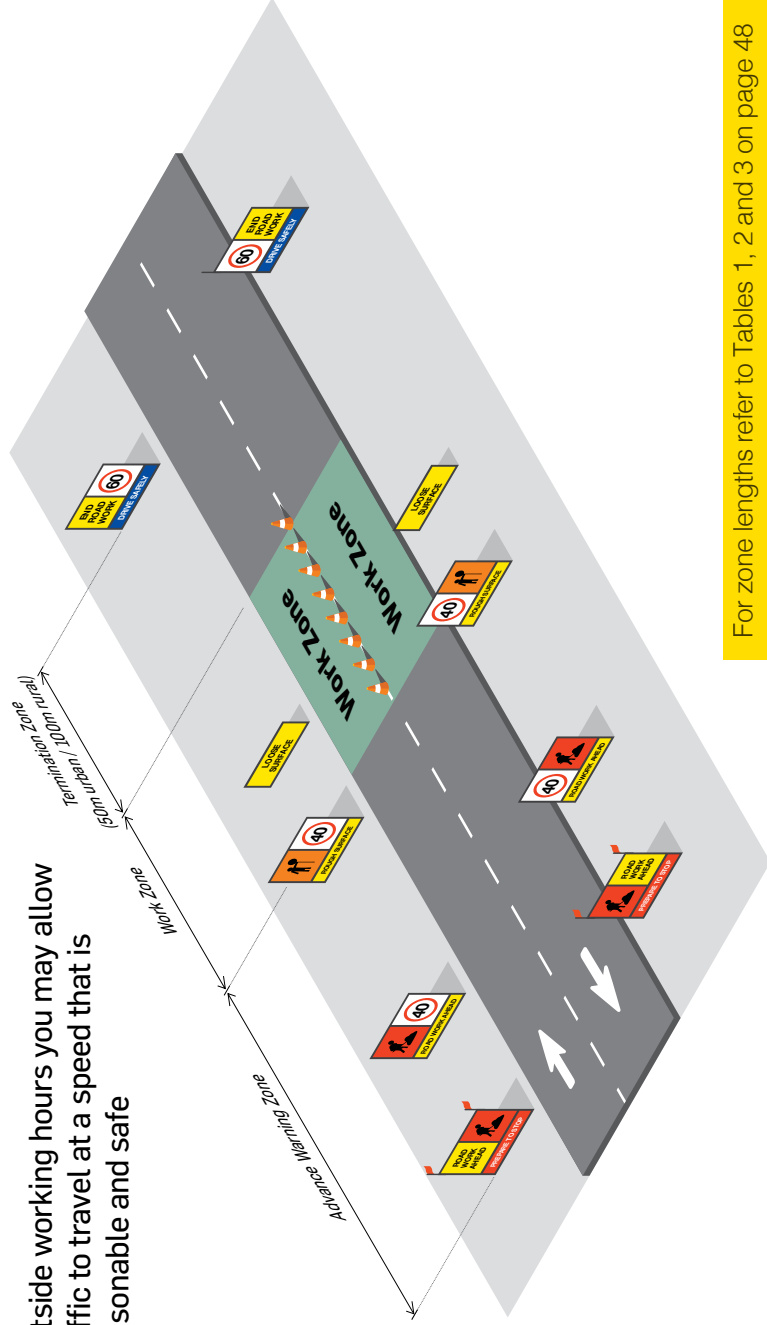


For zone lengths refer to Tables 1, 2 and 3 on page 48

**FIGURE 8**

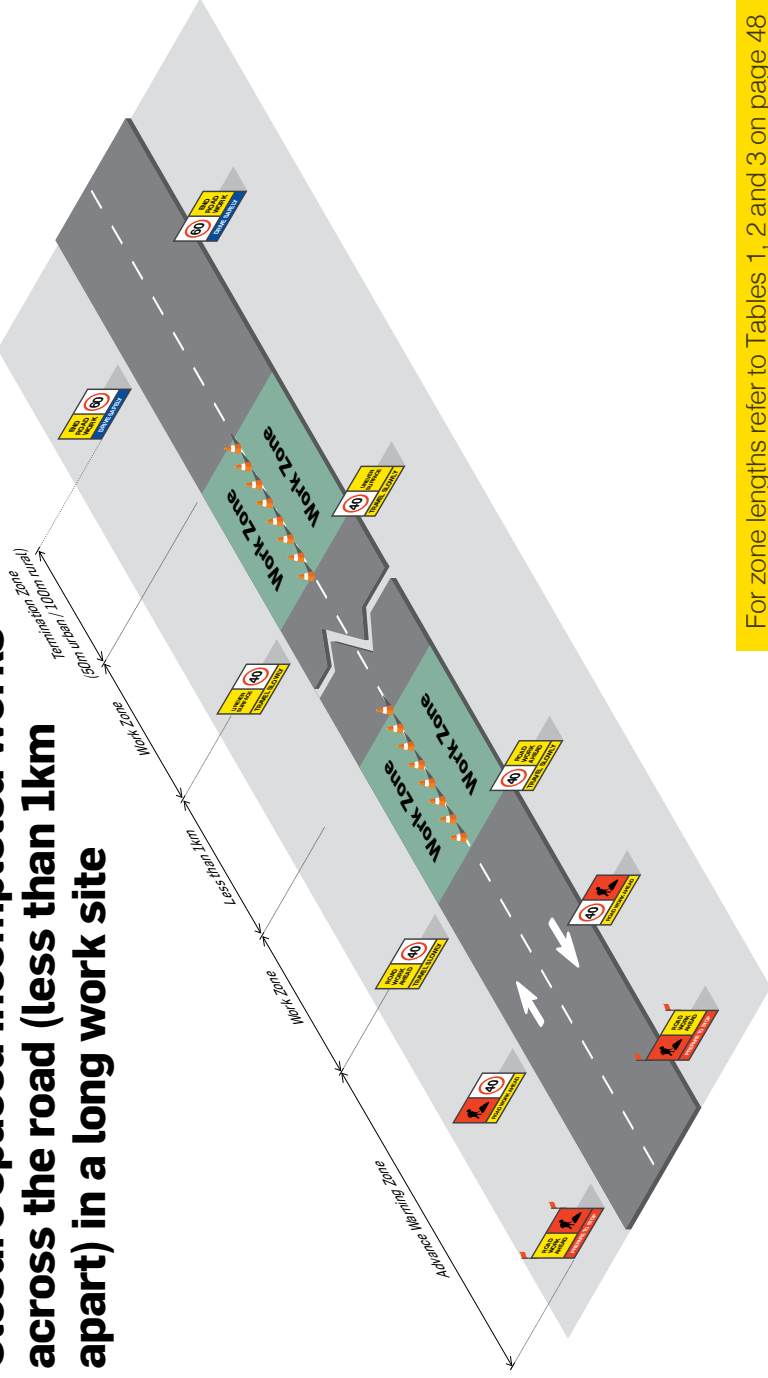
## Incompleted works across the road

Outside working hours you may allow traffic to travel at a speed that is reasonable and safe



