Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Dashboard Manual

Temporary Traffic Management Guidance Handbook

Traffic Signs Related Works

June 2024

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GLOSSARY OF TERMS

CSCS	**C**onstruction **S**kills **C**ertification **S**cheme
GSJ	**G**rade **S**eparated **J**unction
IPV	**I**mpact **P**rotection **V**ehicle
km/h	**K**ilometres **P**er **H**our
MLC	**M**obile **L**ane **C**losure
PSCS	**P**roject **S**upervisor **C**onstruction **S**tage
PSDP	**P**roject **S**upervisor **D**esign **P**rocess
Roadworks	Meaning repairs, maintenance, alterations, improvements, installations, or any works to, above or under a public road
SSO	**S**emi **S**tatic **O**peration
SSWP	**S**afe **S**ystems of **W**ork **P**lan
TII	**T**ransport **I**nfrastructure **I**reland
TM	**T**raffic **M**anagement
TSM	**T**raffic **S**igns **M**anual
TTM	**T**emporary **T**raffic **M**anagement
TTMP	**T**emporary **T**raffic **M**anagement **P**lan
TTMDG	**T**emporary **T**raffic **M**anagement **D**esign **G**uidance
TTMGH	**T**emporary **T**raffic **M**anagement **G**uidance **H**andbook
TTMOG	**T**emporary **T**raffic **M**anagement **O**perations **G**uidance
veh/3min	**V**ehicles **P**er **3** **M**inute (Traffic Count in both directions)
VMS	**V**ariable **M**essage **S**ign

1 INTRODUCTION

1.1 PURPOSE

This guidance handbook is designed to serve as a quick and easy-to-use reference document for the planning and implementation of Temporary Traffic Management measures (TTM) for routine operations relating to traffic sign maintenance.

The operations covered by this document include the following roadworks types.

- Static Type C – < 15 minutes duration.

  Works at a discrete location with a duration of up to 15 minutes excluding signage setup / removal. Traffic flow is unrestricted by either traffic volume or weather conditions. Emphasis is built around advanced visibility from the road user to the works and stopping sight distance.

- Semi Static Operations (SSO)

  Works where the operations are mobile or making short duration stops continuously along a road. Permitted for stop durations of up to 15 minutes and applicable to Level 1 and Level 2 Roads only; and

- Static Type B – < 12 hours duration.

  Note: As a general standard for Level 1 and Level 2 Roads, these layouts should not be used where the traffic flow is ≥60 vehicles/3min per lane left open. In these scenarios, the reader of the handbook should either (i) re-schedule the works to a time when the traffic flow is <60 vehicles/3min (per lane left open) or (ii) consult with a TTM designer.

- Mobile Lane Closures (MLC)

  Works where the operations are mobile or making short duration stops continuously along a road. Permitted for stop durations of up to 15 minutes and applicable to Level 3 Roads only.

This handbook takes a practical approach to TTM arrangements, giving due consideration to the safety of both road users and workers. The layouts shown within are prepared in compliance with the following documents:

Chapter 8 of the Traffic Signs Manual, TTM Design Guidance and TTM Operations Guidance

It also considers the practical issues and risks associated with setting up a TTM layout, which may take significantly longer than carrying out the works themselves, works which are relatively low risk routine operations.

The document is intended to be used as a 'dashboard' handbook, a commonplace reference which will encourage a greater level of consistency across TTM measures for routine operations such as:

- Road traffic signs installation / repair / replacement / cleaning / removal
- Junction definition post installation / repair / replacement
- Vegetation control (e.g. hedge trimming)

1.2 DEVELOPMENT

This handbook is based on:

- The principles and guidance of Chapter 8 of the Traffic Signs Manual (TSM);
- The principles and guidance of the Temporary Traffic Management Design Guidance (TTMDG) and Temporary Traffic Management Operations Guidance Documents (TTMOG);
- Consultation with Local Authorities, TTM service providers, and the traffic signing industry; and
- TII experience in implementing and managing road maintenance contracts.

1.3 ROAD CLASSIFICATIONS

For the purpose of TTM, roads are divided into three classifications:

- Level 1 Roads – Urban and Low Speed Roads;
- Level 2 Roads – Rural Single Carriageway Roads;
- Level 3 Roads – Dual Carriageways and Motorways.

The sub levels applicable to the different carriageway types and speeds are tabulated overleaf.

Level		Carriageway Type	Speed / Speed Limit (km/h)
Main	Sub		
Level 1	i	Single	≤ 30
	ii	Single	40
	iii	Single	50
	iv	Single	60
		Multi-Lane / Dual	≤ 60
Level 2	i	Single	80
	ii	Single	100
Level 3	i	Dual and Motorway	80
	ii	Dual and Motorway	≥ 100

Road Classifications

This handbook sets out dedicated TTM layouts for each Road Level and presents each within dedicated chapters as follows:

- Level 1 Roads – TS101 to TS139;
- Level 2 Roads – TS201 to TS239; and
- Level 3 Roads – TS301 to TS346.

The guidance presented does not cover Level 1(i) and Level 1(ii) road classifications.

1.4 APPROPRIATE TYPES OF TTM

The appropriate TTM for routine traffic sign maintenance varies depending on duration, location and the nature of the work being carried out. In addition, some activities involve continuously moving or short stop operations.

Therefore, the most appropriate TTM setup for such works may not fall neatly into the standard roadwork types as set out in the TSM Chapter 8 (i.e. Static Types A, B, C, Semi Static, and Mobile).

As such, the layouts included in this handbook, where necessary, combine elements from the various roadwork types in order to arrive at what is considered to be the most suitable TTM arrangement.

1.5 FURTHER ASSESSMENT

While the guidance contained here will provide some consistency in TTM measures used for routine operations, no one set of TTM layouts can cover all sites and conditions. Therefore, at each site, a risk assessment is required, and further development of the layouts may be necessary prior to TTM setup. Where further development is required, reference shall always be made to Chapter 8 of the TSM and the supporting guidance documents. For the purposes of this handbook:

- **Shall** or **must** indicates that a particular requirement is mandatory;
- **Should** indicates a recommendation; and
- **May** indicates an option.

1.6 SITE SPECIFIC & DYNAMIC RISK ASSESSMENTS

It is important for TTM installers, inspectors, and auditors to note that the layouts in this guidance handbook cover typical scenarios only. There are many instances where they may not suit the particular operation or location. The Contractor's TTM designer may need to develop new layouts or amend the typical layouts shown here, in order to meet their particular site conditions.

It is therefore a requirement that a Site-Specific Risk Assessment be carried out by the TTM installer on any layout used in this handbook, prior to implementing it on site.

Section 8 contains a standard Site-Specific Risk Assessment pro forma which should be used. Alternatively refer to the TTMDG document for further guidance on risk assessments.

For both routine sign washing and vegetation cutting operations, dedicated layouts have been developed and included within this handbook which use dynamic type TTM controls. It is a requirement of these operations (notwithstanding the Site-Specific Risk Assessment requirement noted above in 1.6) that a Dynamic Risk Assessment is undertaken by the TTM installer.

A Dynamic Risk Assessment (DRA) is the continuous process of on-site assessment and identification of hazards, assessing risks and taking actions to remove or reduce these risks. This is particularly relevant where site circumstances change. It can be reviewed or updated at any time during the works and can form part of the SSWP and it equates to the ongoing reviewing of the SSWP. It also ensures that the TTMP continues to be fit for purpose.

NO COMPROMISE SHALL BE MADE ON THE SAFETY OF ROAD USERS OR WORKERS

2 GENERAL PRINCIPLES OF HANDBOOK

Complement other TTM guidance

This handbook intends to complement existing standards and guidance and apply it to specific routine operations.

Use of best practice and experience

While based on the principles of TSM Chapter 8 and guidance documents. This handbook is informed by years of experience in routine road maintenance operations and consultation TM providers and industry.

TTM types

In order to achieve the most practical setup, elements of different types of TTM have been blended or combined.

Take account of works duration

Consider if safe and reasonably practicable to spend extended durations setting up TTM for short duration works. Longer exposure to traffic increases risk.

Incident response

TTM setup should be capable of being removed quickly in the event of an incident or emergency.

Stop/Go Operative

This vulnerable operative must be protected, while ensuring that they have good visibility and are conspicuous.

Risk assess for routine operations

Is putting out the TTM more hazardous for operatives and road users than the routine operation itself?

DRA

Dynamic risk assessment (DRA) is the continuous process of on-site assessment and identification of hazards, assessing risks and taking actions to remove or reduce these risks.

Consistency

There are different interpretations of the current standards, which gives rise to inconsistencies and potential commercial advantages. The layouts provided here aim to remove ambiguity for routine operations.

Standardising PPE and works vehicles

A benchmark for PPE and vehicle conspicuity will help give a consistent message to road users.

Maximising visibility for operatives

If an operative can see what's coming, they have at least some chance of escape or preparing themself.

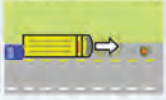
Using Spotters

Where operatives are working at high-risk locations and are engaged in an activity, dedicated spotters are used as a second set of eyes to protect the operative. All spotters should carry whistles and flags.

Works vehicles as fend vehicles

Use works vehicle(s) to protect workers from errant vehicles, allowing for potential shunting etc.

Mitigate against vehicle shunting



A shunting distance should be provided to mitigate against the risk of a shunted works vehicle impacting the works area.

Impact Protection Vehicle (IPV)

IPVs are used to set up the TTM, therefore where possible should also be used during the works to protect operatives.

Cyclists on Level 3 Roads

Where cyclists are present, they should be accommodated within the TTM layout via a safe and dedicated provision. Alternatively, a suitable diversion should be signed and implemented.

Semi-Static Operations (SSO)

Routine operations which move continuously with very short stops for single carriageways. Use of advance signage and repeaters.

Carry TM equipment to maximise visibility

Always carry signs and cones on side away from traffic, to maximise operative and traffic visibility.

3 THE CONCEPT OF ROUTINE OPERATIONS

3.1 GENERAL CONCEPT

Routine operations are considered to be those of short duration (less than 12 hours duration). Where works are greater than 12 hours in duration or are restricted by either traffic volume or weather conditions, Static Type A TTM shall be applied per TSM Chapter 8.

3.2 ANTICIPATED DURATIONS

3.2.1 Level 1 and Level 2 Roads

Increased use of Static Signage

Static Type C — Fixed work site at a discrete location for a short duration stop up to a maximum of 15 minutes. Typically covering operations such as minor sign face replacement and graffiti removal.

Dynamic — Continuously moving operations adopting a dynamic risk assessment process. Specifically reserved for routine sign washing and vegetation cutting works only.

Semi-Static (SSO) — Continuously moving operations and/or short duration stops up to a maximum of 15 minutes. Typically covering operations such as sign face replacement, minor removals, sign washing and vegetation cutting.

Static Type B — Fixed work site involving more comprehensive stops up to a maximum of 12 hours. Typically covering operations, such as sign installations, sign removals, tree clearance and landscaping or reinstatement. Primarily complement the layouts for static operations as per the TSM Chapter 8.

Increased use of Mobile Protection Measures

Note: A Semi-Static Operation (SSO) is applicable to works where the operations are mobile or are making short duration stops continuously along a road where static warning signs are used. These operations involve different types of control to safely guide the main traffic past the works. Static Type C operations shall only be used for works at a discrete location and shall not be used for a sequence of works. Such operations are classified as SSO.

3.2.2 Level 3 Roads

Increased use of Static Signage

Mobile (MLC) — Mobile works site, involving moving lane closures. Works are mobile and/or make frequent short duration stops up to a maximum of 15 minutes. Primarily complement the layouts for mobile lane closures (MLCs) on Level 3 Roads per the TSM Chapter 8.

Static Type B — Fixed work site involving more comprehensive stops up to a maximum of 12 hours. Typically covering operations sign installations, sign removals, tree clearance. Primarily complement the layouts for static operations as per the TSM Chapter 8.

Increase use of Mobile Protection Measures

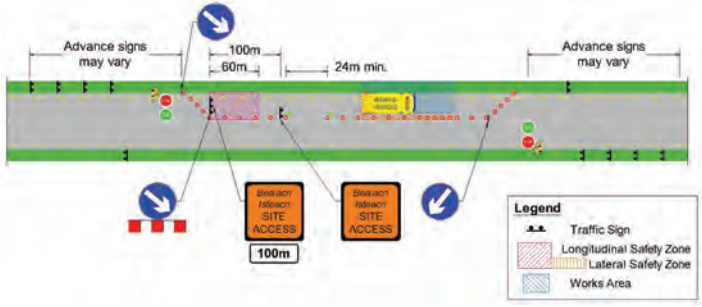
3.3 PARTICULAR REQUIREMENTS FOR ROUTINE OPERATIONS

- Careful consideration must always be given to site specific conditions and further risk assessment must be carried out if deviations from the outlined durations are required (refer also to Section 1.6).
- The emphasis must always be on the safety of the work force, and road users being able to safely pass the works.
- Existing pedestrian and/or cyclist facilities shall be maintained where reasonably practicable, otherwise they shall be safely guided through the site, or a safe temporary route past the works shall be provided.
- Particular precautions must be taken during adverse weather conditions. The Contractor must consider what further measures are appropriate, up to and including pulling off site. Weather conditions such as, but not limited to, low-lying sun, fog, frost/ice/snow, heavy rainfall, wet/slippery roads.
- Where TTM is set up to encompass multiple works areas within close proximity, these areas may be considered as separate sites for the purposes of duration, only if further risk assessment has determined that the cumulative duration is not excessive. Additional TTM measures are required if this cannot be clearly demonstrated, or if other additional risks result.
- It should be noted that the TTM layouts in this handbook are considered to be appropriate for daylight hours only. Further assessment and development is required for the use of TTM for works outside of this period.

3.4 SITE ACCESS REQUIREMENTS

- Clearly defined site access points should be provided to the works area. Access is required for works vehicles and plant, delivery vehicles and private vehicles used by site staff.
- Site access points should be clearly marked and the provision of same should consider aspects such as visibility, width, signing and swept path.
- The site access shall be identified by Sign WK 052 Site Access. On roads with a speed limit of >80km/h, an additional WK 052 sign should be positioned 100m in advance of the entrance, with a Supplementary Plate P 001 stating the distance.
- The gap for the site access is governed by the speed of traffic and size of vehicles required to use it. The gap should be a minimum of 24m but can be extended to 48m on Level 3 Roads only.
- Site access signs shall be positioned with clear visibility for both traffic and site vehicles.
- Vehicles must only enter a site access in the direction of traffic flow. Vehicles are not permitted to stop in a live lane and reverse into the site access.
- Additional cones, coloured green, are recommended to clearly mark the site access.
- Site access points should not be located within the Longitudinal Safety Zone.
- The following diagrams give guidance on positioning of Works Access and Advance signs.

Example of Site Access - Level 2 Roads



4 EQUIPMENT

4.1 VARIABLE MESSAGE SIGNS

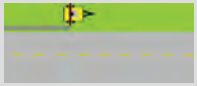
Principles of Use

Variable Message Signs (VMS) are considered a requirement in the following circumstances:

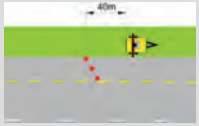
- Level 1 Roads –
  - Dynamic operations for routine sign washing and vegetation cutting works, specifically TS119 and TS120.
  - Static and SSO on urban multi-lane streets and dual carriageways.
  - Mobile vehicle mounted VMS are recommended for use as part of Type C and SSO.
  - Can be used in particular situations if risk assessment deems them necessary.
- Level 2 Roads –
  - Dynamic operations for routine sign washing and vegetation cutting works, specifically TS218 and TS219.
  - Mobile vehicle mounted VMS are recommended for use as part of Type C and SSO.
  - Can be used in particular situations if risk assessment deems them necessary.
- Level 3 Roads -
  - Static and Mobile Lane Closures to provide additional warning to the works.
  - May be used as additional advanced warning for setting out static TTM equipment.

VMS Protection & Positioning

VMS should be regarded as a fixed object (hazard) in accordance with TII Publication on Safety Barriers (Ref: DN-REQ-03034). They should be located behind existing safety barriers where possible. The following diagrams give the various scenarios that are considered acceptable for protecting the VMS.

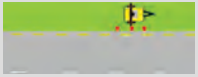


Scenario 1: VMS protected by existing barrier if access is available.



Scenario 2: VMS in verge no barrier, full hard shoulder, single line of cones in hard shoulder 40m in advance.

Scenario 3: VMS on hard shoulder if no access to verge or barrier. 2 lines of cones 20m and 60m in advance of VMS for a 100km/h road (15m and 45m for an 80km/h road).



Scenario 4: VMS on verge, no hard shoulder. Line of cones placed parallel to the VMS outside of its closest point along the edge of the carriageway.

The requirements in relation to the positioning of VMS are similar to those for static signs. Lateral clearance, clear visibility, and road geometry are to be considered when positioning VMS, and when in position the VMS should be free of obstructions such as vegetation.

VMS at roadworks shall comply with the requirements of Section 8.3.4 of Chapter 8 and Chapter 3 of the TSM. Where overhead gantries are in place, these may be used in place of a VMS.

VMS Message Sets

The messages displayed on VMS should be clear and concise. Preferably messages should be displayed in a single frame to ensure passing traffic can read and react to them. If necessary, a maximum of two frames is permitted. Messages must be steady state and should not flash or use scrolling text. Use of pictograms in place of text is recommended and only signs permitted in TSM Chapter 8 should be displayed. A number of sample faces are shown below:

Level 2 Roads – Static VMS

Vehicle Mounted VMS

Level 3 Roads Only

VMS sizes and specifications are to be in accordance with *EN12966* and the *TII Guidelines for the Use of VMS on National Roads.*

4.2 WORKS / WARNING VEHICLE RECOMMENDATIONS

Front Markings (All vehicles)

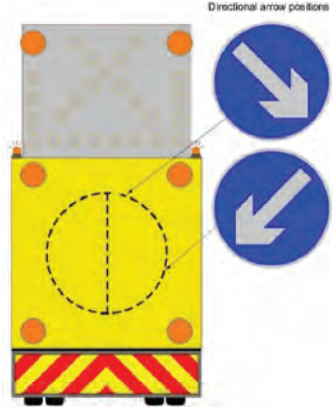
- Vehicle colour should be conspicuous yellow or white. Functioning amber warning beacons mounted on top visible from 360° and with no front or side chevron markings.
- Vehicles will display “SIGN MAINTENANCE” on their front and rear.
- On Level 3 Roads, vehicles shall display “ROAD MAINTENANCE” in accordance with Temporary Traffic Management Operations Guidance Document – Part 3, cl. 3.2.1-2.

Rear Markings (All Vehicles)

- The rear of the vehicle should be covered in markings as much as possible. Chevron markings to be used, comprising alternate strips of fluorescent orange-red Class RA2 retro-reflective material and fluorescent yellow non-retroreflective material, of not less than 150mm width each, inclined at 45-60° to the horizontal and pointing upwards (i.e. inverted ‘V’).
- The rear of the vehicle must be kept as clean as possible to maximise conspicuity and maintain its retro-reflective properties.
- Visibility through the rear of the vehicles should be maintained as much as possible.
- All signs on the rear of vehicles must be removed/covered once operations are complete (or work is finished for the day).
- If a trailer or other equipment is towed to the works site, it must not block the vehicle mounted signage during operations. All equipment must be detached prior to operations commencing, or if not, the vehicle signage must be replicated on the back.

General (All Vehicles)

- All works and warning vehicles must be fitted with LED lights and functioning amber warning beacons mounted on top visible from 360°. They should be kept in full working order and replaced when damaged or faded.
- Vehicles must have a driver restraint system (3-point inertia seat belts and head restraints).
- If non-standard vehicles (e.g. concrete trucks) are used as part of short-term operations, where they may be potentially exposed to oncoming traffic, they must be made highly conspicuous with appropriate markings and signage, as per the requirements for other works and warning vehicles.
- There is to be no working from the rear of any vehicle unless it is suitably protected from oncoming traffic in that direction.

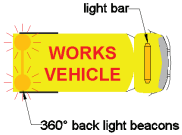


Impact Protection Vehicle IPV

(Rear Sign Configuration)

Rear Sign Configuration

Vehicle Configuration (Front & Rear)



Light Bar and Beacon Configuration

4.3 OTHER VEHICLES

Any vehicle stopping on the road for works purposes or inspections should be conspicuously marked in the same manner as the work vehicles (described earlier).

Vehicles must be equipped with either a roof-mounted flashing amber warning light bar or independent roof-mounted flashing amber warning beacons, visible through 360°. For vehicles with bodies, the rear window chevrons should be semi-transparent to allow a clear view out the back of the vehicle where possible.

Where quad vehicles are used as part of traffic control operations, they must be roadworthy, have wing mirrors, indicators, registration plates and NCT, and shall be fitted with LEDs and high-level lights. A quad bike operator in a public place must have insurance, road tax, a driving licence, wear a motorcycle helmet and ATV/Quad Bike Training - SI 619/2021 (QQI Standard (5N1752) or equivalent). They should also have a reliable form of two-way communication, ideally as part of the helmet. The Stop/Go batten must be positioned on the right-hand side of the vehicle.