For zone lengths refer to Tables 1, 2 and 3 on page 48

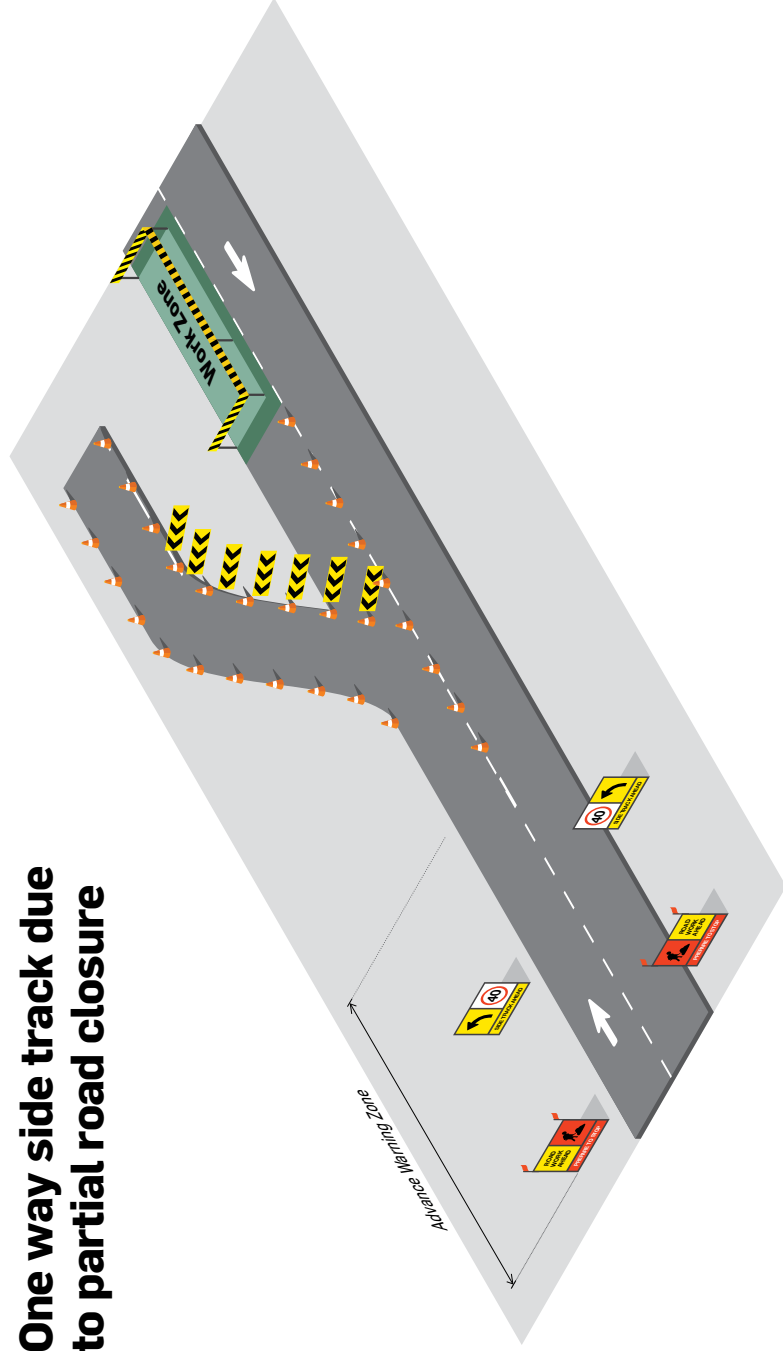
## Closure spaced incomplete works across the road (less than 1km apart) in a long work site