Quad Vehicle

Works Pick-Up

Recommended lightboard (or VMS)

Works Van

Requirements for Vehicle Mounted Beacons

- Must comply with the requirements of the Road Vehicle Lighting Regulations and should also comply with the United Nations Economic Commission for Europe (UNECE) Regulation 65 on Special Warning Lamps.
- Where obscured by other parts of the vehicle or any equipment carried on the vehicle, additional beacons should be fitted where they will remain visible.
- Beacons shall be in use when entering, leaving or moving within the site, when travelling in traffic at less than the general traffic speed, when working through junctions and roundabouts, and when stationary on the hard shoulder.
- When stationary within the confines of a fully installed temporary traffic management layout, the roof-mounted beacons shall be switched off, unless they form part of the guarding of the works e.g. works on minor roads or are required for mobile works.
- Vehicles should carry spare beacons to ensure the vehicle has at least one lamp working, should a bulb blow.
- Beacons must be kept clean and serviceable at all times and be inspected as part of the normal vehicle inspection regime.

4.4 COMMUNICATION SYSTEM

A reliable communication system should be provided between all vehicles. This is considered particularly important where there is no clear line of sight between vehicles and operatives.

It is also recommended that a communication system be provided for operatives on the ground, acting in traffic control and spotter roles (e.g. Stop/Go controller) at all times. Quad bike operators should have two-way communication systems as part of the protective motorcycle helmet.

All operatives with communication devices should be able to intercommunicate.

4.5 RECOMMENDED PPE

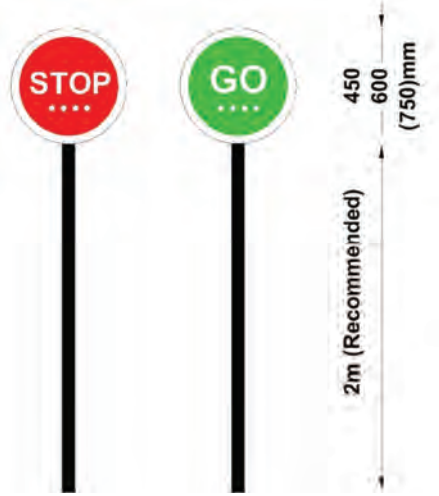
- High visibility clothing must be worn and should comply with EN ISO 20471. They should be fluorescent yellow or orange with retro-reflective stripes. Typically, yellow clothing is used for traffic signs works. Class 3 high visibility clothing must be worn.
- Safety boots to be worn at all times and should have steel toe caps and mid sole protection.
- Hard hats, gloves, eye and ear protection, etc. to be worn as required, depending on the operation.

Class 3 – Jacket / Trousers

Recommended for all Operatives

4.6 STOP / GO DISCS

- Where Stop/Go discs are used, they must be visible to oncoming traffic at all times (particularly on bends and crests of hills).
- The discs consist of a double-sided round disc (450mm or 600mm diameter). The discs can be used automatically or manually. When automatically operated the disc diameter is typically 750mm.
    a. Level 1 Roads = 450mm.
    b. Level 2 Rods = 600mm.
- They must be a minimum height of 1.5m (2m recommended) but may need to be higher in certain circumstances, to maintain visibility (over stationary vehicles).
- LEDs shall be provided on or around both faces, to improve conspicuity.



5 TEMPORARY TRAFFIC MANAGEMENT CHECKLISTS

Pre-Setup – Consultation and Approvals

- ☐ **Develop TTM layouts.**
- ☐ **Agree Programme for the Works & Working Hours.**
- ☐ **Notify An Garda Síochána** (incl. Traffic Corps).
- ☐ **Notify Emergency Services** (if required).
- ☐ **Obtain Road Opening Licence / Road Closure Order** (if required).
- ☐ **Road Space Booking System** (for high-speed motorways and dual carriageways) – request consent through the Motorway Traffic Control Centre (where applicable).
- ☐ **Submit AF2 Forms to the Health and Safety Authority (HSA).**
- ☐ **Client to appoint PSCS** (to be accepted by the Contractor).
- ☐ **Appoint Temporary Traffic Operations Supervisor (TTOS).**
- ☐ **Inform Bus Operators** (where applicable).

Pre-Setup – H&S Requirements

- ☐ **PSDP to be notified.**
- ☐ **Site Specific Risk Assessment** – to be carried out and recorded for each separate works site location.
- ☐ **Modifications to TTM Layouts** – where required under risk assessment, modifications to layouts must be recorded prior to implementation on site.
- ☐ **Communicate to TTM Installer** – the Temporary Traffic Operations Supervisor (or PSCS) must adequately communicate any particular changes or requirements of the specific TTM layouts to the TTM Installer prior to set-up.
- ☐ **Hazard Identification** – identification of utilities and other hazards must be carried out prior to TTM set-up.

Pre-Setup – H&S Documentation

The following documentation is to be held in the works vehicle at all times.

- ☐ **Job Information Pack** containing at a minimum layouts, SSWP, Risk Assessments, Times of operation and contact numbers.
- ☐ **PSCS's Construction Stage Safety & Health Plan.**
- ☐ **Signing, Lighting & Guarding at Roadworks CSCS card** (typically for TTOS only) and **Health and Safety at Roadworks CSCS Card** (for TTM Operatives).
- ☐ **Safe Pass cards.**
- ☐ **Machine Operator CSCS cards.**
- ☐ **IPV Driver Qualifications** (where applicable).
- ☐ **ATV/Quad Bike Training - SI 619/2021** (QQI Standard (5N1752) or equivalent).

During Works – General Requirements

- ☐ **3-minute traffic counts** must be carried out and recorded prior to TTM setup and during the TTM operation. For Semi-Static Operations (SSO), counts shall be repeated at regular intervals to ensure that traffic flows are not exceeded for the selected layout.
- ☐ **Weather conditions**, such as heavy rain, fog, snow, low lying sun, etc. which can reduce visibility, should be considered when implementing TTM.
- ☐ **Queue lengths** to be checked regularly. If excessive build up is observed, Contractor to consider pulling off site and returning when traffic volumes adequately reduce.
- ☐ **Permanent signs** should be covered or taken down if in contradiction with the TTM layout.
- ☐ **Removing TTM** may be required to deal with high traffic volumes, adverse weather conditions, and emergency access.
- ☐ **TTM equipment**, cones, signs, barriers, PPE, etc. should be cleaned and checked regularly for displacement or damage and replaced where needed.
- ☐ For short duration or moving works, **varying degrees of TTM** will be required at different stages as site conditions change. At all stages, the TTM must be capable of properly managing road users and protecting operatives, particularly when transitioning between different TTM scenarios.
- ☐ All **TTM must be removed once the works are completed**. Any permanent signs covered/removed for the duration of the works must now be reinstated.
- ☐ Care must be taken not to cause **detrimental damage to verges, filter drains, and landscaped areas**, when manoeuvring TTM vehicles.
- ☐ **TTM Installers must face oncoming traffic** (and be visible to oncoming traffic) when placing and removing signs and cones.

6 TTM LAYOUT DIAGRAMS – TRAFFIC SIGNS

Temporary Traffic Management Layout Diagrams

For

TRAFFIC SIGNS

LAYOUT INDEX

Level 1 Roads – Urban and Low Speed Roads

KEY
Level 1 Roads - Urban and Low Speed Roads *(incl. Single C/W's, Multi-Lane Streets & Urban Dual C/W's)*
Level 2 Roads - Rural Single Carriageway Roads
Level 3 Roads - Dual Carriageways and Motorways

ROAD LEVEL	ROAD TYPE	WORKS TYPE	SITE CHARACTERISTICS	OPERATION TYPE	LAYOUT REFERENCE			
					Static Type C *< 15min*	Semi-Static Operation (SSO) *< 15min*	Dynamic *< 5min*	Static Type B *> 30min*
Level 1(iii) & Level 1 (iv) Roads	Single Carriageway	**Minor Works** *(Discrete)* - *Pole Caps* - *Patching* - *Graffiti Removal* - *Minor Sign Face Replacements* - *Minor Sign Face Removals*	Urban Single Carriageway - Hard Shoulder	Hard Shoulder	TS101	-	-	-
			Urban Single Carriageway - No Hard Shoulder	Give and Take	TS102	-	-	-
			Urban Single Carriageway - No Hard Shoulder	Give and Take	TS103	-	-	-
			Urban Single Carriageway - No Hard Shoulder	One Direction All Stop	TS104	-	-	-
			Urban Single Carriageway - Minor Road T-Junction - Hard Shoulder	Hard Shoulder	TS105	-	-	-
			Urban Single Carriageway - Minor Road T-Junction - No Hard Shoulder	Give and Take	TS106	-	-	-
			Urban Single Carriageway - Minor Road T-Junction - Single Bend	Give and Take	TS107	-	-	-
			Urban Single Carriageway - Minor Road T-Junction - Double Bend	One Direction All Stop	TS108	-	-	-
			Urban Single Carriageway - Minor Road T-Junction	From the Side Road	TS109	-	-	-
			Urban Single Carriageway - Roundabout	All Works Areas	TS110	-	-	-
		Standard Maintenance / Minor Works *(SSO)* - *Sign Face Replacements* - *Minor Removals* - *Sign Washing* - *Vegetation Cutting*	Urban Single Carriageway - Hard Shoulder	Hard Shoulder	-	TS111	-	-
			Urban Single Carriageway - No Hard Shoulder	Give and Take	-	TS112	-	-
			Urban Single Carriageway - No Hard Shoulder	Stop and Go - On Foot	-	TS113	-	-
			Urban Single Carriageway - No Hard Shoulder	Stop and Go - On Quad	-	TS113a	-	-
			Urban Single Carriageway - Minor Road T-Junction - Hard Shoulder	Hard Shoulder	-	TS114	-	-
			Urban Single Carriageway - Minor Road T-Junction - No Hard Shoulder	Give and Take	-	TS115	-	-
			Urban Single Carriageway - Minor Road T-Junction - No Hard Shoulder	Stop and Go	-	TS116	-	-
			Urban Gateway - Urban Approach	Stop and Go	-	TS117	-	-
			Urban Gateway - Rural Approach	Stop and Go	-	TS118	-	-
		Minor Maintenance *(Dynamic)*	Urban Single Carriageway - Hard Shoulder	Hard Shoulder	-	-	TS119	-
		- *Sign Washing & Vegetation Cutting only*	Urban Single Carriageway - No Hard Shoulder	Give and Take	-	-	TS120	-

KEY

Level 1 Roads - Urban and Low Speed Roads *(incl. Single C/W's, Multi-Lane Streets & Urban Dual C/W's)*
Level 2 Roads - Rural Single Carriageway Roads
Level 3 Roads - Dual Carriageways and Motorways

ROAD LEVEL	ROAD TYPE	WORKS TYPE	SITE CHARACTERISTICS	OPERATION TYPE	LAYOUT REFERENCE			
					Static Type C *< 15min*	Semi-Static Operation (SSO) *< 15min*	Dynamic *< 5min*	Static Type B *> 30min*
Level 1(iii) & Level 1 (iv) Roads	Single Carriageway	**Standard Works** *(Static)* *- Sign Installations - Sign Removals - Hedge & Tree Clearance - Landscaping - Reinstatement*	Urban Single Carriageway - Hard Shoulder	2 Way-Traffic	-	-	-	TS121
			Urban Single Carriageway - No Hard Shoulder	Stop and Go	-	-	-	TS122
			Urban Single Carriageway - Around a Bend	Stop and Go	-	-	-	TS123
			Urban Single Carriageway - Major Road T-Junction - Position 1	Stop and Go	-	-	-	TS124
			Urban Single Carriageway - Major Road T-Junction - Position 2	Stop and Go	-	-	-	TS125
			Urban Single Carriageway - Major Road T-Junction - Position 3	Stop and Go	-	-	-	TS126
			Urban Single Carriageway - With Cycle Lane	Stop and Go	-	-	-	TS127
			Urban Gateway-Urban Approach	Stop and Go	-	-	-	TS128
			Urban Gateway-Rural Approach	Stop and Go	-	-	-	TS129
			Urban Single Carriageway - Wide Hard Shoulder	Off the Carriageway	-	-	-	TS130
			Urban Single Carriageway - Main Street Locations - Parking Bays Available	Parking Bay Closure	-	-	-	TS131
			Urban Single Carriageway - Main Street Locations - No Parking Available	2 Way-Traffic	-	-	-	TS132
	Multi-Lane Street	**Standard Maintenance / Minor Works** *(SSO)* *- Sign Face Replacements - Minor Removals - Sign Washing - Vegetation Cutting*	Two-Way 3 Lane Street	Lane 1	-	TS133	-	-
		Standard Works *(Static)* *- Sign Installations - Sign Removals - Hedge & Tree Clearance - Landscaping - Reinstatement*	Two-Way 3 Lane Street	Lane 1 Closure	-	-	-	TS134
			Two-Way 3 Lane Street	Closure of Opposing Lane	-	-	-	TS135

KEY

Level 1 Roads - Urban and Low Speed Roads *(incl. Single C/W's, Multi-Lane Streets & Urban Dual C/W's)*
Level 2 Roads - Rural Single Carriageway Roads
Level 3 Roads - Dual Carriageways and Motorways

Static Type C	Semi-Static Operation (SSO)	Dynamic	Static Type B
< 15min	*< 15min*	*< 5min*	*> 30min*

ROAD LEVEL	ROAD TYPE	WORKS TYPE	SITE CHARACTERISTICS	OPERATION TYPE	LAYOUT REFERENCE			
Level 1(iii) & Level 1 (iv) Roads	Dual Carriageway	**Standard Maintenance / Minor Works** *(SSO)* - *Sign Face Replacements* - *Minor Removals* - *Sign Washing* - *Vegetation Cutting*	Urban Two-Lane Dual Carriageway	Lane 1	-	TS136	-	-
			Urban Two-Lane Dual Carriageway	Lane 2	-	TS137	-	-
		Standard Works *(Static)* - *Sign Installations* - *Sign Removals* - *Hedge & Tree Clearance* - *Landscaping* - *Reinstatement*	Urban Two-Lane Dual Carriageway	Lane 1 Closure	-	-	-	TS138
			Urban Two-Lane Dual Carriageway	Lane 2 Closure	-	-	-	TS139

Level 2 Roads – Rural Single Carriageway Roads

KEY
Level 1 Roads - Urban and Low Speed Roads *(incl. Single C/W's, Multi-Lane Streets & Urban Dual C/W's)*
Level 2 Roads - Rural Single Carriageway Roads
Level 3 Roads - Dual Carriageways and Motorways

ROAD LEVEL	ROAD TYPE	WORKS TYPE	SITE CHARACTERISTICS	OPERATION TYPE	LAYOUT REFERENCE			
					Static Type C *< 15min*	Semi-Static Operation (SSO) *< 15min*	Dynamic *< 5min*	Static Type B *> 30min*
Level 2(i) & Level 2(ii) Roads	Single Carriageway	**Minor Works** *(Discrete)* *- Pole Caps - Patching - Graffiti Removal - Minor Sign Face Replacements - Minor Sign Face Removals*	Single Carriageway - Hard Shoulder	Hard Shoulder	TS201	-	-	-
			Single Carriageway - No Hard Shoulder	Give and Take	TS202	-	-	-
			Single Carriageway - No Hard Shoulder	Give and Take	TS203	-	-	-
			Single Carriageway - No Hard Shoulder	One Direction All Stop	TS204	-	-	-
			Single Carriageway - Minor Road T-Junction - Hard Shoulder	Hard Shoulder	TS205	-	-	-
			Single Carriageway - Minor Road T-Junction - No Hard Shoulder	2 Way-Traffic	TS206	-	-	-
			Single Carriageway - Minor Road T-Junction - Double Bend - No Hard Shoulder	2 Way-Traffic	TS207	-	-	-
			Single Carriageway - Minor Road T-Junction - Double Bend - No Hard Shoulder	One Direction All Stop	TS208	-	-	-
			Single Carriageway - Minor Road T-Junction - No Hard Shoulder	From the Side Road	TS209	-	-	-
			Single Carriageway - Roundabout	All Works Areas	TS210	-	-	-
		Standard Maintenance / Minor Works *(SSO)* *- Sign Face Replacements - Minor Removals - Sign Washing - Vegetation Cutting*	Single Carriageway - Hard Shoulder	Hard Shoulder	-	TS211	-	-
			Single Carriageway - No Hard Shoulder	Give and Take	-	TS212	-	-
			Single Carriageway - No Hard Shoulder	Stop and Go - On Foot	-	TS213	-	-
			Single Carriageway - No Hard Shoulder	Stop and Go - On Quad	-	TS213a	-	-
			Single Carriageway - Minor Road T-Junction - Hard Shoulder	2 Way-Traffic	-	TS214	-	-
			Single Carriageway - Minor Road T-Junction - No Hard Shoulder	2 Way-Traffic	-	TS215	-	-
			Single Carriageway - Minor Road T-Junction - No Hard Shoulder	Stop and Go	-	TS216	-	-
			Single Carriageway - Minor Road T-Junction - No Hard Shoulder	From the Side Road	-	TS217	-	-
		Minor Maintenance *(Dynamic)*	Single Carriageway - Hard Shoulder	Hard Shoulder	-	-	TS218	-
		- Sign Washing & Vegetation Cutting only	Single Carriageway - No Hard Shoulder	Give and Take	-	-	TS219	-

KEY

Level 1 Roads - Urban and Low Speed Roads *(incl. Single C/W's, Multi-Lane Streets & Urban Dual C/W's)*
Level 2 Roads - Rural Single Carriageway Roads
Level 3 Roads - Dual Carriageways and Motorways

Static Type C	Semi-Static Operation (SSO)	Dynamic	Static Type B
< 15min	*< 15min*	*< 5min*	*> 30min*

ROAD LEVEL	ROAD TYPE	WORKS TYPE	SITE CHARACTERISTICS	OPERATION TYPE	LAYOUT REFERENCE			
Level 2(i) & Level 2(ii) Roads	Single Carriageway	**Standard Works** *(Static)* *- Sign Installations - Sign Removals - Hedge & Tree Clearance - Landscaping - Reinstatement*	Single Carriageway - Hard Shoulder	Hard Shoulder Closure	-	-	-	TS220
			Single Carriageway - Hard Shoulder	2 Way-Traffic	-	-	-	TS221
			Single Carriageway - No Hard Shoulder	Stop and Go	-	-	-	TS222
			Single Carriageway - Around a Bend	Stop and Go	-	-	-	TS223
			Single Carriageway - Minor Road T-Junction	Hard Shoulder Closure	-	-	-	TS224
			Single Carriageway - Minor Road T-Junction - Option 1	Stop and Go	-	-	-	TS225
			Single Carriageway - Minor Road T-Junction - Option 2	Stop and Go	-	-	-	TS226
			Single Carriageway - Major Road T-Junction - Position 1	Stop and Go	-	-	-	TS227
			Single Carriageway - Major Road T-Junction - Position 2	Stop and Go	-	-	-	TS228
			Single Carriageway - Major Road T-Junction -Position 3	Stop and Go	-	-	-	TS229
			Single Carriageway - Roundabout	Entry Verge - Isolated Works Area	-	-	-	TS230
			Single Carriageway - Roundabout	Traffic Island - Isolated Works Area	-	-	-	TS231
			Single Carriageway - Roundabout	Central Island - Isolated Works Area	-	-	-	TS232
			Single Carriageway - Roundabout	Entry Verge - Multiple Works Areas	-	-	-	TS233
			Single Carriageway - Roundabout	Traffic Island - Multiple Works Areas	-	-	-	TS234
			Single Carriageway - Roundabout	Central Island - Multiple Works Areas	-	-	-	TS235
			Single Carriageway - Climbing Lane	Lane 1 Closure	-	-	-	TS236
			Single Carriageway - Climbing Lane	Downhill Lane Closure	-	-	-	TS237
			Single Carriageway - Climbing Lane	Closure Within Lane 1	-	-	-	TS238
			Single Carriageway - Hard Shoulder	Works Off the Carriageway	-	-	-	TS239

Level 3 Roads – Dual Carriageways and Motorways

KEY

Level 1 Roads - Urban and Low Speed Roads *(incl. Single C/W's, Multi-Lane Streets & Urban Dual C/W's)*
Level 2 Roads - Rural Single Carriageway Roads
Level 3 Roads - Dual Carriageways and Motorways

Mobile *< 15min*

Static Type B *> 30min*

ROAD LEVEL	ROAD TYPE	WORKS TYPE	SITE CHARACTERISTICS	OPERATION TYPE	LAYOUT REFERENCE	
Level 3(i) & Level 3(ii) Roads	Type 1 Dual Carriageways	**Minor Maintenance** *(Mobile)* *- Pole Caps - Patching - Sign Washing - Hedge Maintenance*	Two-Lane Type 1 Dual Carriageway	Hard Shoulder	TS301	-
			Two-Lane Type 1 Dual Carriageway	Lane 2	TS302	-
			Three-Lane Type 1 Dual Carriageway	Hard Shoulder	TS303	-
			Three-Lane Type 1 Dual Carriageway	Lane 3	TS304	-
		Standard Works *(Static)* *- Sign Installations - Sign Removals - Tree Clearance*	Two-Lane Type 1 Dual Carriageway	Hard Shoulder Closure	-	TS305
			Two-Lane Type 1 Dual Carriageway	Hard Shoulder Closure - Diverge Taper	-	TS306
			Two-Lane Type 1 Dual Carriageway	Lane 1 Closure	-	TS307
			Two-Lane Type 1 Dual Carriageway	Lane 1 Closure - Diverge Taper	-	TS308
			Two-Lane Type 1 Dual Carriageway	Direct Lane 1 Closure	-	TS309
			Two-Lane Type 1 Dual Carriageway	Lane 2 Closure	-	TS310
			Three-Lane Type 1 Dual Carriageway	Hard Shoulder Closure	-	TS311
			Three-Lane Type 1 Dual Carriageway	Direct Lane 1 Closure	-	TS312
			Three-Lane Type 1 Dual Carriageway	Lane 3 Closure	-	TS313
	Type 2 Dual Carriageways	**Standard Works** *(Static)* *- Sign Installations - Sign Removals - Tree Clearance*	Two-Lane Type 2 Dual Carriageway	Lane 1 Closure	-	TS314
			Two-Lane Type 2 Dual Carriageway	Lane 1 Closure - Diverge Taper	-	TS315
			Two-Lane Type 2 Dual Carriageway	Direct Lane 1 Closure	-	TS316
			Two-Lane Type 2 Dual Carriageway	Lane 2 Closure	-	TS317
	Type 3 Dual Carriageways	**Standard Works** *(Static)* *- Sign Installations - Sign Removals - Tree Clearance*	Two-Lane Type 3 Dual Carriageway	Lane 1 Closure	-	TS318
			Two-Lane Type 3 Dual Carriageway	Direct Lane 1 Closure	-	TS319
			Single Carriagway to Two-Lane Type 3 Dual Carriageway Transition	Lane 1 Closure - Single C/W Transition	-	TS320
			Single Carriagway to Two-Lane Type 3 Dual Carriageway Transition	Lane 2 Closure - Single C/W Transition	-	TS321
			Two-Lane Type 3 Dual Carriageway Transition	Direct Lane 1 Closure - Start of Passing Lane	-	TS322
			Two-Lane Type 3 Dual Carriageway Transition	Lane 2 Closure - Start of Passing Lane	-	TS323
			Two-Lane Type 3 Dual Carriageway	Lane 2 Closure	-	TS324

KEY

Level 1 Roads - Urban and Low Speed Roads *(incl. Single C/W's, Multi-Lane Streets & Urban Dual C/W's)*
Level 2 Roads - Rural Single Carriageway Roads
Level 3 Roads - Dual Carriageways and Motorways

Mobile *< 15min*

Static Type B *> 30min*

ROAD LEVEL	ROAD TYPE	WORKS TYPE	SITE CHARACTERISTICS	OPERATION TYPE	LAYOUT REFERENCE	
Level 3(ii) & Level 3(iii) Roads	Junctions	**Minor Maintenance** *(Mobile)* *- Pole Caps - Patching - Sign Washing - Hedge Maintenance*	Dual Carriageway	GSJ - Diverge - LHS	TS325	-
			Dual Carriageway	GSJ - Diverge - RHS	TS326	-
			Dual Carriageway	Dumbbell GSJ - Merge - LHS	TS327	-
			Dual Carriageway	Dumbbell GSJ - Merge - RHS	TS328	-
			Dual Carriageway	Dumbbell GSJ - Start of Merge	TS329	-
			Dual Carriageway	Compact GSJ - Diverge	TS330	-
			Dual Carriageway	Compact GSJ - Merge	TS331	-
		Standard Works *(Static)* *- Sign Installations - Sign Removals - Tree Clearance*	Two-Lane Type 1 Dual Carriageway	Lane 1 Closure - GSJ - Exit Nose	-	TS332
			Two-Lane Type 1 Dual Carriageway	GSJ - Diverge - LHS	-	TS333
			Two-Lane Type 1 Dual Carriageway	GSJ - Diverge - RHS	-	TS334
			Two-Lane Type 1 Dual Carriageway	GSJ - Diverge Closure	-	TS335
			Two-Lane Type 1 Dual Carriageway	GSJ - Start of Merge	-	TS336
			Two-Lane Type 1 Dual Carriageway	GSJ - Merge - LHS	-	TS337
			Two-Lane Type 1 Dual Carriageway	GSJ - Merge - RHS	-	TS338
			Two-Lane Type 1 Dual Carriageway	Compact GSJ - Exit Nose and Traffic Island	-	TS339
			Two-Lane Type 1 Dual Carriageway	Compact GSJ - Slip Road Closure	-	TS340
			Two-Lane Type 1 Dual Carriageway	Compact GSJ - Diverge	-	TS341
			Two-Lane Type 1 Dual Carriageway	Compact GSJ - Merge	-	TS342
			Two-Lane Type 1 Dual Carriageway	Roundabout - Entry Lane - Lane 1 Closure	-	TS343
			Two-Lane Type 1 Dual Carriageway	Roundabout - Entry Lane - Lane 2 Closure	-	TS344
	Verge Works	**Standard Works** *(Static)* *- Sign Installations - Sign Removals - Tree Clearance*	Two-Lane Type 1 Dual Carriageway	Off the Carriageway <15min Duration	-	TS345
			Two-Lane Type 1 Dual Carriageway	Off the Carriageway >15min Duration	-	TS346

Temporary Traffic Management Layout Diagrams

For

TRAFFIC SIGNS
LEVEL 1(iii) & 1(iv) ROADS

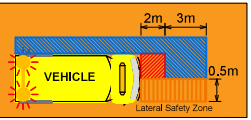
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

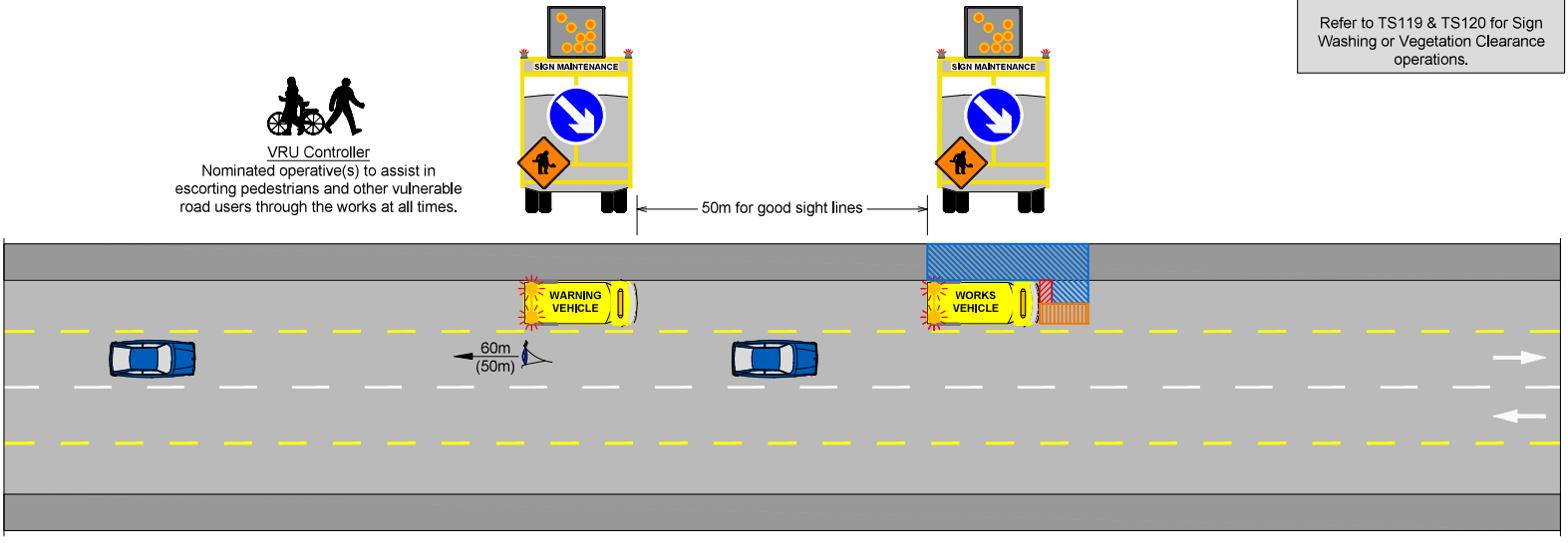
Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.



Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. Where the works vehicle cannot be positioned off the carriageway, it shall be legally parked in accordance with the requirements set out within the Chapter 8 Operations Guidance.
3. Should not be used in poor visibility conditions.

Reliable communication system recommended

Legend

- 60m (50m) — Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Urban Single C/W - With H/S

Hard Shoulder

50 OR 60

TS 101

Temporary Traffic Management Guidance Handbook

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

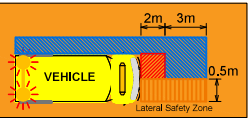
EXAMPLE ONLY NOT TO SCALE

Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.

Fend Vehicle

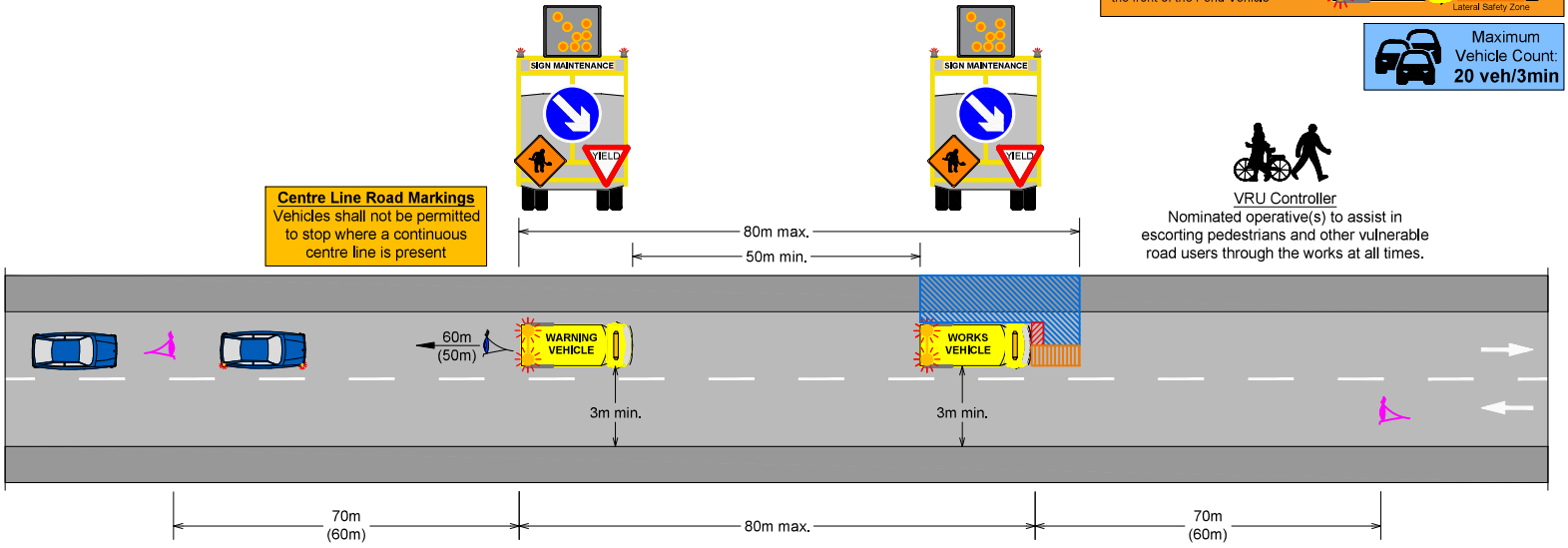
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Maximum Vehicle Count: **20 veh/3min**

Centre Line Road Markings

Vehicles shall not be permitted to stop where a continuous centre line is present



VRU Controller

Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Legend

- 60m (50m) — Stopping Sight Distance *relates to 60km/h (relates to 50km/h)*
- 220m (200m) — Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area

Reliable communication system recommended

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. Where the works vehicle cannot be positioned off the carriageway, it shall be legally parked in accordance with the requirements set out within the Chapter 8 Operations Guidance.
3. Should not be used in poor visibility conditions.
4. Where sight lines are poor refer to TS103 or TS104 as appropriate.

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Urban Single C/W - No H/S

Give and Take

50 OR 60

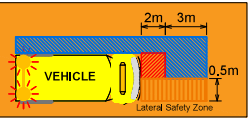
TS 102

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



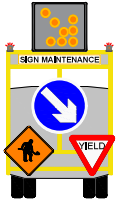
Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.

Maximum Vehicle Count: **20 veh/3min**

Centre Line Road Markings
Vehicles shall not be permitted to stop where a continuous centre line is present

Works Vehicle: Where a continuous centre line is present at the position of the works, the operation shown in **TS 104** shall be used



Layout to be used where the minimum visibility requirement cannot be achieved to the Works Vehicle.
&
A broken centreline is present across the position of the works

VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Legend

- 60m (45m) — Stopping Sight Distance *relates to 60km/h (relates to 50km/h)*
- 155m (135m) — Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area

Reliable communication system recommended

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. Where the works vehicle cannot be positioned off the carriageway, it shall be legally parked in accordance with the requirements set out within the Chapter 8 Operations Guidance.
3. Should not be used in poor visibility conditions.

Minor Works
Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work
Type C <15 mins

Urban Single C/W - No H/S
Give and Take

50 kph OR 60 kph

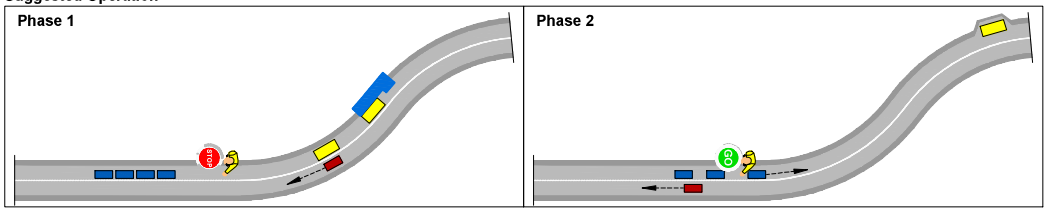
TS 103

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

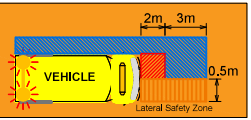
EXAMPLE ONLY NOT TO SCALE

Suggested Operation



Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle

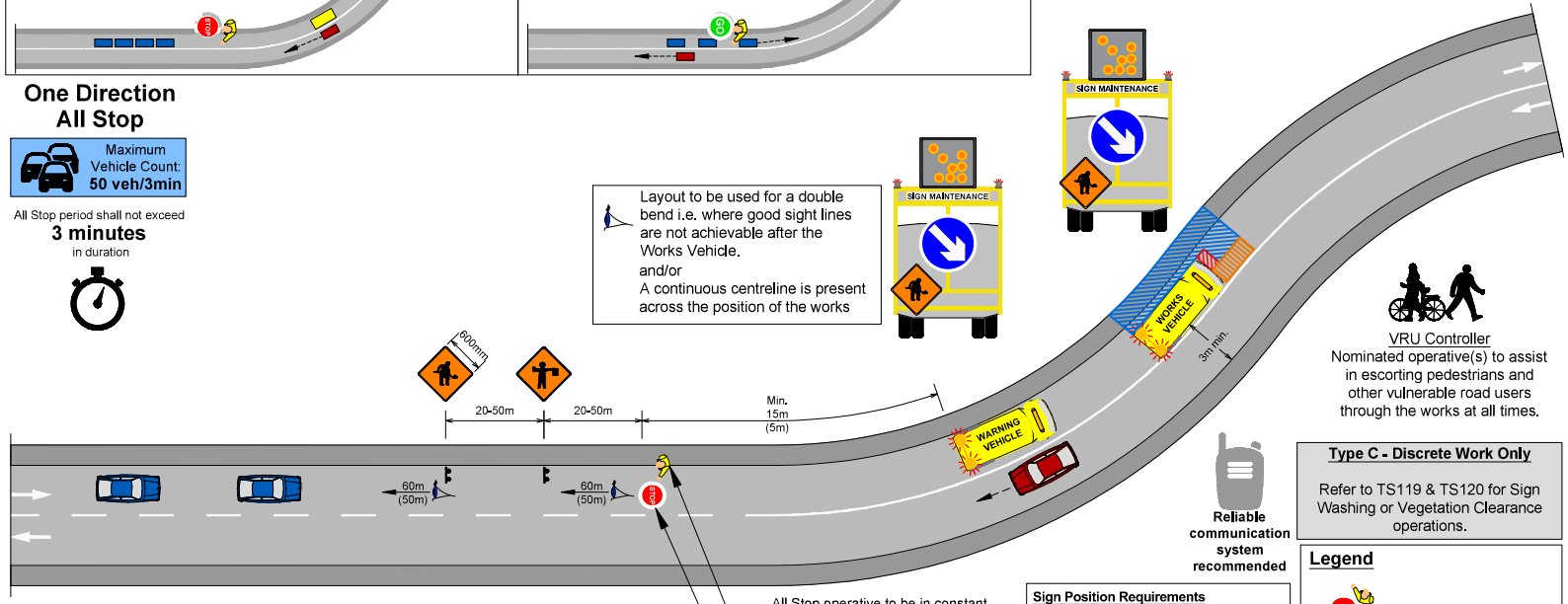


One Direction All Stop

Maximum Vehicle Count: **50 veh/3min**

All Stop period shall not exceed **3 minutes** in duration

Layout to be used for a double bend i.e. where good sight lines are not achievable after the Works Vehicle.
and/or
A continuous centreline is present across the position of the works



VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Reliable communication system recommended

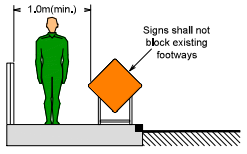
All Stop operative to be in constant communication with the Warning and Works Vehicle. Vehicle operatives to communicate when the vehicles are off the running carriageway (see Phase 2 above).

All STOP in one direction

Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.

Sign Position Requirements
(If Positioned on Footway)



Legend

- All Stop & Operative
- Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. Should not be used in poor visibility conditions.
3. Where the flagman observes excessive queuing, he must communicate to the works vehicles to pull off the running lane and allow traffic to pass.
4. Flagman to be positioned in a safe location off the live lane.

Minor Works
Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work
Type C <15 mins

Urban Single C/W - No H/S
One Direction All Stop

50 OR 60

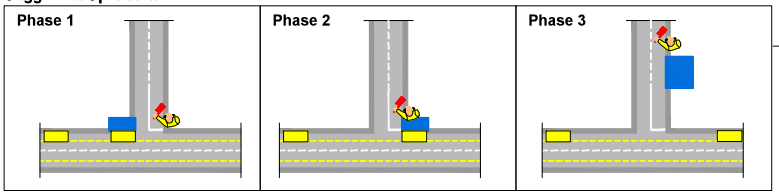
TS 104

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Suggested Operation



Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.

Legend

- Vehicle Controller (as required)
- 60m (50m) Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. Should not be used in poor visibility conditions.

VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Reliable communication system recommended

Minor Works
Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work
Type C <15 mins

Urban Single C/W - With H/S
Hard Shoulder - Minor Road T-Junction

50 OR 60

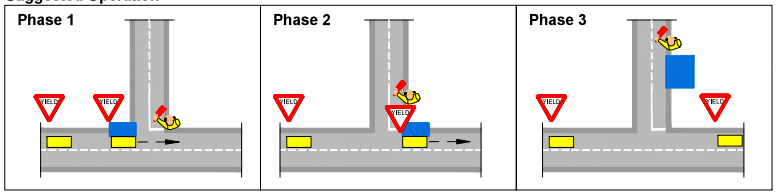
TS 105

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

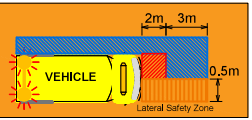
EXAMPLE ONLY NOT TO SCALE

Suggested Operation



Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.

Legend

- Vehicle Controller (as required)
- 60m (45m) — Stopping Sight Distance *relates to 60km/h (relates to 50km/h)*
- 60m (50m) — Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. Should not be used in poor visibility conditions.

VRU Controller

Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Reliable communication system recommended

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Urban Single C/W - No H/S

Give and Take - Minor Road T-Junction

50 kph OR 60 kph

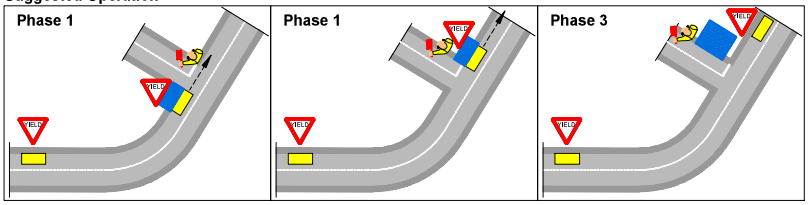
TS 106

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

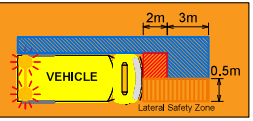
EXAMPLE ONLY NOT TO SCALE

Suggested Operation



Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle

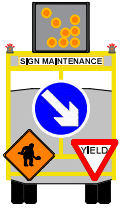


Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. Should not be used in poor visibility conditions.

Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.



Works Vehicle to be positioned so as not to obscure visibility from the side road junction

Distance to ensure side road sight lines are maintained

Minor Road

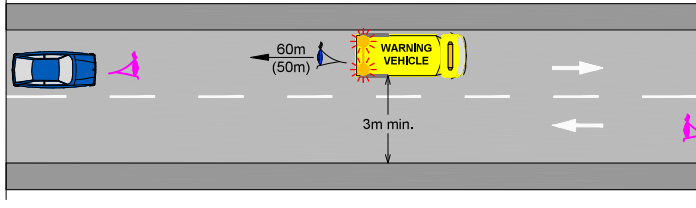
VRU Controller

Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Layout to be used where the minimum visibility requirement cannot be achieved to the Works Vehicle.