For zone lengths refer to Tables 1, 2 and 3 on page 48

**FIGURE 10**

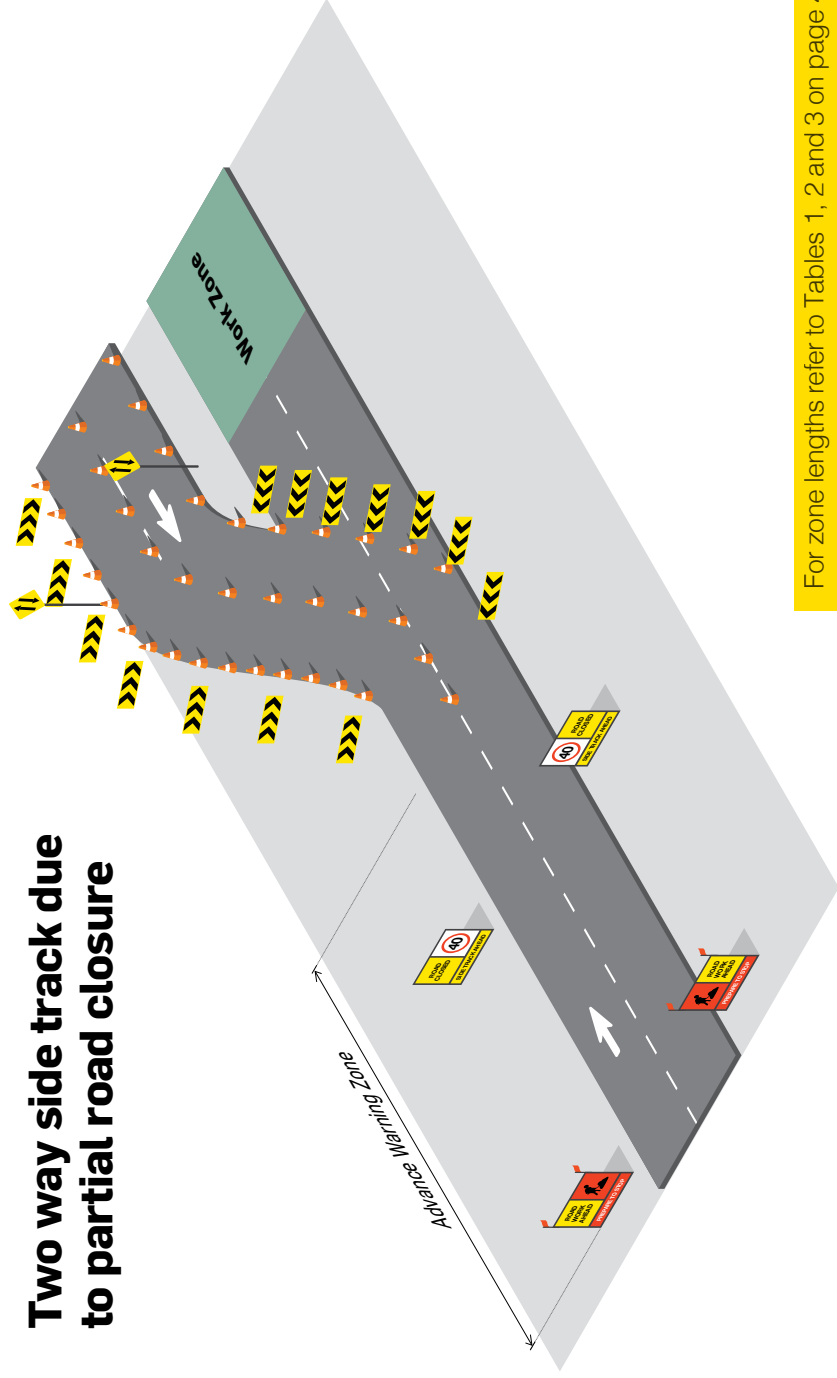
## One way side track due to partial road closure



For zone lengths refer to Tables 1, 2 and 3 on page 48

**FIGURE 11**

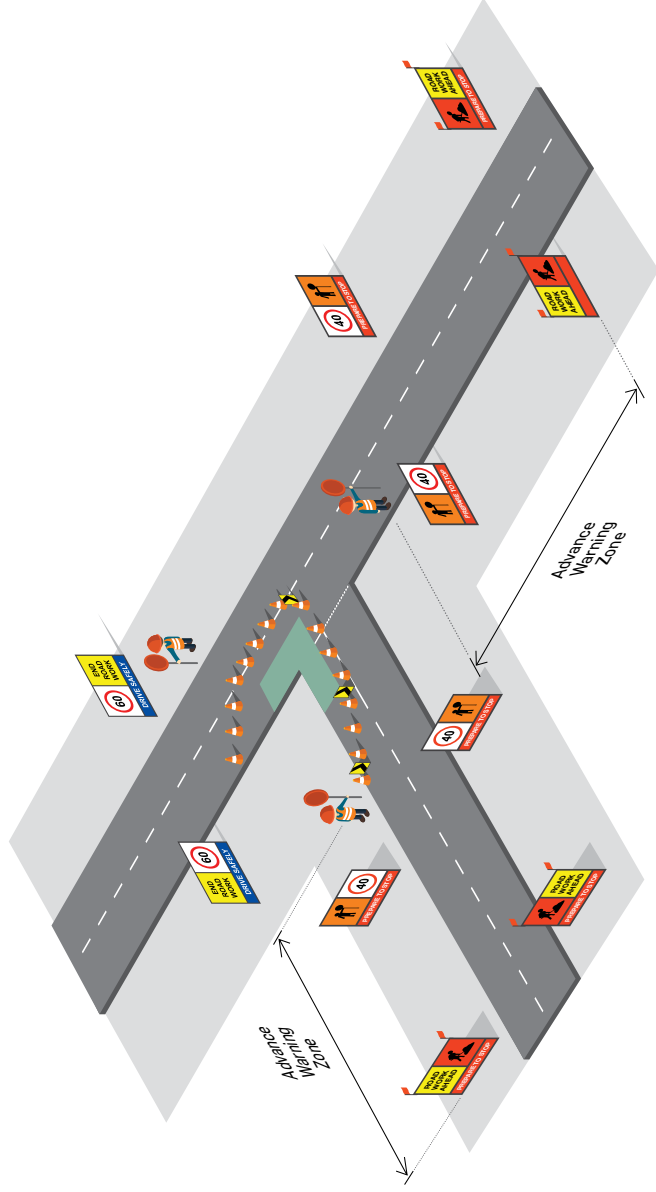
## Two way side track due to partial road closure



For zone lengths refer to Tables 1, 2 and 3 on page 48

**FIGURE 12**

## Road work within an intersection



For zone lengths refer to Tables 1, 2 and 3 on page 48

**Table 1**

Minimum length of advance warning zones (m)

DESIRED SPEED AT THE END OF THE ADVANCE WARNING ZONE		
APPROACH SPEED (KM/H)	40 KM/H	0 KM/H (STOP)
50	30	75
60	60	100
70	120	160
80	170	225
90	200	295
100	250	370

Use the operating speed of traffic to guide your advance warning zone length.

**Table 2**

Recommended lengths of transition (taper) zones (m)

APPROACH SPEED ENTERING THE TRANSITION ZONE(KM/H)	DIVERGE TAPER (M)	MERGE TAPER (M)
40	50	80
50	50	100
60	60	120
70	70	140
80	80	160
90	90	180
100	100	200

NOTE: Speeds entering the transition zone from the advance warning zone should always be around 40km/h or less. However, if they cannot be restricted to this speed the transition zone needs to be longer.

The Transition zone length is based on:

- Width of lane to be closed is typically 3.5 m;
- Diverge taper length equivalent to 1.0 m/s lateral shift;
- Merge taper length equivalent to 0.6 m/s lateral shift; and
- Use the operating speed of traffic to guide your taper length.

**Table 3**

Recommended lengths of termination zones (m)

Urban	50m
Rural	100m



# Daily Worksite Safety Check

Customer..... Location..... Day.....

Emergency Evacuation Point..... Date.....

TMP Type ☐ Generic ☐ Sketch ☐ Site Specific

Name	Hi Vis Vest	Long Slve Shirt	Work Boots	Hat	Pant w/refl band	Site Induction

## WORKSITE SAFETY CHECK

Hazard	Y/N	Control Measures (see legend)							
Equipment									
MOA issued for worksite		Authority Contacted Prior to works							
Volume of Traffic through worksite		Low		Med		High		VH	
Workers distance to traffic									
Traffic speed at site									
Site risk rating		Low		Med		High		VH	
Poor advance vision to worksite (<200m)									
Poor observance of directions from motorists									
Narrow pavement with no escape path (2.9m)									
Rough or unsealed surface									
High volume of heavy vehicles									
Work vehicles entering / leaving worksite									
Cyclists									
Pedestrians (Adult)									
Pedestrians (Child)									
Unprotected hazards in clear zone									
Other risks / hazards									

Were there any incidents or accidents on this site today? ☐ Yes ☐ No

If YES, an "Accident/Incident Report" must be completed and attached

Was the incident reported to your Manager / Office? ☐ Yes ☐ No

BEFORE LEAVING SITE EACH DAY -  
IS IT SAFE FOR:

☐ Pedestrians ☐ Motorists  
☐ Cyclists ☐ Access Reinstated

## WORKSITE INSPECTION

Conducted by: ☐ SS ☐ Other

Auditors Name

Copy attached

## WORKSITE SETUP

Equipment Used	Qty	Equip't Aftercare left onsite
Truck / Ute		
Flashing lights		
Signs		
Arrow Board		
Pedestrian Control		
Cones / Bollards		
Follow up required:		

## DRIVE THROUGH CHECKS

Equipment Used	1st	2nd	3rd	4th	5th
Time of each check					
Signs & spacings to plan					
Signs / bollards upright					
Tapers correct					
Pedestrians covered					
Vehicles queues / delays					
Arrow / VMS Operating					

Completed by:..... Signature..... Signature.....