Centre Line Road Markings

Vehicles shall not be permitted to stop where a continuous centre line is present



Legend

- Vehicle Controller (as required)
- 60m (45m) Stopping Sight Distance *relates to 60km/h (relates to 50km/h)*
- 60m (50m) Visibility *relates to 60 km/h (relates to 50km/h)*
- 155m (135m) Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area

Reliable communication system recommended

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Urban Single C/W - No H/S

Give and Take - Minor Road T-Junction (S.B)

50 OR 60

TS 107

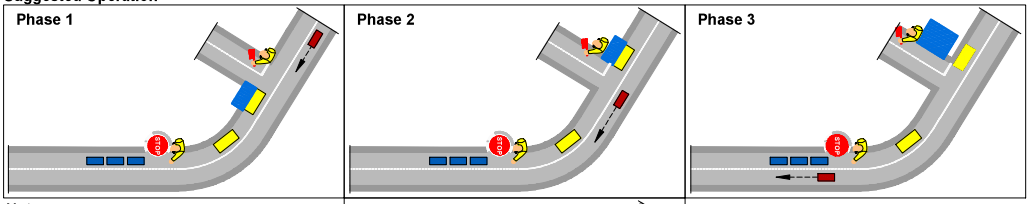
Temporary Traffic Management Guidance Handbook

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Suggested Operation



Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. Should not be used in poor visibility conditions.
3. Where the flagman observes excessive queuing, he must communicate to the works vehicles to pull off the running lane and allow traffic to pass.
4. Flagman to be positioned in a safe location off the live lane and shall remain in position upon completion of the works until collected by the Works Vehicle.

Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.

Layout to be used for a double bend i.e. where good sight lines are not achievable after the Works Vehicle.

Works Vehicle to be positioned so as not to obscure visibility from the side road junction

Distance to ensure side road sight lines are maintained

Approx. 60m

Minor Road

60m

STOP

Vehicle controller required to guide side road traffic.

WORKS VEHICLE

3m min.

3m min.

3m min.

SIGN MAINTENANCE

YIELD

Alternative vehicle position

VRU Controller

Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

One Direction All Stop

Maximum Vehicle Count: **50 veh/3min**

All Stop period shall not exceed **3 minutes** in duration

600mm

20-50m

20-50m

All STOP in one direction

All Stop operative to be in constant communication with the Warning and Works Vehicle.
Vehicle operatives to communicate when the vehicles are off the running carriageway (see Phase 4 above).

Min. 15m (5m)

SIGN MAINTENANCE

YIELD

WARNING VEHICLE

60m (50m)

60m (50m)

STOP

Reliable communication system recommended

Sign Position Requirements

(If Positioned on Footway)

1.0m(min.)

Signs shall not block existing footways

Legend

- Vehicle Controller (as required)
- 60m (45m) Stopping Sight Distance *relates to 60km/h (relates to 50km/h)*
- STOP All Stop & Operative
- 60m (50m) Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Urban Single C/W - No H/S

One Direction All Stop - Minor Road T-Junction (D.B)

50 km/h OR 60 mph

TS 108

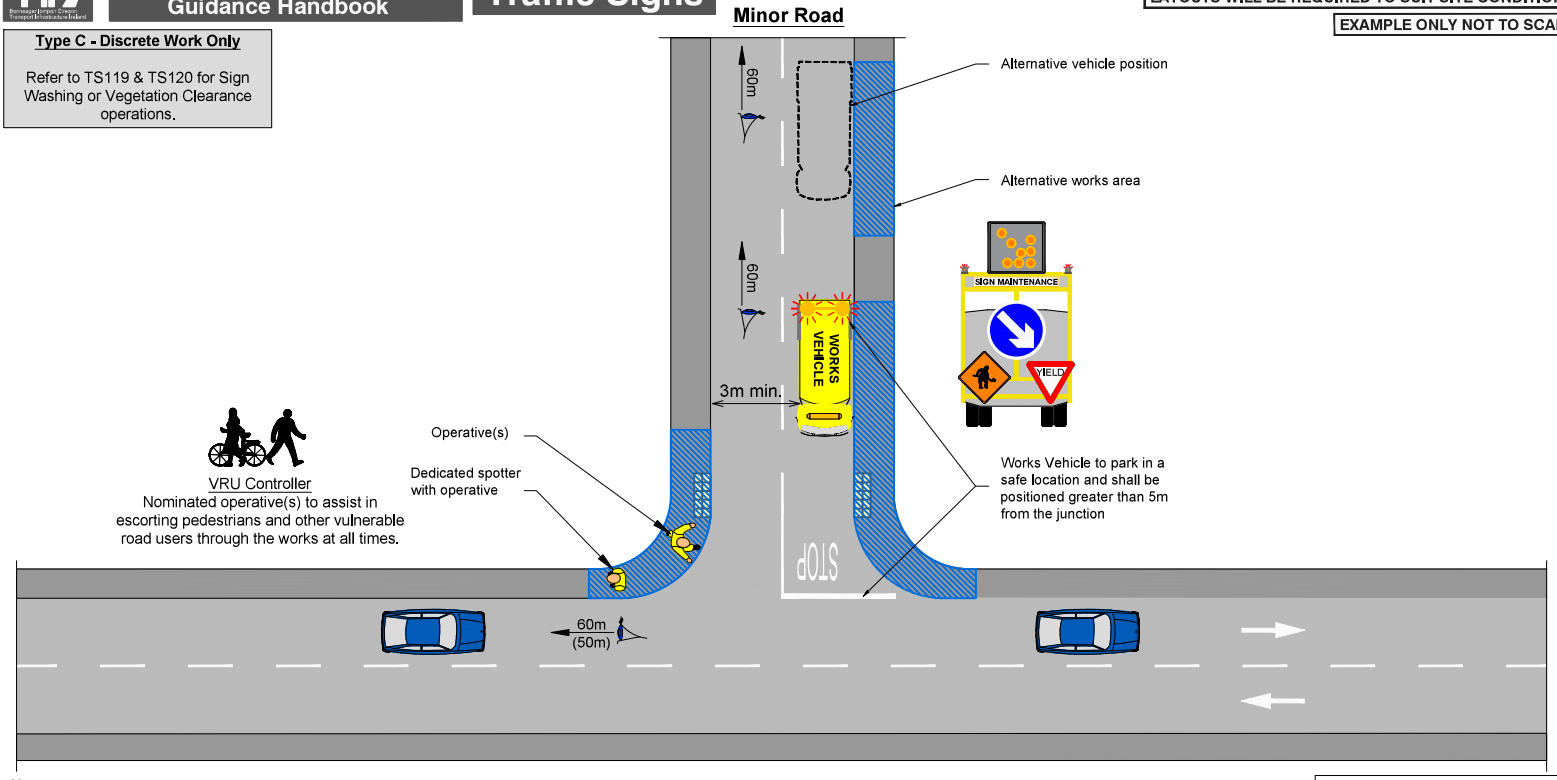
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.



VRU Controller

Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. Where the works vehicle cannot be positioned off the carriageway, it shall be legally parked in accordance with the requirements set out within the Chapter 8 Operations Guidance.
3. Should not be used in poor visibility conditions.
4. Spotter to be positioned in a safe location off the live lane.
5. The duties of the dedicated spotter are separate from the operatives, their function is primarily to spot hazards and to protect the operatives.
6. Warning vehicle to be positioned in a safe position on the minor road, where possible.

Reliable communication system recommended

Legend

- Spotter (as required)
- Visibility (60m (50m)) *relates to 60 km/h (relates to 50km/h)*
- Works Area

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Urban Single C/W - No H/S

Works From the Side Road - Minor Road

50 OR 60

TS 109

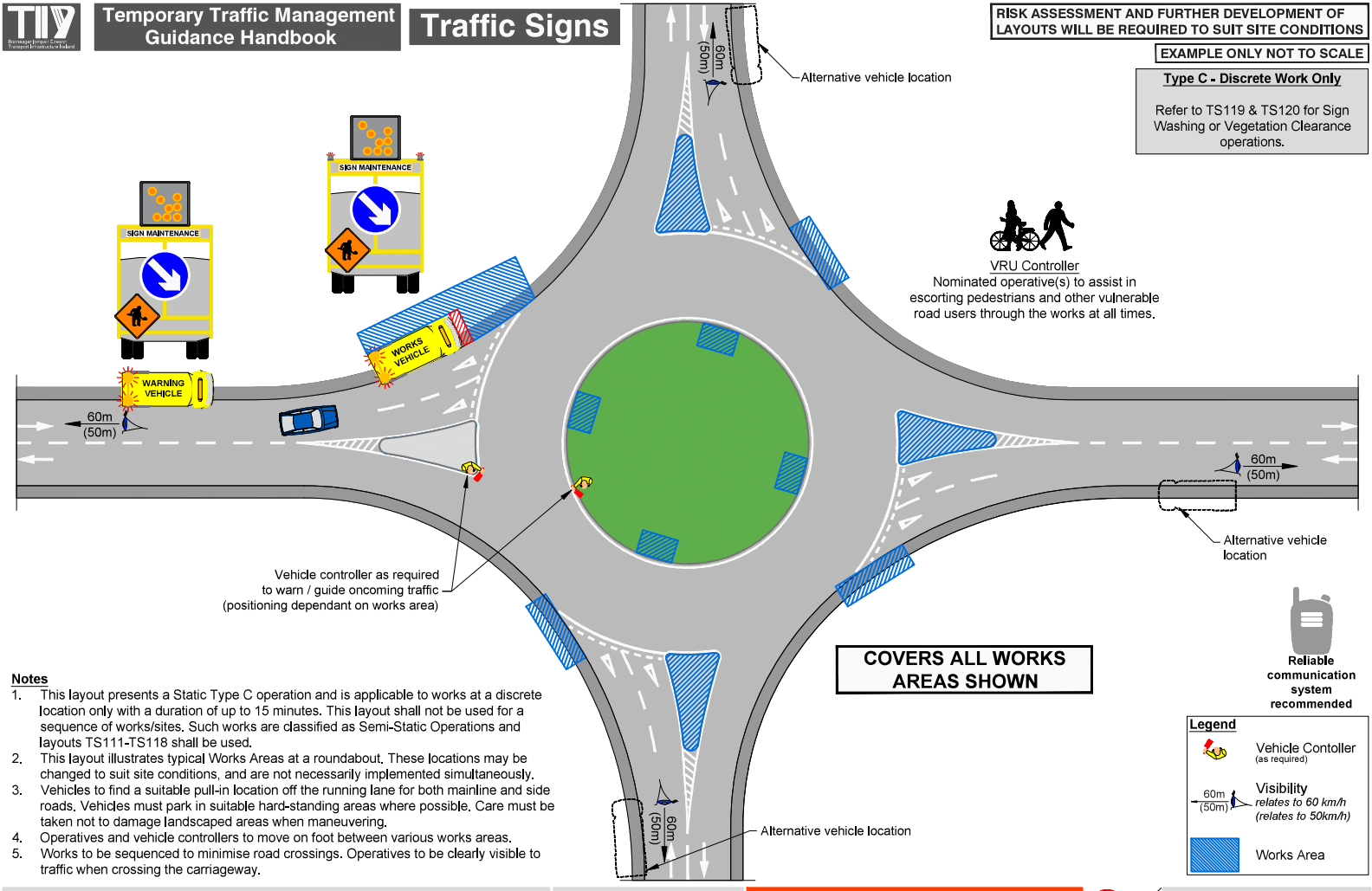
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Type C - Discrete Work Only

Refer to TS119 & TS120 for Sign Washing or Vegetation Clearance operations.



VRU Controller

Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

COVERS ALL WORKS AREAS SHOWN

Reliable communication system recommended

Legend

- Vehicle Contoller (as required)
- 60m (50m) Visibility *relates to 60 km/h (relates to 50km/h)*
- Works Area

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS111-TS118 shall be used.
2. This layout illustrates typical Works Areas at a roundabout. These locations may be changed to suit site conditions, and are not necessarily implemented simultaneously.
3. Vehicles to find a suitable pull-in location off the running lane for both mainline and side roads. Vehicles must park in suitable hard-standing areas where possible. Care must be taken not to damage landscaped areas when maneuvering.
4. Operatives and vehicle controllers to move on foot between various works areas.
5. Works to be sequenced to minimise road crossings. Operatives to be clearly visible to traffic when crossing the carriageway.

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Urban Single C/W - No H/S

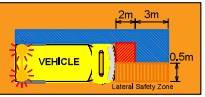
All Works Areas - Roundabout

50 OR 60

TS 110

Traffic Signs

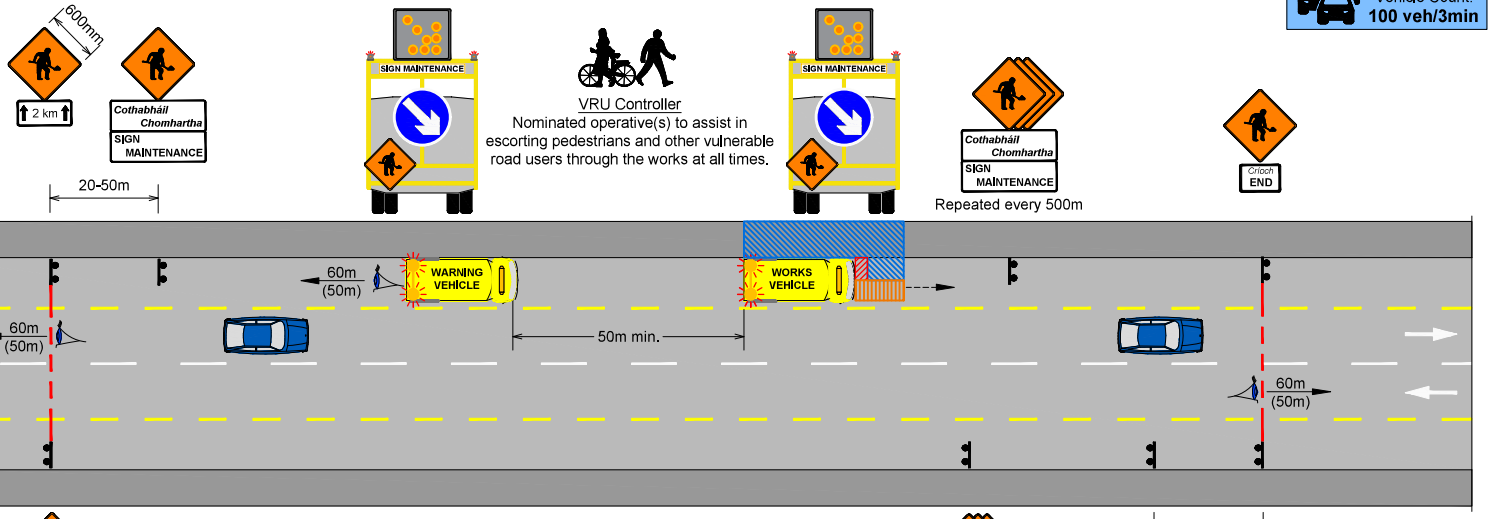
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **100 veh/3min**



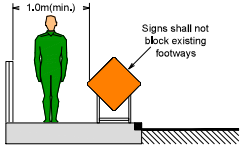
Hard Shoulder SSO

Layout presents a Semi-Static Hard Shoulder Operation
This layout assumes that the Works Vehicle is wholly contained within the hard shoulder and does not encroach into the live lane.
Where the hard shoulder is of insufficient width to permit this operation, the work should be undertaken using **TS112 or TS113**, as appropriate.

Legend

- Traffic Sign
- Visibility (60m / 50m) *relates to 60 km/h (relates to 50km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area
- Works Zone

Sign Position Requirements
(If Positioned on Footway)



Notes

1. For works at a side road junction refer to TS114, TS115 or TS116.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Urban Single C/W - With H/S
Hard Shoulder

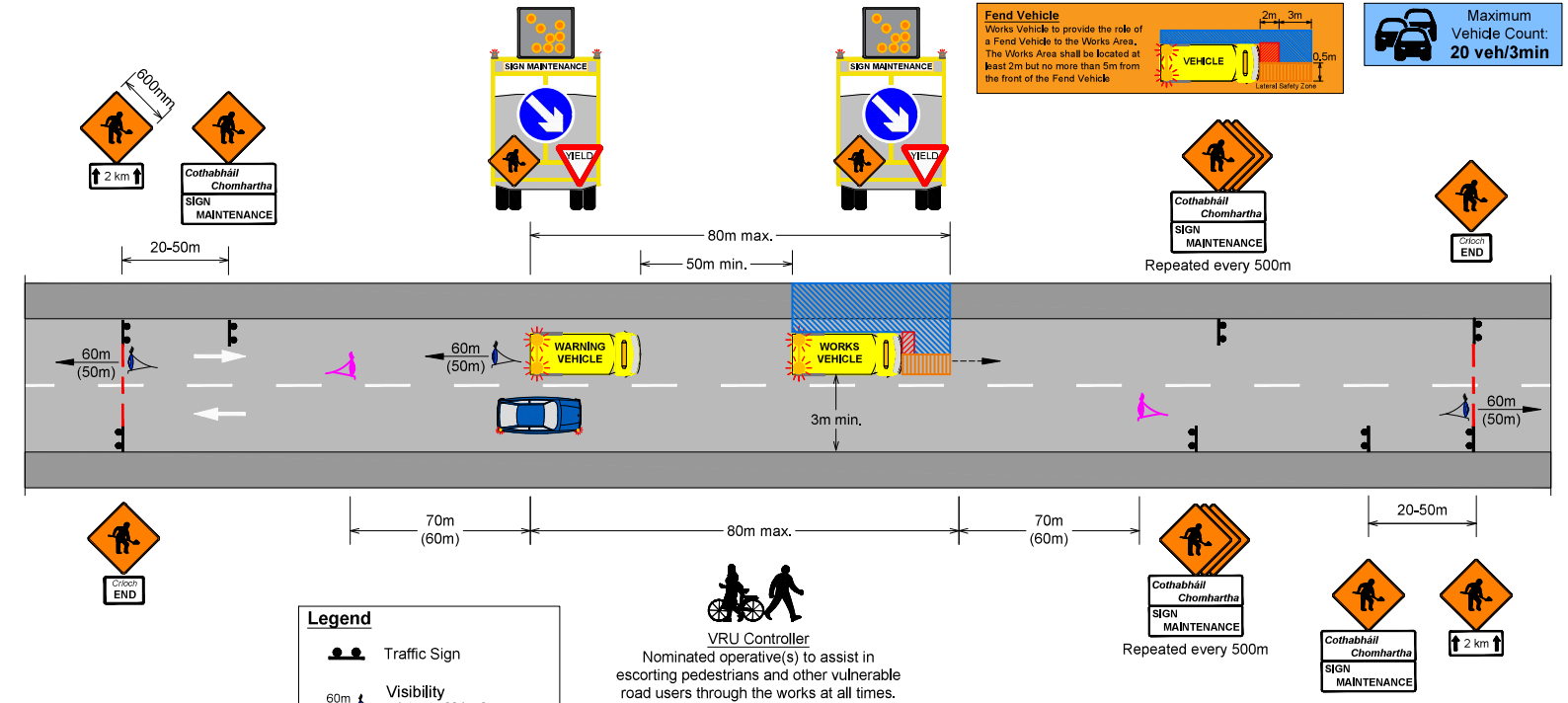
50 km/h OR 60 km/h

TS 111

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



VRU Controller

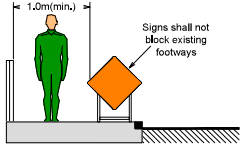
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Legend

- Traffic Sign
- 60m (50m) Visibility *relates to 60 km/h (relates to 50km/h)*
- 220m (200m) Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Sign Position Requirements

(If Positioned on Footway)



Notes

1. For works at a side road junction refer to TS114, TS115 or TS116.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved.
4. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.