# Helpful Hints / Tips



PREPARE TO STOP

The typical spacing between traffic cones (or bollards) at a work site is 4-5m.

Symbolic workers **MUST** be shown if workers are on-site.

Symbolic Traffic Controller and Prepare to Stop **MUST** be used together if a Traffic Controller will be stopping traffic

If traffic is not going to be stopped, REMOVE the Symbolic Traffic Controller and Prepare to Stop plates

Place Symbolic Workers in the multiframe with worksite speed limit sign

**Set the worksite speed limit to 40km/h if:**

- Pedestrians are within 0-1.5m of an active traffic lane
- A bicycle lane is closed and bicycles must share the traffic lane
- Traffic Controllers are working
- Road workers may be working within 3m of moving traffic
- If road users may be required to stop
- If the road surface is rough/dusty



The length of a 40km/h worksite speed limit is **NOT** to exceed 500m unless written consent is given by the road authority.

All sign frames containing speed or speed limit ahead signs are to be signed on both sides of the carriageway.

40km/h repeater signs must be spaced approximately every 200m; all other repeater speed limit signs to be spaced every 500m.

HOW CLOSE A WORKER IS TO MOVING TRAFFIC (WITHOUT SAFETY BARRIERS)	REDUCED WORKSITE SPEED LIMIT
0m to 3m	40km/h
3m to 6m	60km/h
6m to 9m	60km/h, 60km/h, including on arterial roads and freeways
Above 9m	Posted speed limit

# Instructions for Traffic Controllers

.....

Traffic Controllers have an important role at road works. You will warn, guide and control drivers/riders. You do this for the safety of your fellow workers as well as for the safety of the road users.

As a Traffic Controller, you are to observe the following instructions. They are important for your own safety, as well as for the safety of others around you:

- Wear the high visibility clothing provided to you. You should normally be provided with a day/night vest, overall or jacket that is fluorescent for daytime visibility and with retro reflective strips for night work. Wear sturdy footwear also. (If your employer does not supply this essential safety gear make sure you ask for it).
- Set up the “Prepare to Stop” sign at the beginning of your shift and take it away at the end. (If you take over traffic control part way through a shift, check that this sign is in its correct place).
- Stand where you can see the end of the work area nearest to you and also the controller at the other end of the job (if there is one). You should face the traffic but stand just outside the path of vehicles.
- You must be able to see approaching vehicles at least 1.5 times the speed limit (in metres) away. For example, if the speed limit is 60 km/h, you should be able to see approaching vehicles at least 90 metres away, and they must be able to see you at the same distance.
- Make especially sure you can be seen:
  - At dawn or dusk;
  - Against low morning or evening sun on an east/west road
  - When in shadow on a sunny day.

# Instructions for Traffic Controllers

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- Do not obstruct a driver/rider's view of other road signs and devices.
- Work out what to do if a vehicle is heading towards you and appears not to be stopping. Have an escape path ready.
- Use your Stop/Slow baton in a positive and clear way. Be decisive. You are responsible for traffic control at your site.
- Give definite and clear signals to drivers/riders as follows:
  - To stop traffic, turn the bat to "Stop", face the traffic, and raise your other hand into the stop position with the palm towards the traffic.
  - To allow traffic to proceed, wait until all traffic from the other end of the work has passed, move to the side of the road, then turn the bat to "Slow". Turn side on to the traffic, and with your other hand give a "To Go" indication.
- To slow traffic, show the "Slow" side of the bat, face the traffic, extend your free arm and wave it up and down (below shoulder level) steadily and firmly.
- If you are working a single lane section with another controller you will have the responsibility for changing traffic direction if you are the next to stop traffic.

Once traffic has stopped, change your position if necessary so that you are clearly visible to further traffic as it arrives; stay at the head of the traffic queue and stand by yourself (do not permit people to congregate at the traffic control station). Make sure your clear escape path is still available.