Standard Maintenance / Minor Works

Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO

<15 mins

Urban Single C/W - No H/S

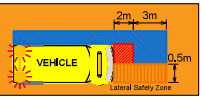
Give and Take

50 OR 60

TS 112

Traffic Signs

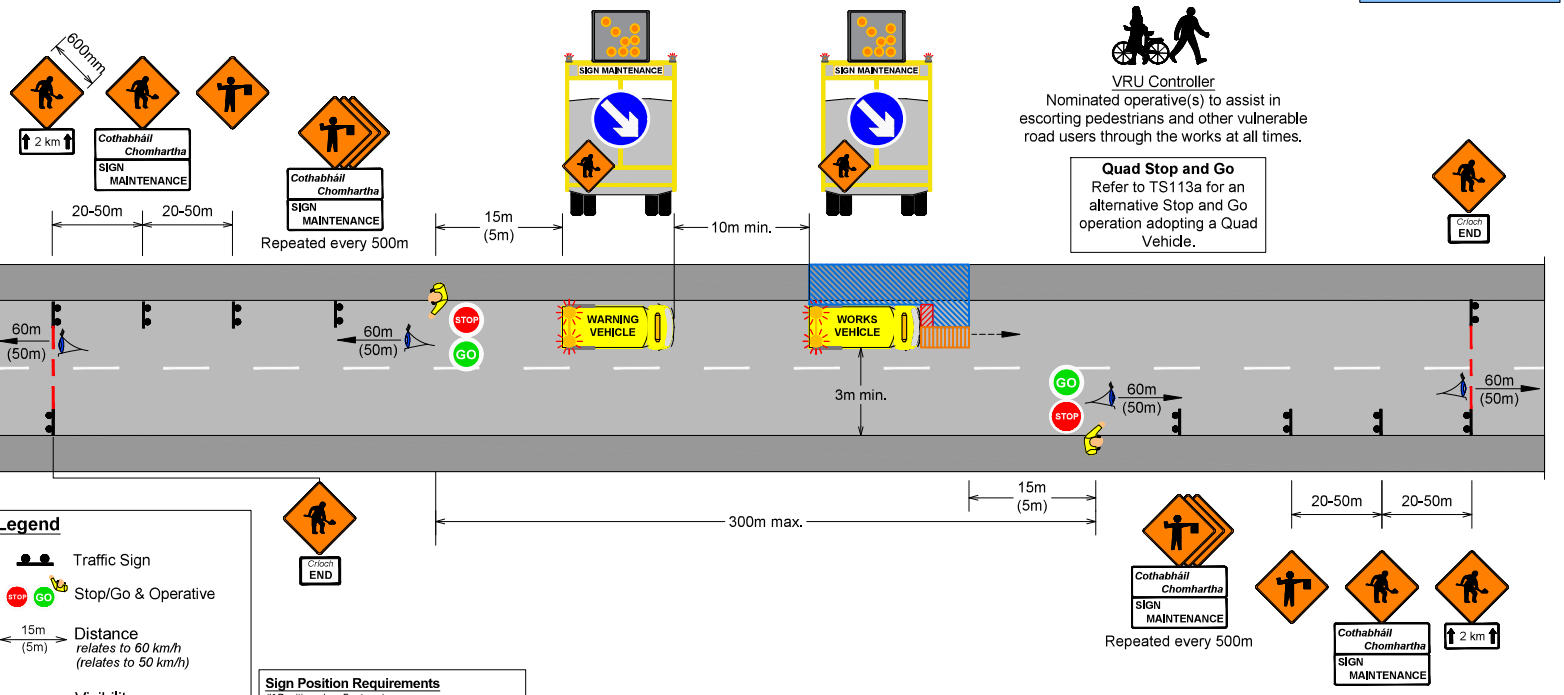
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

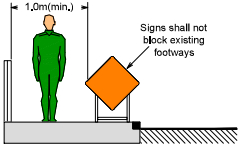
Maximum Vehicle Count: **50 veh/3min**



Legend

- Traffic Sign
- Stop/Go & Operative
- Distance (15m / 5m) *relates to 60 km/h (relates to 50 km/h)*
- Visibility (60m / 50m) *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Sign Position Requirements
(If Positioned on Footway)



Notes

1. For works at a side road junction refer to TS114, TS115 or TS116.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved.
4. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Urban Single C/W - No H/S
Stop and Go - On Foot

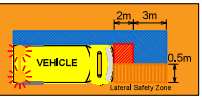
50 km/h OR 60 mph

TS 113

Temporary Traffic Management Guidance Handbook

Traffic Signs

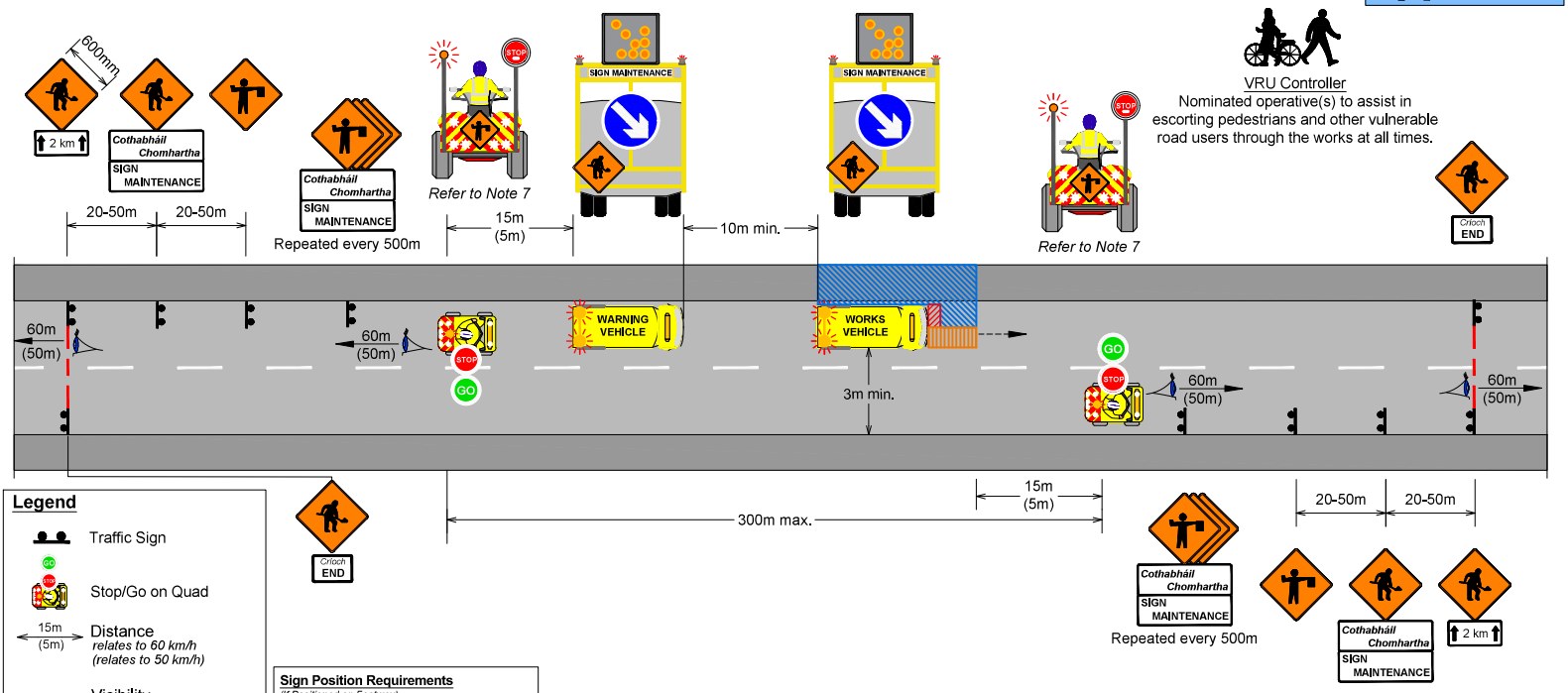
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

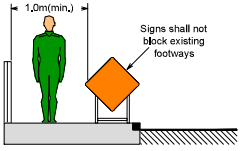
Maximum Vehicle Count: **50 veh/3min**



Legend

- Traffic Sign
- Stop/Go on Quad
- Distance (15m / 5m) — *relates to 60 km/h (relates to 50 km/h)*
- Visibility (60m / 50m) — *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Sign Position Requirements
(If Positioned on Footway)



Notes

1. For works at a side road junction refer to TS114, TS115 or TS116.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved.
4. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
5. Operatives may dismount from the quad vehicle to face oncoming vehicles when carrying out Stop and Go control.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

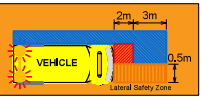
Urban Single C/W - No H/S
Stop and Go - On Quad

50 kph OR 60 kph

TS 113a

Traffic Signs

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



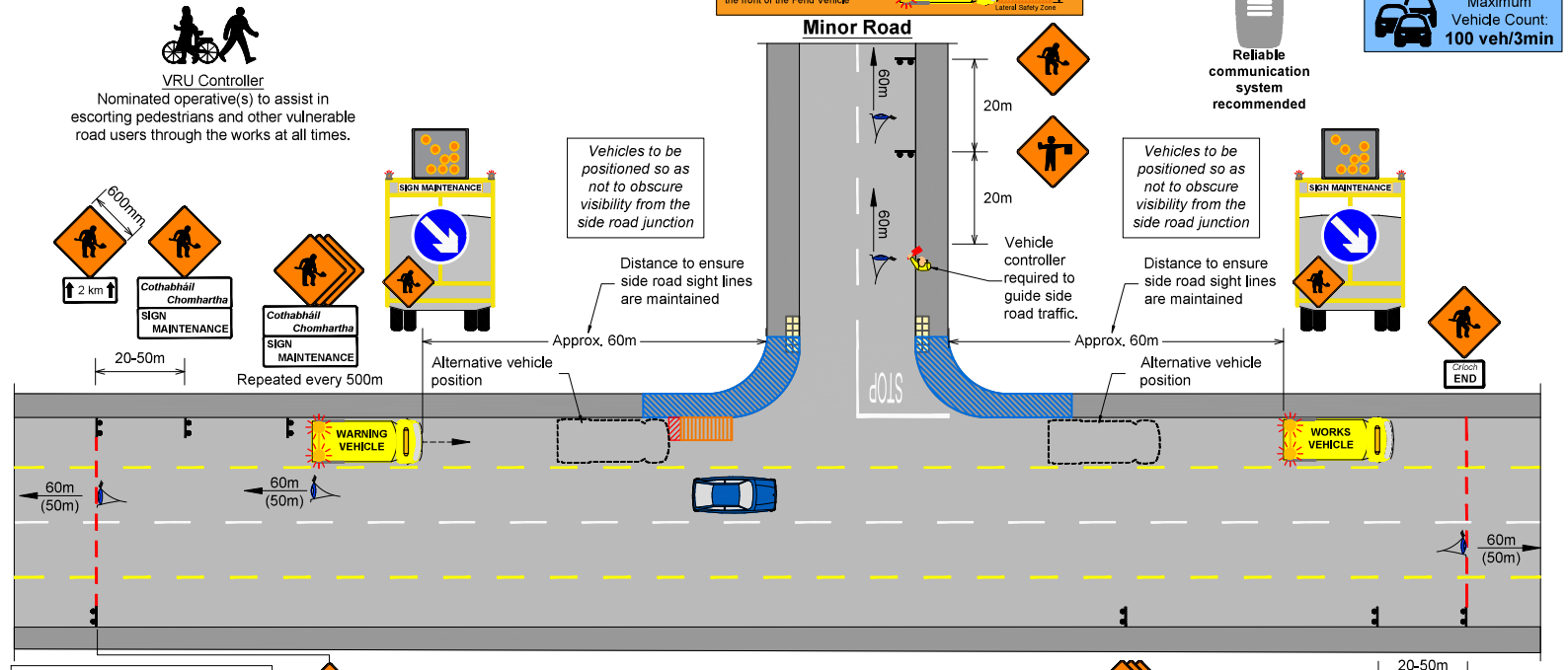
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **100 veh/3min**

Reliable communication system recommended

VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.



Legend

- Traffic Sign
- Visibility — 60m (50m) — *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Hard Shoulder SSO

Layout presents a Semi-Static Hard Shoulder Operation
This layout assumes that the Works Vehicle is wholly contained within the hard shoulder and does not encroach into the live lane.
Where the hard shoulder is of insufficient width to permit this operation, the work should be undertaken using **TS115 or TS116,** as appropriate.

Notes

1. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
2. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. When the side road cross section and traffic volumes are similar to the mainline, TTM as per the mainline is to be implemented on the side road.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Urban Single C/W - With H/S
Hard Shoulder - Minor Road T-Junction

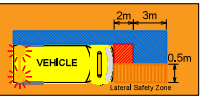
50 kph OR 60 kph

TS 114

Temporary Traffic Management Guidance Handbook

Traffic Signs

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

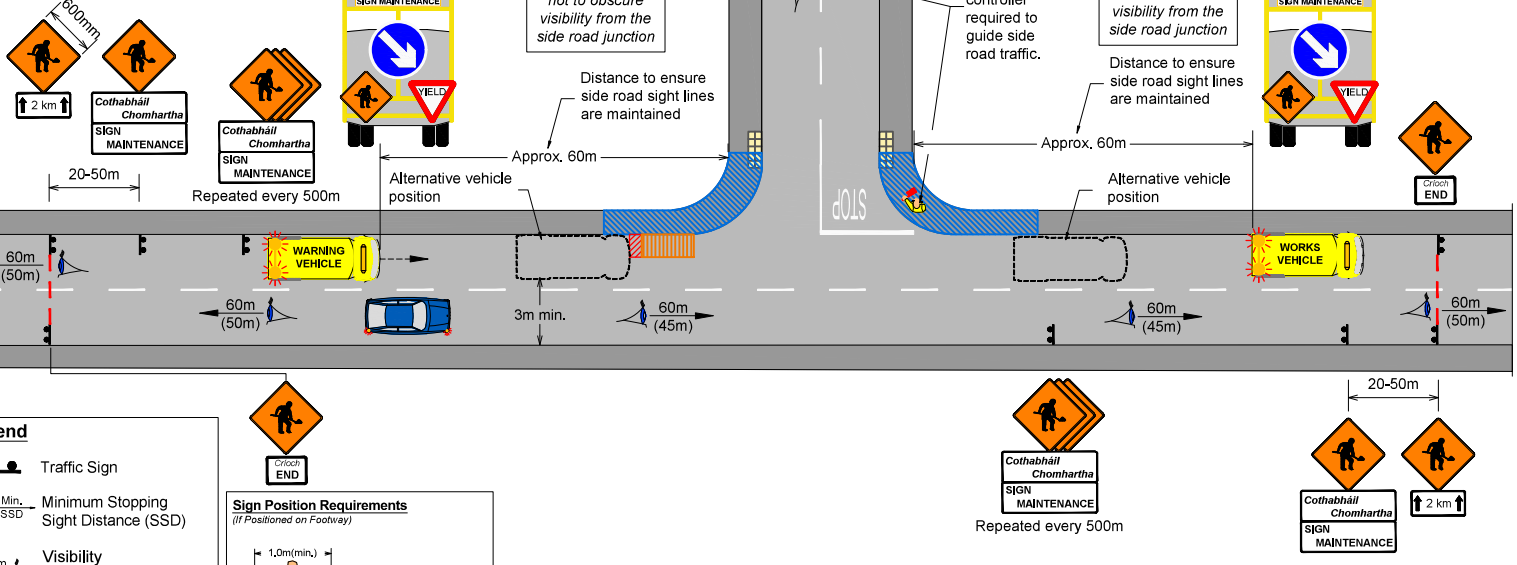
EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **20 veh/3min**

Reliable communication system recommended

Minor Road

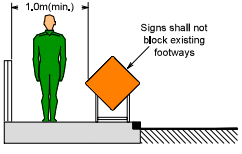
VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.



Legend

- Traffic Sign
- Min. SSD — Minimum Stopping Sight Distance (SSD)
- 60m (50m) — Visibility *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area

Sign Position Requirements
(If Positioned on Footway)



Notes
1. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
2. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. When the side road cross section and traffic volumes are similar to the mainline, TTM as per the mainline is to be implemented on the side road.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Urban Single C/W - No H/S
Give and Take - Minor Road T-Junction

50 kph OR 60 kph

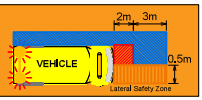
TS 115

Temporary Traffic Management Guidance Handbook

Traffic Signs

All Stop
All Stop control may also be used, where deemed appropriate through risk assessment. When used, the maximum permissable vehicle count is reduced to 15 veh/3min and the maximum all stop period is limited to 3 minutes in duration

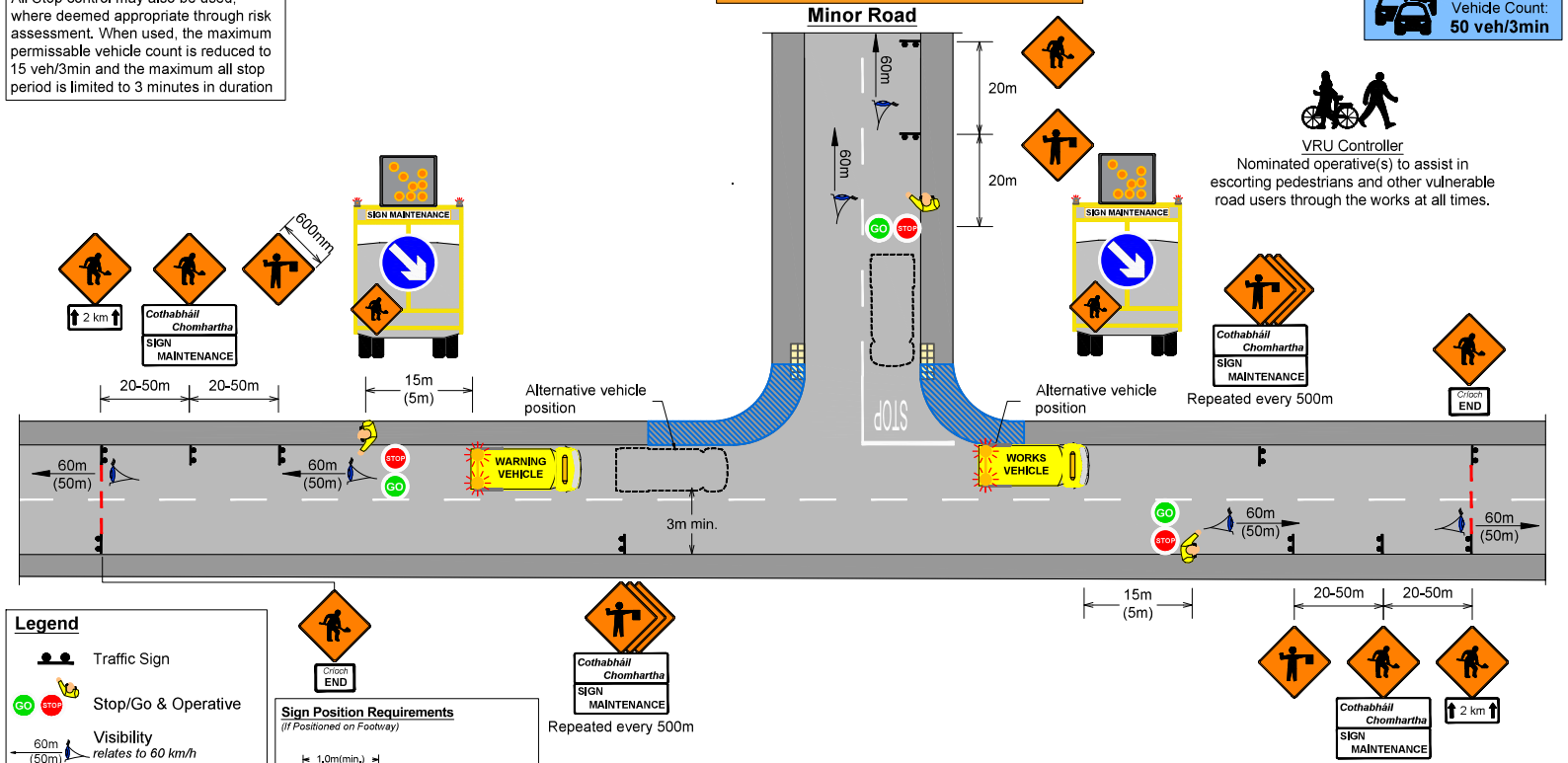
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **50 veh/3min**

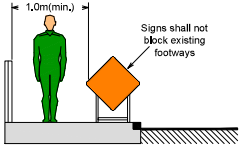


VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Legend

- Traffic Sign
- Stop/Go & Operative
- Visibility 60m (50m) *relates to 60 km/h (relates to 50km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Sign Position Requirements
(If Positioned on Footway)



Notes
1. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
2. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. When the side road cross section and traffic volumes are similar to the mainline, TTM as per the mainline is to be implemented on the side road.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

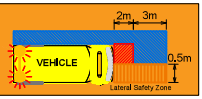
Urban Single C/W - No H/S
Stop and Go - Minor Road T-Junction

50 km/h OR 60 mph

TS 116

Traffic Signs

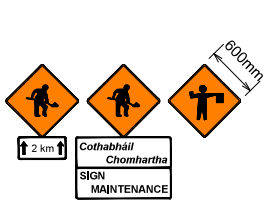
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

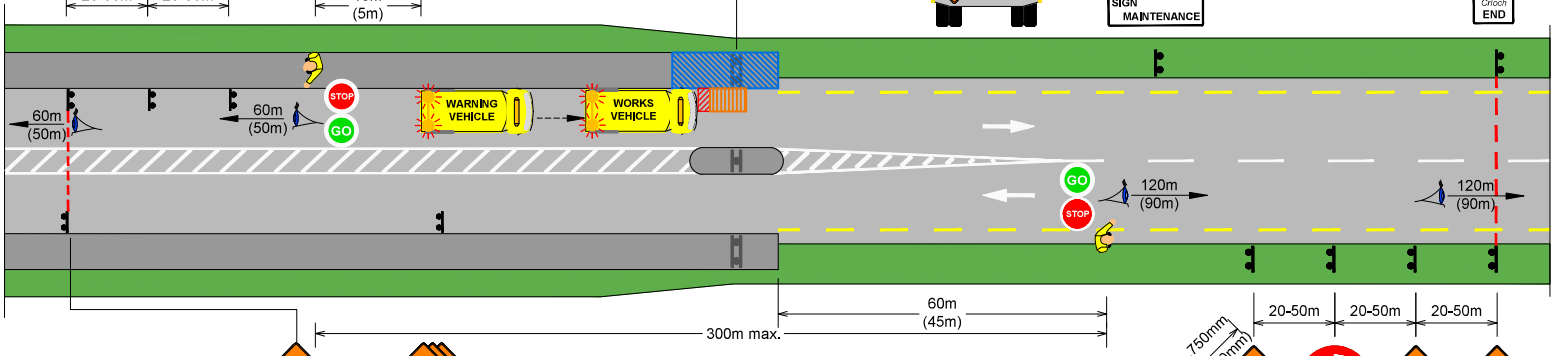
EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **50 veh/3min**



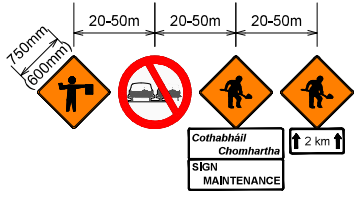
Level 1 Road (Urban) 50km/h or 60km/h	Level 2 Road (Rural) 80km/h or 100km/h
Level 1 Key	**Level 2 Key**
Visibility 60m (50m) relates to 60 km/h (relates to 50 km/h)	Visibility 120m (90m) relates to 100 km/h (relates to 80 km/h)
Distance 15m (5m) relates to 60 km/h (relates to 50 km/h)	Distance 60m (45m) relates to 100 km/h (relates to 80 km/h)

Repeated every 500m



Repeated every 500m

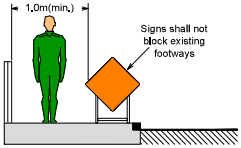
VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.



Legend

- Traffic Sign
- Stop/Go & Operative
- Distance — As Indicated on Plan
- Visibility — As Indicated on Plan
- Fend Zone / Lateral Safety Zone
- Works Area
- Works Zone

Sign Position Requirements
(If Positioned on Footway)



Notes

1. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
2. Vehicles to have minimal encroachment on the running lanes where possible.
3. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved. Marshalling system may also be used where sight lines are poor.

Standard Maintenance / Minor Works
Patching / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

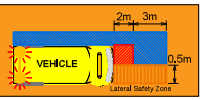
Urban Single C/W - Gateway
Stop and Go - Urban Approach

VARIES

TS 117

Traffic Signs

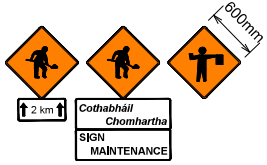
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

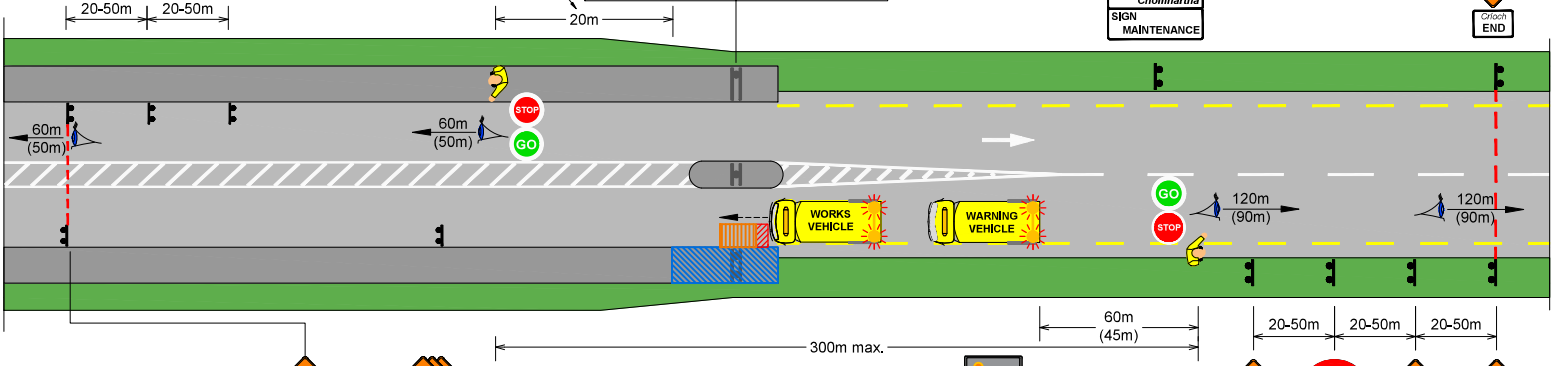
Maximum Vehicle Count: **50 veh/3min**

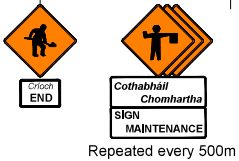


Level 1 Road (Urban) 50km/h or 60km/h	Level 2 Road (Rural) 80km/h or 100km/h
Level 1 Key	**Level 2 Key**
Visibility 60m (50m) relates to 60 km/h (relates to 50 km/h)	Visibility 120m (90m) relates to 100 km/h (relates to 80 km/h)
Distance 15m (5m) relates to 60 km/h (relates to 50 km/h)	Distance 60m (45m) relates to 100 km/h (relates to 80 km/h)

Required to ensure vehicles can manoeuvre through the works

Repeated every 500m



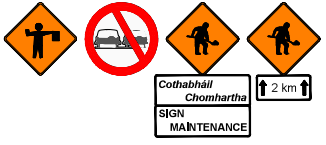


Repeated every 500m

60m (45m)

300m max.

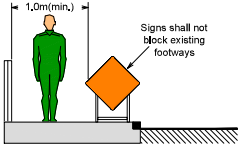
VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.



Legend

- Traffic Sign
- Stop/Go & Operative
- Distance — As Indicated on Plan
- Visibility — As Indicated on Plan
- Fend Zone / Lateral Safety Zone
- Works Area
- Works Zone

Sign Position Requirements
(If Positioned on Footway)



Notes

1. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
2. Vehicles to have minimal encroachment on the running lanes where possible.
3. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved. Marshalling system may also be used where sight lines are poor.

Standard Maintenance / Minor Works
Patching / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Urban Single C/W - Gateway
Stop and Go - Rural Approach

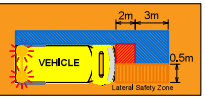
VARIES

TS 118

Temporary Traffic Management Guidance Handbook

Traffic Signs

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

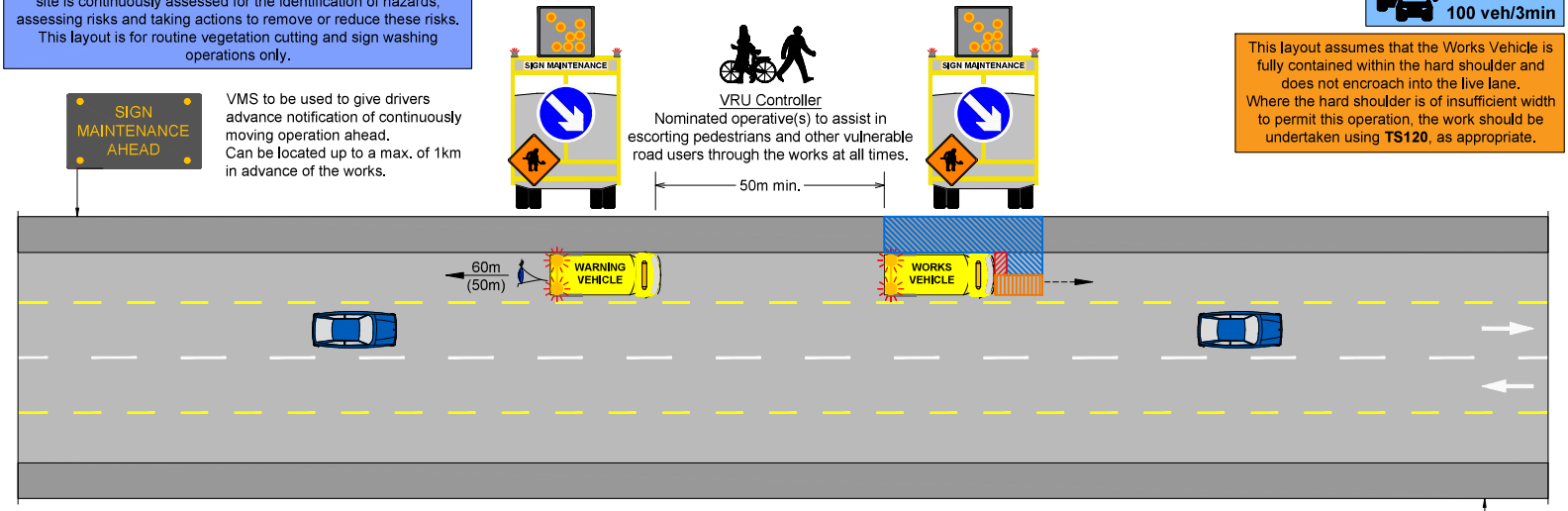
Maximum Vehicle Count: **100 veh/3min**

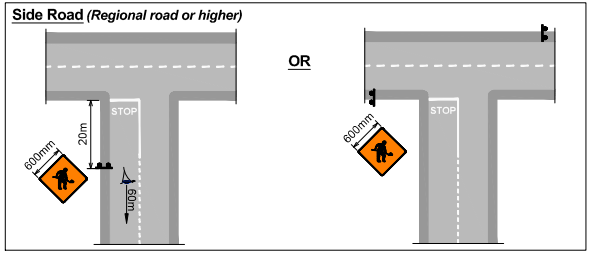
Dynamic:
Layout is subject to dynamic site specific risk assessment where the site is continuously assessed for the identification of hazards, assessing risks and taking actions to remove or reduce these risks. This layout is for routine vegetation cutting and sign washing operations only.

This layout assumes that the Works Vehicle is fully contained within the hard shoulder and does not encroach into the live lane. Where the hard shoulder is of insufficient width to permit this operation, the work should be undertaken using **TS120**, as appropriate.

SIGN MAINTENANCE AHEAD

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 1km in advance of the works.





VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 1km in advance of the works.

SIGN MAINTENANCE AHEAD

Legend

60m (50m) — Visibility *relates to 60 km/h (relates to 50km/h)*

Fend Zone
Lateral Safety Zone

Works Area

Notes

1. Layouts to be used for routine vegetation cutting and sign washing operations **only**. Operation is subject to a dynamic risk assessment process, both before and during the course of the operation.
2. For continuously moving operations, where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. Where the operation encounters a side road junction, the works vehicles shall be positioned as to not obscure visibility from the side road.

Minor Maintenance (Continuously Moving)
Sign Washing / Vegetation Cutting

Dynamic
<5 mins

Urban Single C/W - With H/S
Hard Shoulder

50 OR 60

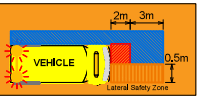
TS 119

Temporary Traffic Management Guidance Handbook

Traffic Signs

Dynamic:
Layout is subject to dynamic site specific risk assessment where the site is continuously assessed for the identification of hazards, assessing risks and taking actions to remove or reduce these risks. This layout is for routine vegetation cutting and sign washing operations only.

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

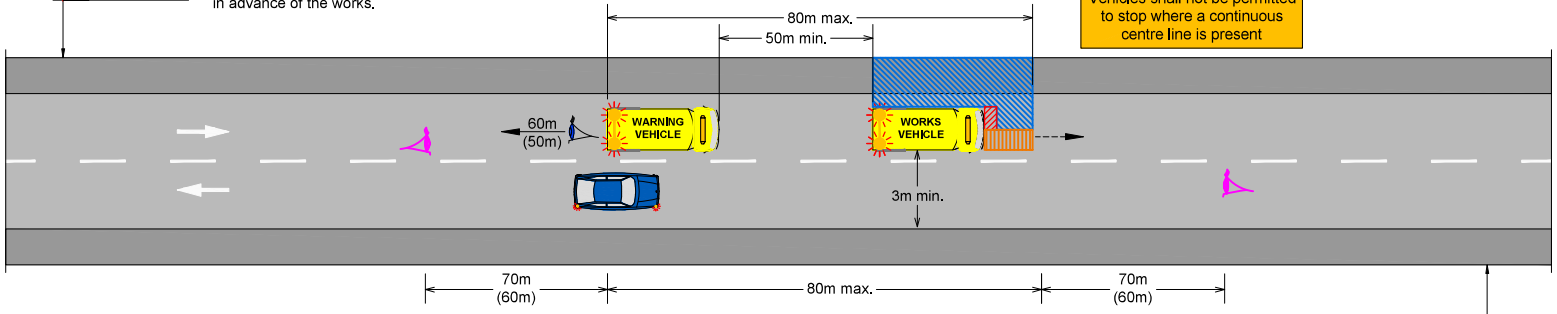
Maximum Vehicle Count: **20 veh/3min**

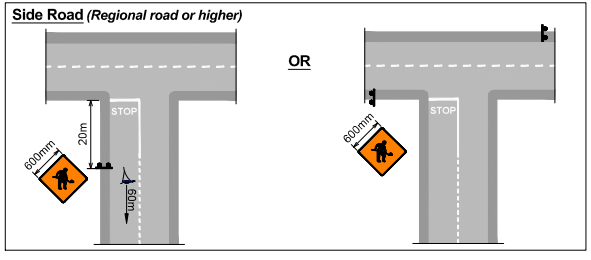
VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Centre Line Road Markings
Vehicles shall not be permitted to stop where a continuous centre line is present

SIGN MAINTENANCE AHEAD

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 1km in advance of the works.





VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 1km in advance of the works.

SIGN MAINTENANCE AHEAD

Legend

- 60m (50m) — Visibility relates to 60 km/h (relates to 50km/h)
- 220m (200m) — Visibility relates to 60 km/h (relates to 50km/h)
- Fend Zone Lateral Safety Zone
- Works Area

Notes

1. Layouts to be used for routine vegetation cutting and sign washing operations **only**. Operation is subject to a dynamic risk assessment process, both before and during the course of the operation.
2. For continuously moving operations, where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. Where the operation encounters a side road junction, the works vehicles shall be positioned as to not obscure visibility from the side road.

Minor Maintenance (Continuously Moving)
Sign Washing / Vegetation Cutting

Dynamic
<5 mins

Urban Single C/W - No H/S
Give and Take

50 OR 60

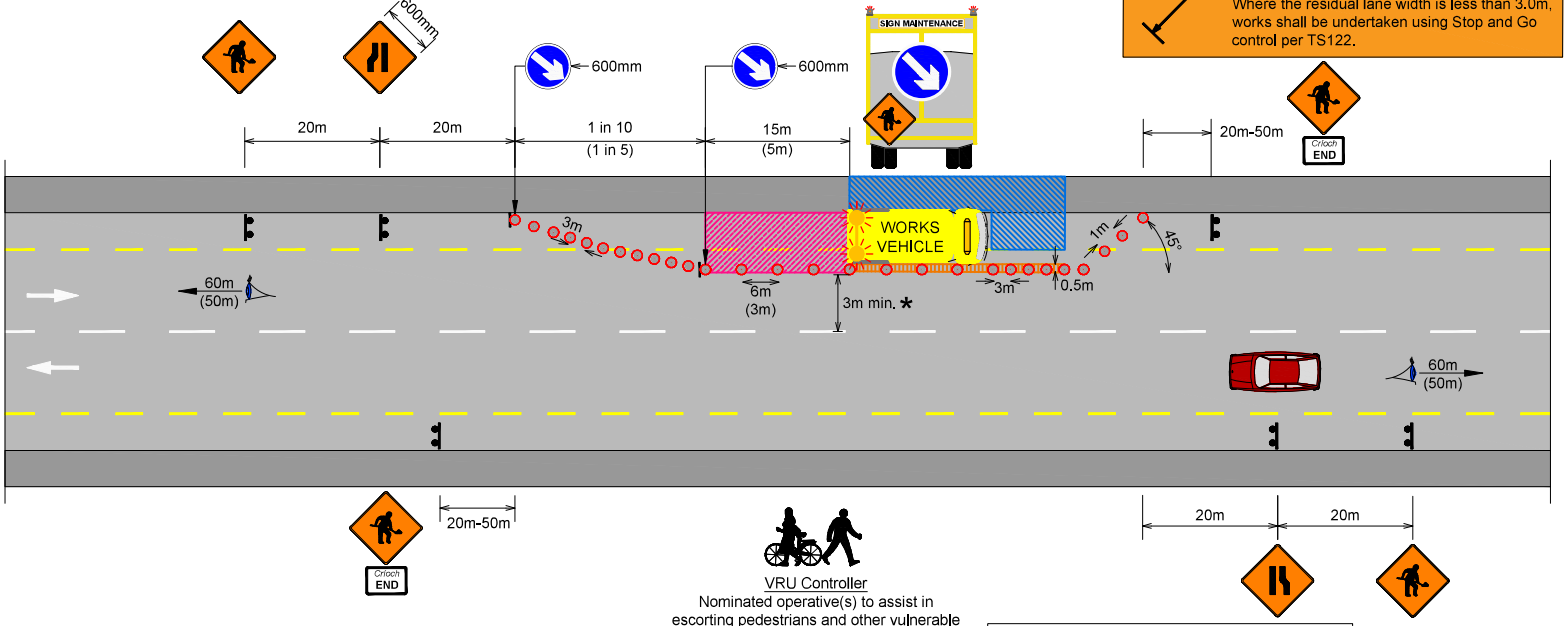
TS 120

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

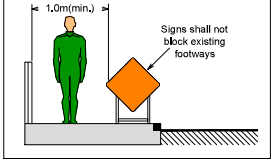
EXAMPLE ONLY NOT TO SCALE

Two-Way Traffic:
Where the residual lane width is less than 3.0m, works shall be undertaken using Stop and Go control per TS122.



VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

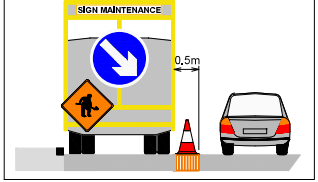
Sign Position Requirements
(If Positioned on Footway)



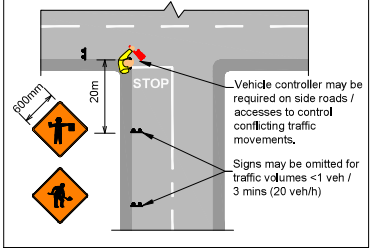
Notes

1. For works at a side road junction refer to TS124 to TS126.
2. For works directly opposite a junction (e.g. header sign), this layout may not be suitable if the hard shoulder is reduced to accommodate right turning movements. In such instances TS126 should be used, with traffic control required on the side road also.
3. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.

Lateral Safety Zone



Side Road Within Operation



Legend

- Cones (0.75m)
- 60m (50m) Visibility *relates to 60 km/h (relates to 50km/h)*
- 15m (5m) Distance *relates to 60 km/h (relates to 50km/h)*
- Traffic Sign
- Longitudinal Safety Zone / Lateral Safety Zone
- Works Area

Standard Works
Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static
Type B >15 mins

Urban Single C/W - With H/S
2 Way Traffic

50 kph OR 60 kph

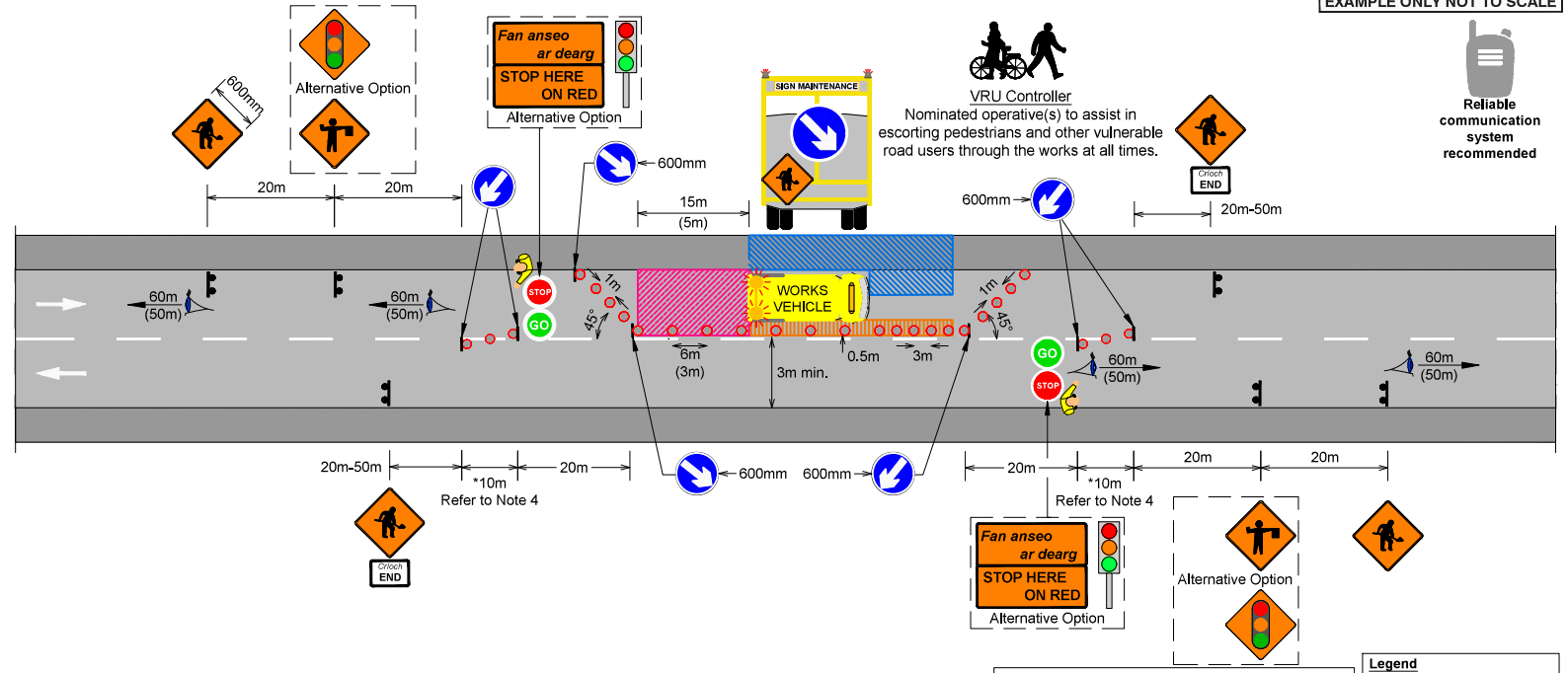
TS 121

Temporary Traffic Management Guidance Handbook

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

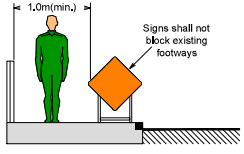
EXAMPLE ONLY NOT TO SCALE



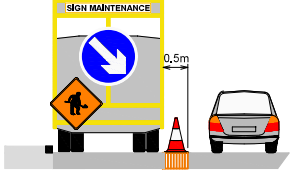
Notes

1. For works at a side road junction refer to TS124 to TS126.
2. If this layout is used for works directly opposite a junction (header sign), full traffic control (Stop/Go) is required on the side road.
3. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
4. Central coning may be omitted where the paved road width is less than 7m.
5. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.

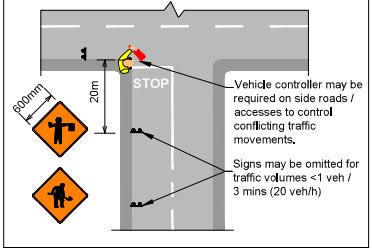
Sign Position Requirements
(If Positioned on Footway)



Lateral Safety Zone



Side Road Within Operation



Legend

- Cones (0.75m)
- 60m (50m) Visibility *relates to 60 km/h (relates to 50km/h)*
- 15m (5m) Distance *relates to 60 km/h (relates to 50km/h)*
- Traffic Sign
- Stop/Go & Operative
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static
Type B >15 mins

Urban Single C/W - No H/S
Stop and Go

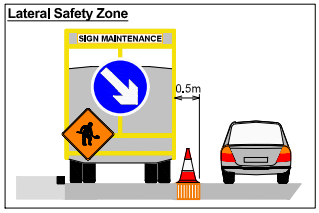
50 km/h OR 60 km/h

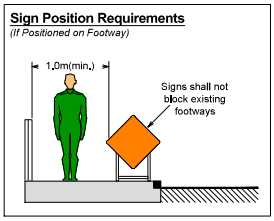
TS 122

Traffic Signs

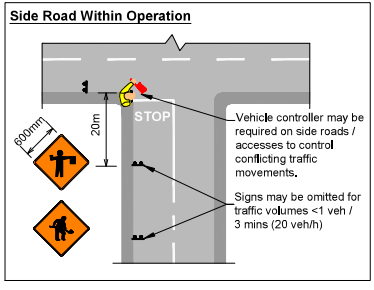
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

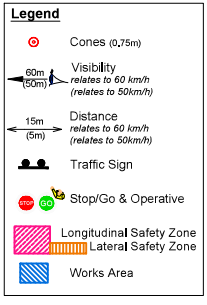
EXAMPLE ONLY NOT TO SCALE





Reliable communication system recommended





Notes

1. This plan can also be used for multiple bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. For works at a side road junction refer to TS124 to TS126.
3. If this layout is used for works directly opposite a junction (header sign), full traffic control (Stop/Go) is required on the side road.
4. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
5. Central coning may be omitted where the paved road width is less than 7m.
6. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.

Standard Works
Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static
Type B >15 mins

Urban Single C/W - No H/S
Stop and Go - Around a Bend

50 OR 60

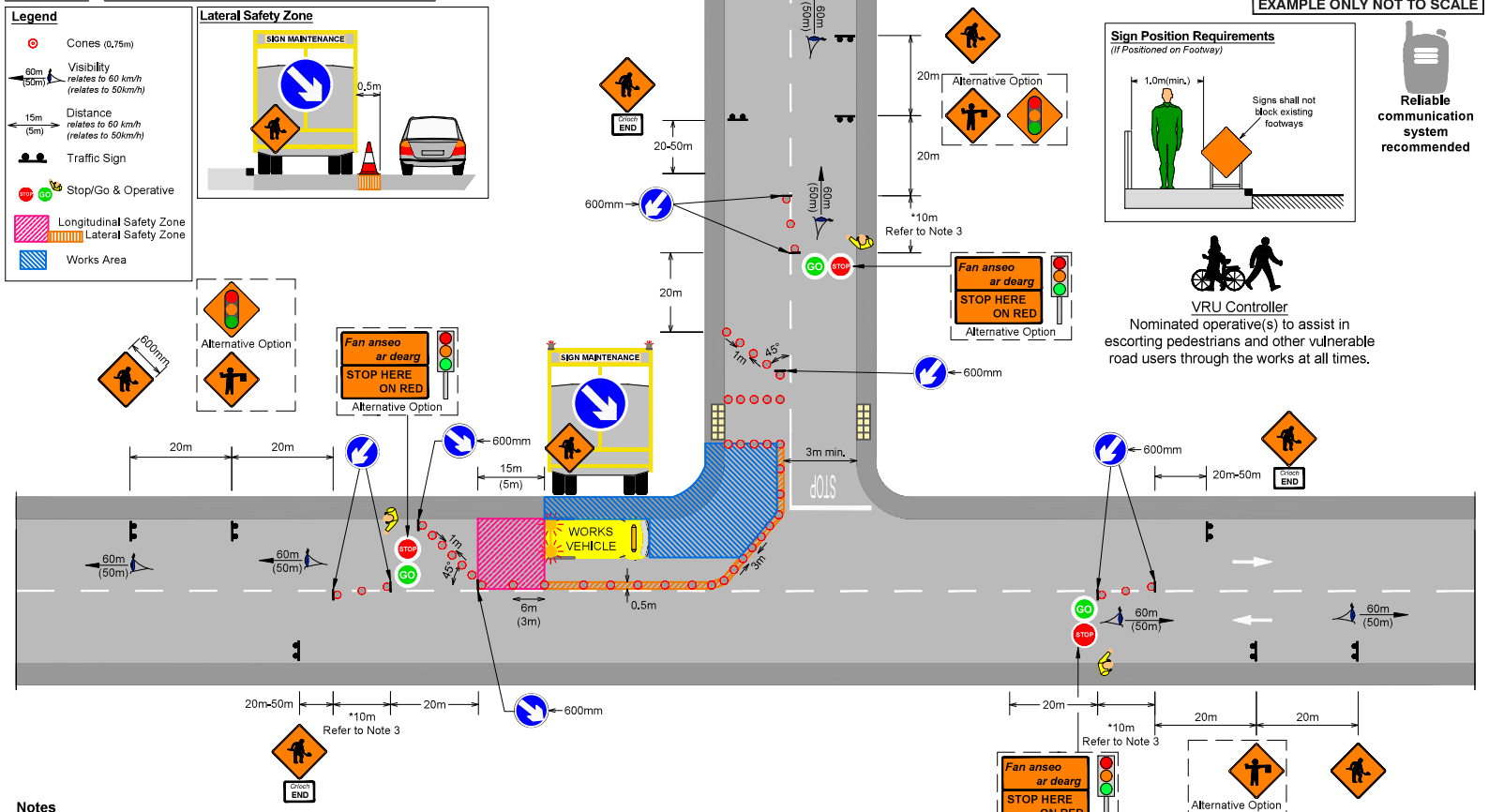
TS 123

Temporary Traffic Management Guidance Handbook

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. This plan can also be used for junctions on bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Central coning may be omitted where the paved road width is less than 7m.
4. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.

Standard Works
Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static
Type B >15 mins

Urban Single C/W - No H/S
Stop and Go - Major Road T-Junction - Position 1

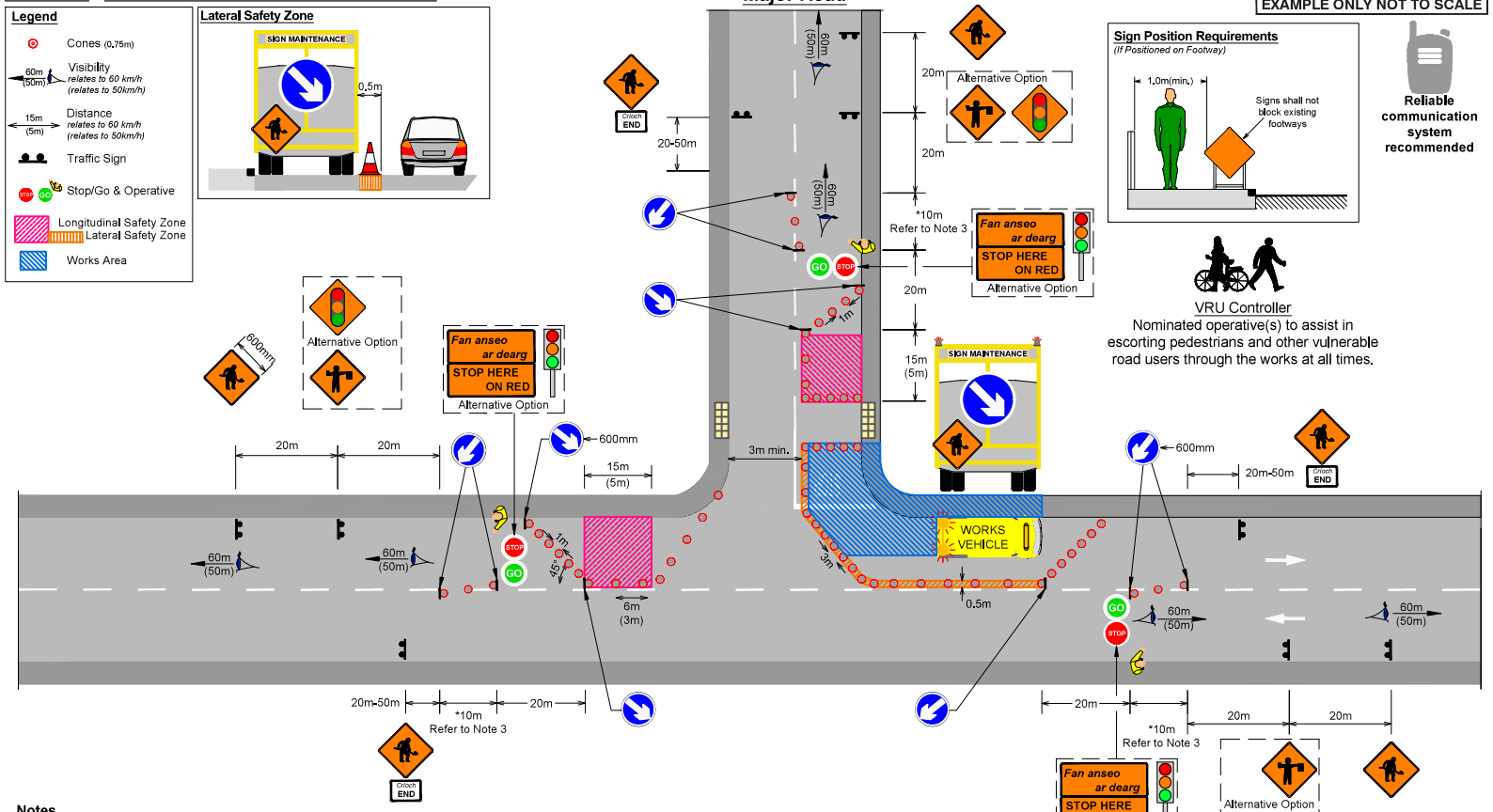
50 OR 60

TS 124

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



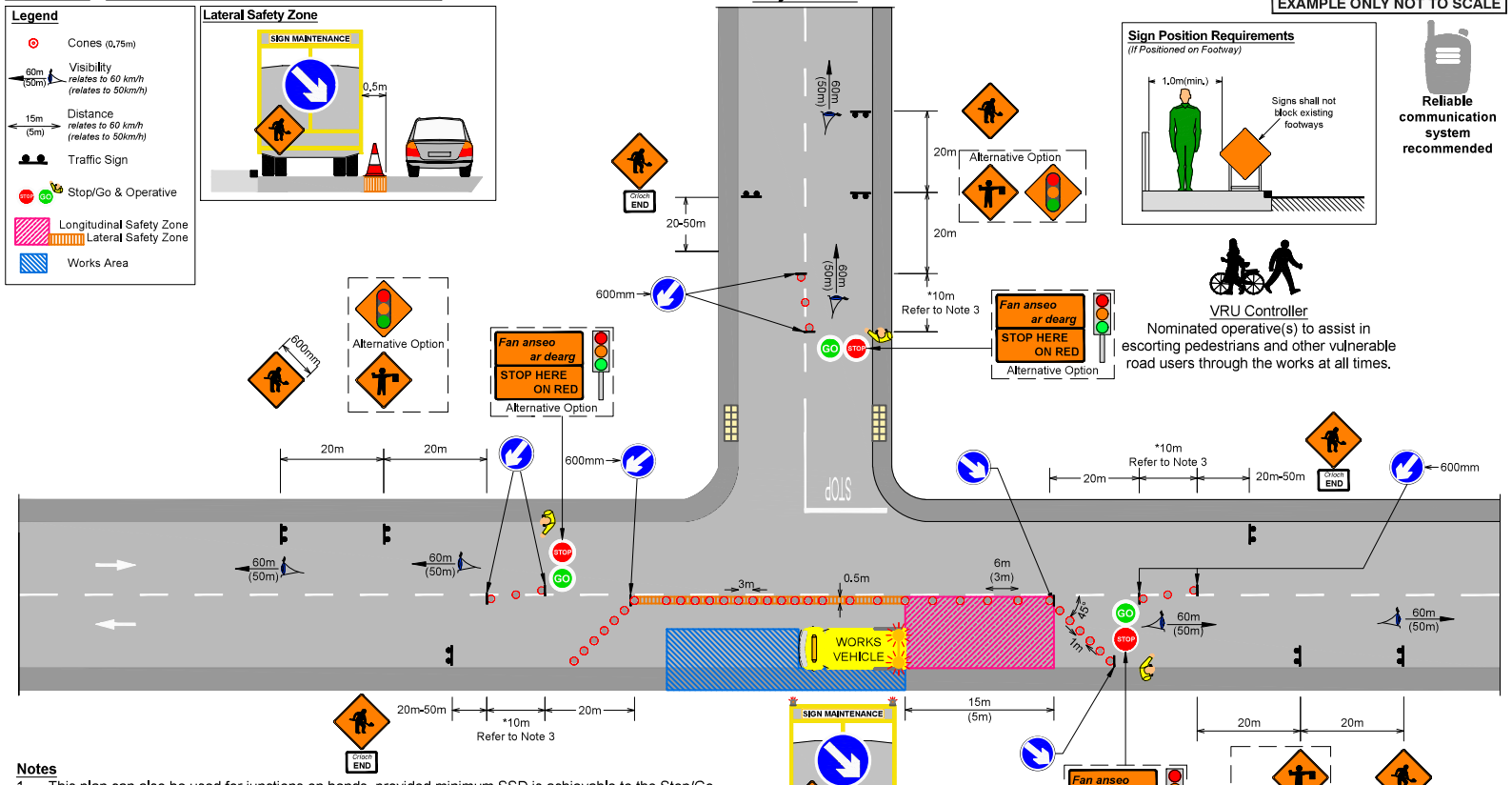
Notes

1. This plan can also be used for junctions on bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Central coning may be omitted where the paved road width is less than 7m.
4. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



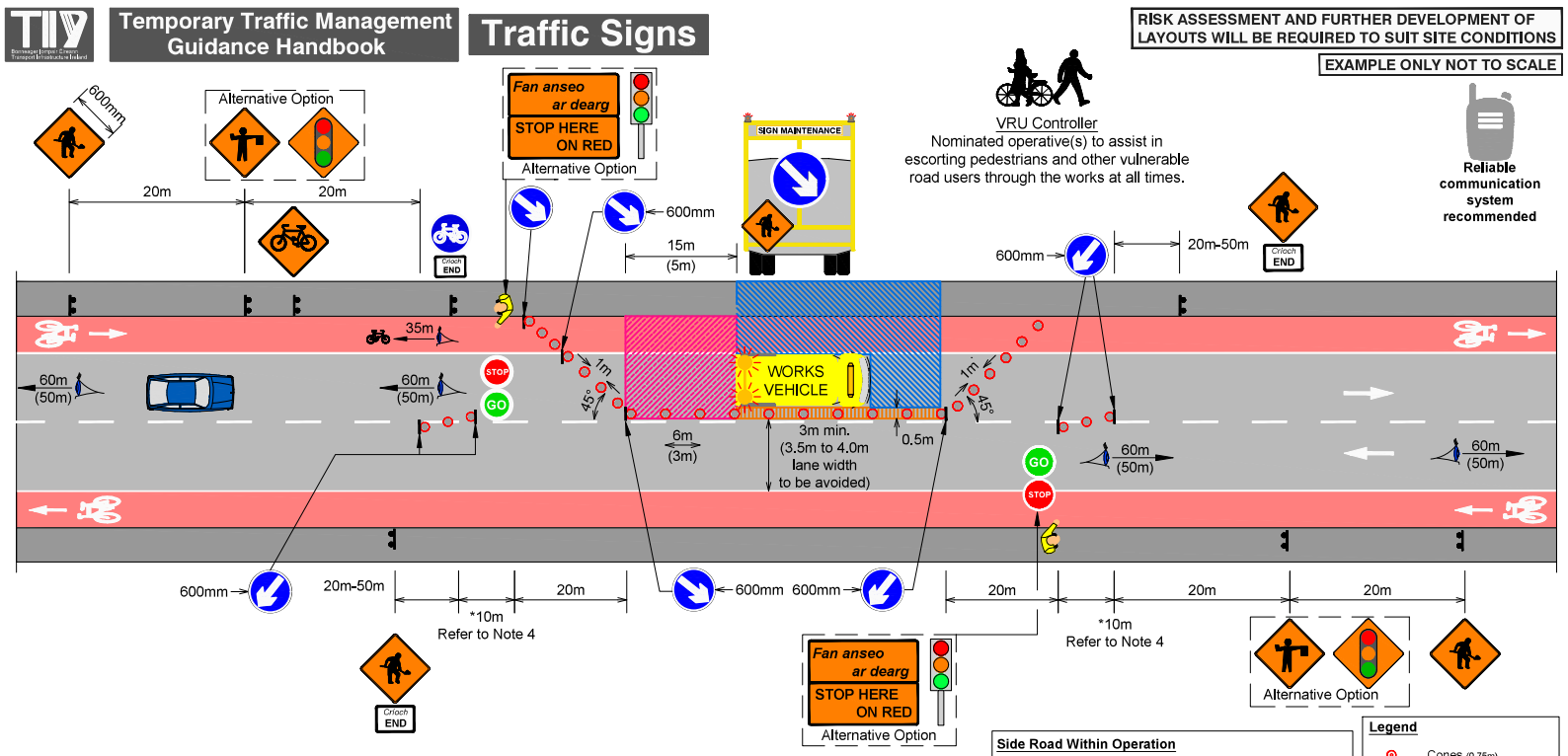
Notes

1. This plan can also be used for junctions on bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Central coning may be omitted where the paved road width is less than 7m.
4. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.

Traffic Signs

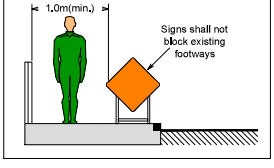
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Sign Position Requirements

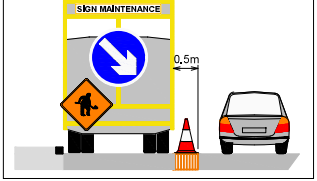
(If Positioned on Footway)



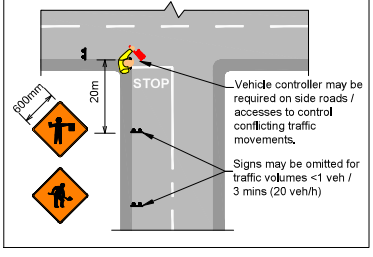
Notes

1. If this layout is used for works directly opposite a junction (header sign), full traffic control (Stop/Go) is required on the side road.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.
4. Central coning may be omitted where the paved road width is less than 7m.

Lateral Safety Zone



Side Road Within Operation



Legend

- Cones (0.75m)
- 60m (50m) Visibility *relates to 60 km/h (relates to 50km/h)*
- 15m (5m) Distance *relates to 60 km/h (relates to 50km/h)*
- Traffic Sign
- Stop/Go & Operative
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static

Type B >15 mins

Urban Single C/W - No H/S

Stop and Go - With Cycle Lane

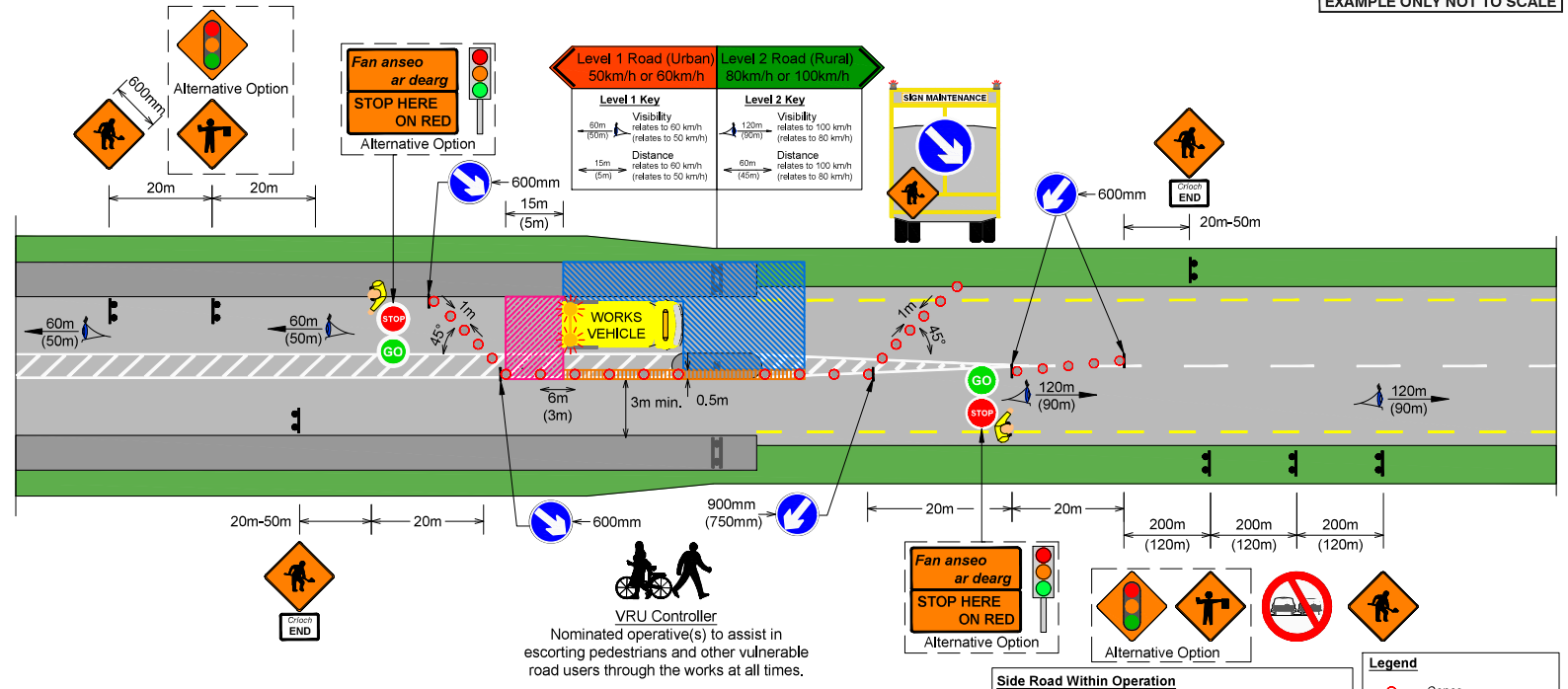
50 kph OR 60 kph

TS 127

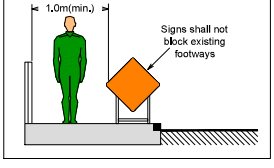
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



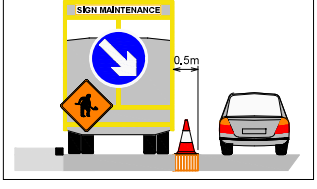
Sign Position Requirements
(If Positioned on Footway)



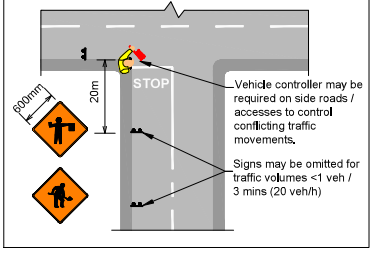
Notes

1. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved.
2. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.

Lateral Safety Zone



Side Road Within Operation



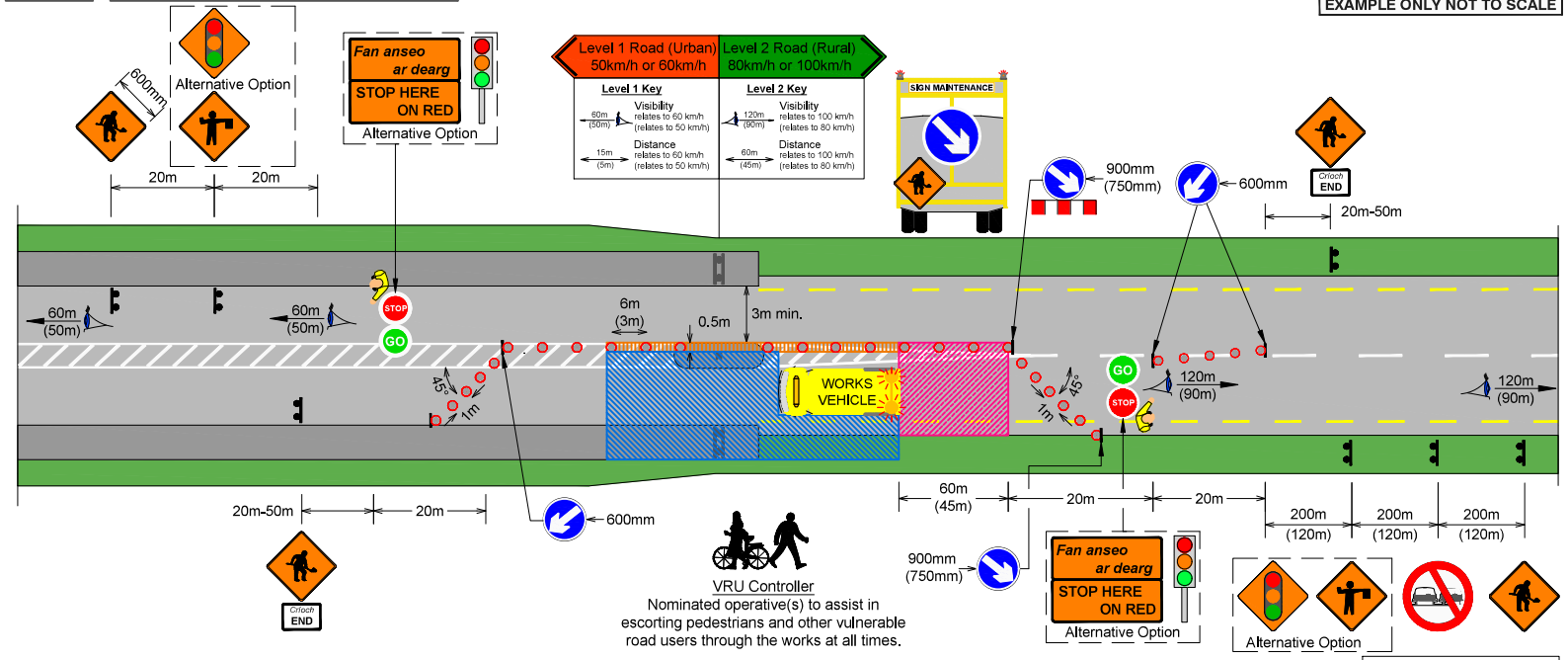
Legend

- Cones (0.75m for 50, 60 & 80km/h) (1.0m for 100km/h)
- Visibility *As Indicated on Plan*
- Distance *As Indicated on Plan*
- Traffic Sign
- Stop/Go & Operative
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

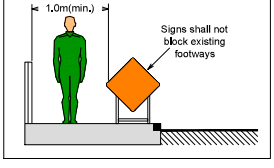


VRU Controller

Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Sign Position Requirements

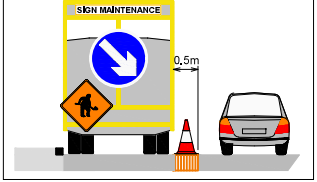
(If Positioned on Footway)



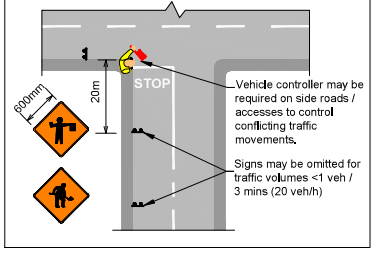
Notes

1. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved.
2. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.

Lateral Safety Zone



Side Road Within Operation



Legend

- Cones (0.75m for 50, 60 & 80km/h) (1.0m for 100km/h)
- Visibility *As Indicated on Plan*
- Distance *As Indicated on Plan*
- Traffic Sign
- Stop/Go & Operative
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static

Type B >15 mins

Urban Single C/W - Gateway

Stop and Go - Rural Approach

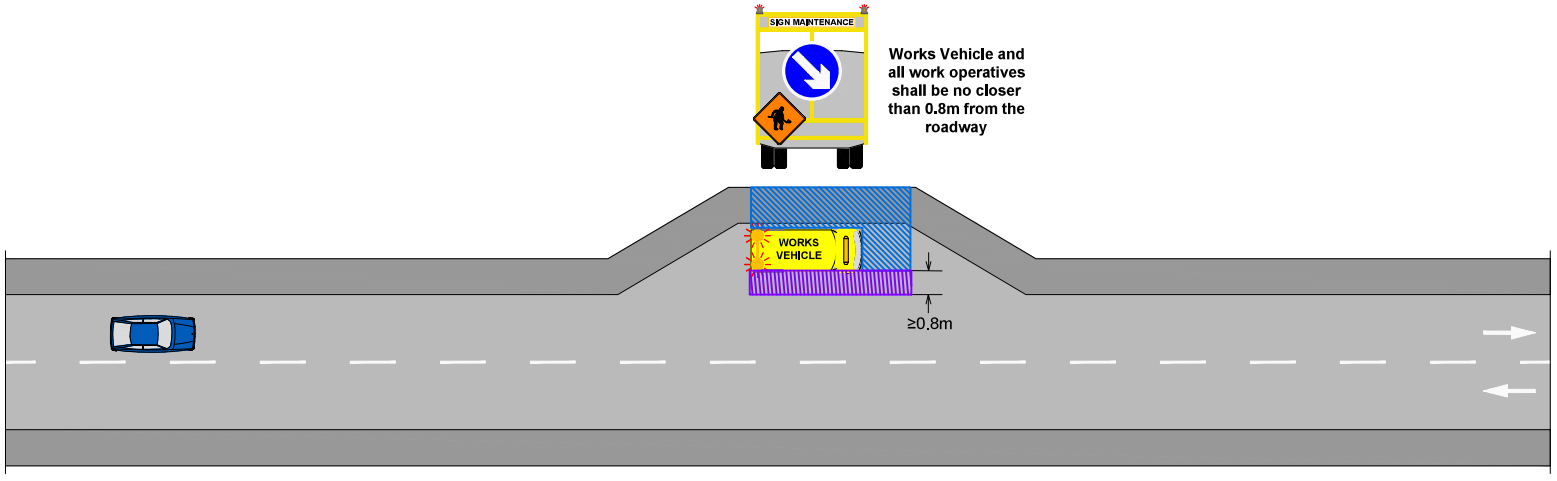
VARIES

TS 129

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. Should not be used in poor visibility conditions.
2. For Level 1 roads advance warning signage may not be required on the roadway where works vehicles can be parked such that they are no closer than 0.8m from the roadway.
3. Works vehicles must be legally parked.

Legend

- Separation Distance
- Works Area

Standard Works
Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static
Type B >15 mins

Urban Single C/W - No H/S
Works Off The Carriageway

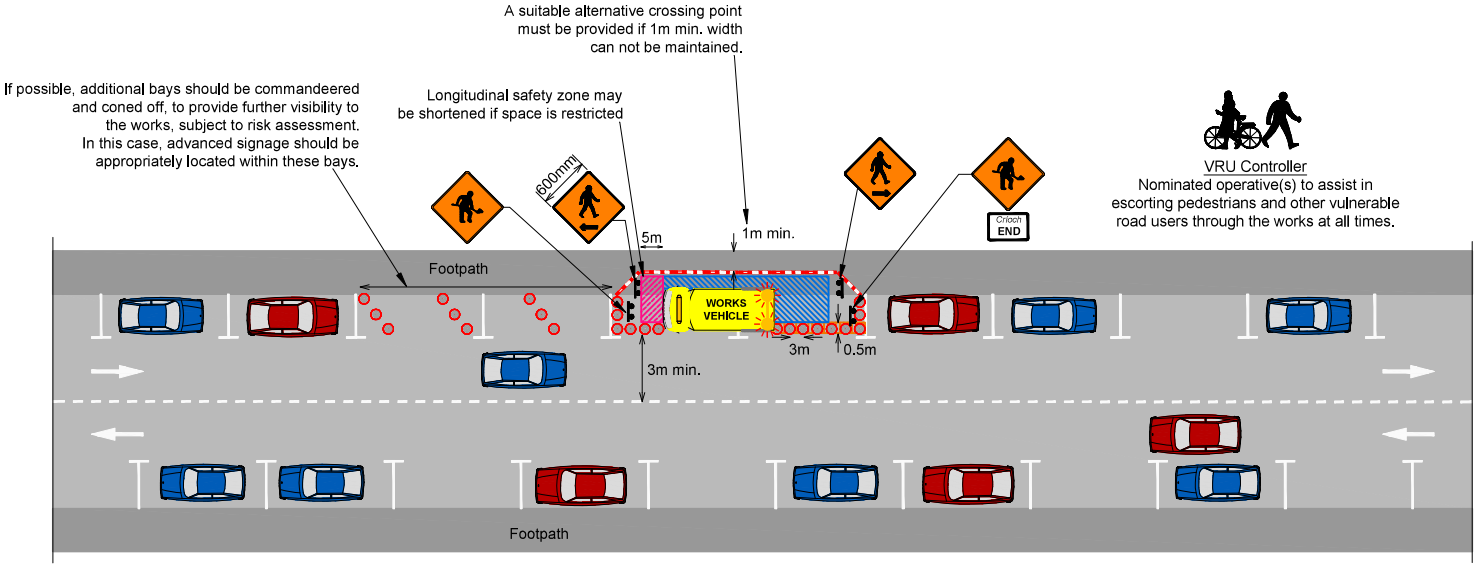
50 OR 60

TS 130

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

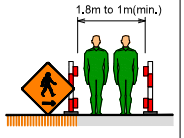
EXAMPLE ONLY NOT TO SCALE



Notes

1. This layout is intended for use in highly urban situations (Main Street locations) where it is ineffective and inappropriate to install full TTM, due to lack of space, potential to obstruct, and limited driver awareness. Its use is restricted to speed limits of 60km/h max.
2. The use of a highly conspicuous and well lit works vehicle is essential to provide warning to drivers and pedestrians alike.
3. In this scenario the works are to be completely contained within the available parking bays and the adjacent footpath. The works must be scheduled for a suitable time when parking is likely to be available.
4. It is only appropriate for use when traffic flow can be maintained adjacent to the works. Where this is not achievable, refer to TS119 to TS124 as appropriate.
5. Where it is not possible to maintain the minimum footpath width adjacent to the works, it may be necessary to provide (and sign) a suitable alternative pedestrian crossing point, subject to risk assessment. Alternatively, pedestrians may be safely guided safely through the work zone, if a risk assessment deems it appropriate.
6. Consultation in advance with the Local Authority is essential in relation to urban works, particularly regarding the temporary acquisition of parking bays, and restrictions on pedestrian and cyclist movements.
7. This layout is not suitable for use during peak hours.

Pedestrian Requirements



Legend

- Cones (0.75m min)
- Pedestrian Barrier
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static

Type B >15 mins

Urban Single C/W - No H/S

Main Street Locations - Parking Bays Available

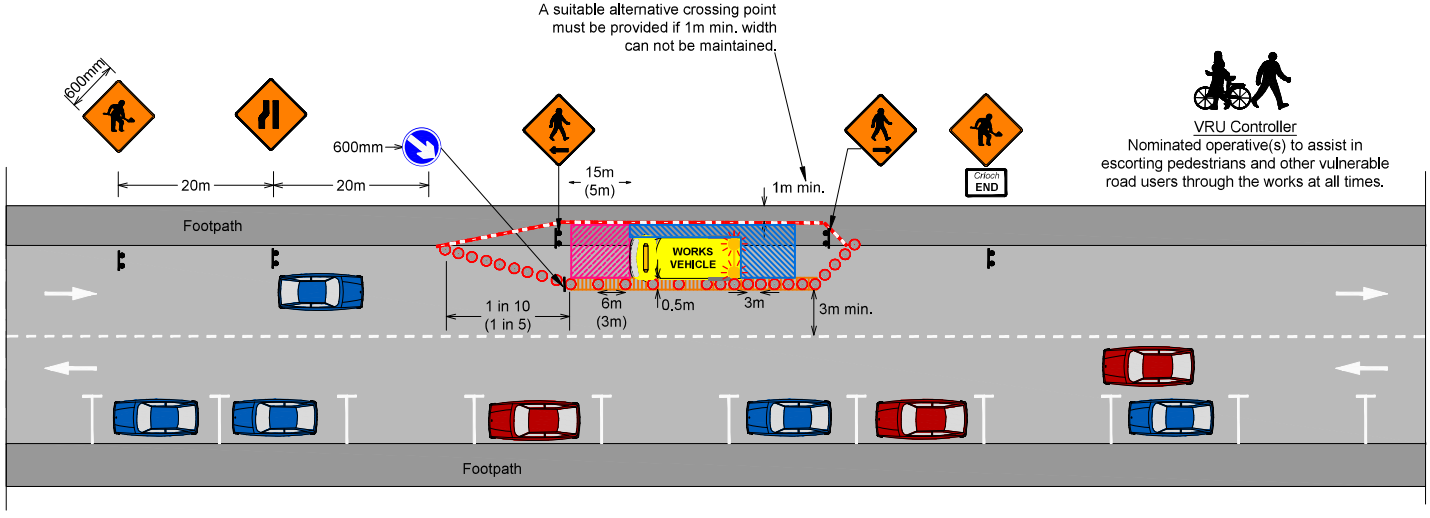
50 kph OR 60 kph

TS 131

Traffic Signs

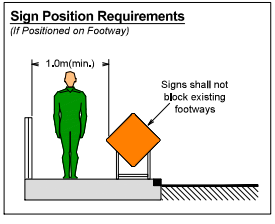
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

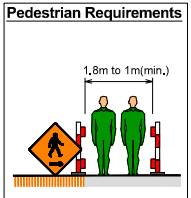
EXAMPLE ONLY NOT TO SCALE

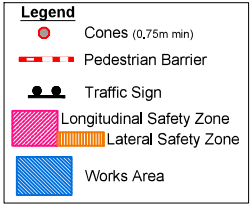


Notes

1. This layout is intended for use in highly urban situations (Main Street locations) where it is ineffective and inappropriate to install full TTM, due to lack of space, potential to obstruct, and limited driver awareness. Its use is restricted to speed limits of 60km/h max.
2. The use of a highly conspicuous and well lit works vehicle is essential to provide warning to drivers and pedestrians alike.
3. It is only appropriate for use when traffic flow can be maintained adjacent to the works. Where this is not achievable, refer to TS119 to TS124 as appropriate.
4. Where it is not possible to maintain the minimum footpath width adjacent to the works, it may be necessary to provide (and sign) a suitable alternative pedestrian crossing point, subject to risk assessment. Alternatively, pedestrians may be safely guided safely through the work zone, if a risk assessment deems it appropriate.
5. Consultation in advance with the Local Authority is essential in relation to urban works, particularly regarding the temporary acquisition of parking bays, and restrictions on pedestrian and cyclist movements.
6. This layout is not suitable for use during peak hours.







Standard Works

Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static

Type B >15 mins

Urban Single C/W - No H/S

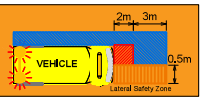
Main Street Locations - No Parking Available

50 kph OR 60 kph

TS 132

Traffic Signs

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



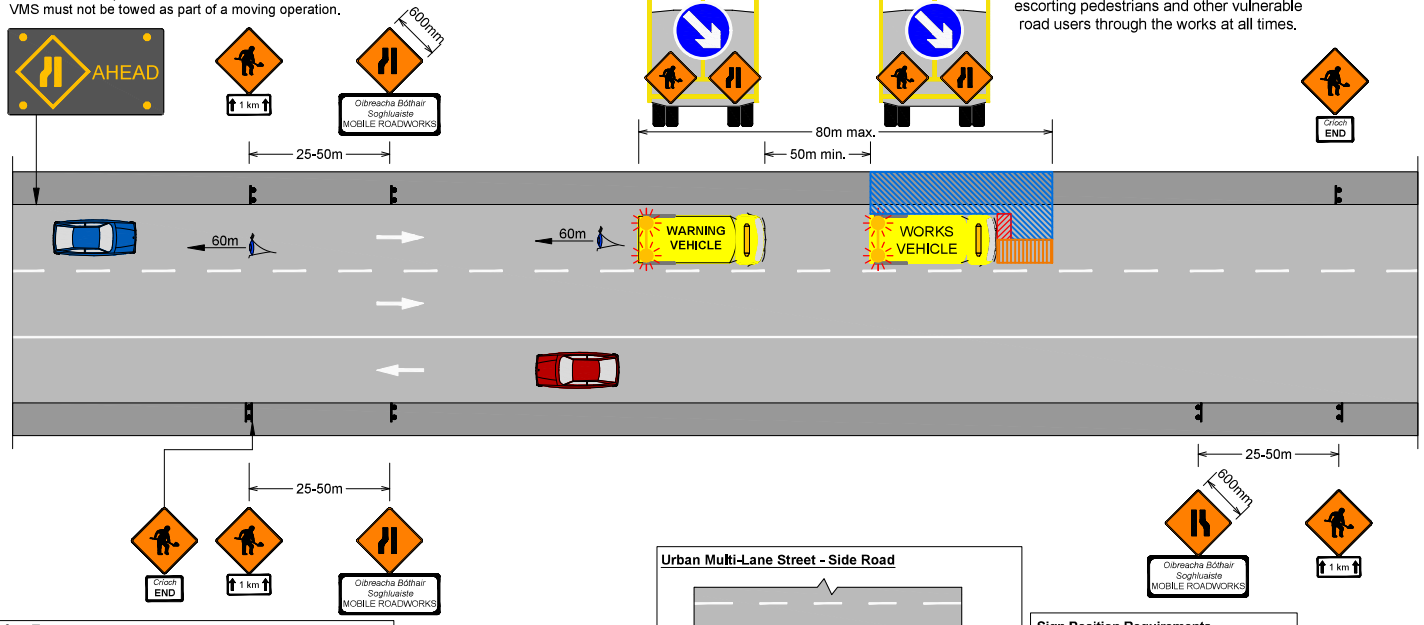
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

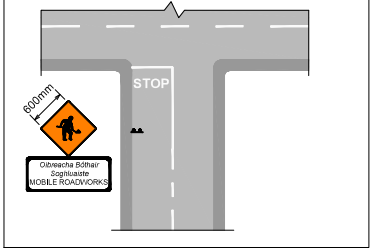
Maximum Vehicle Count in **Multi-lane Direction**: **40 veh/3min**
Note: Traffic counted in the direction of travel of the works only

VMS **may be used** to provide additional warning of particular operations during the works if a risk assessment deems them necessary.
Location to be optimised for the operation.
Can be located up to a max. of 1km in advance of the works.
VMS must not be towed as part of a moving operation.

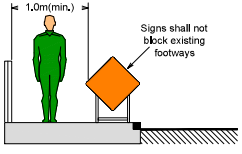
VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.



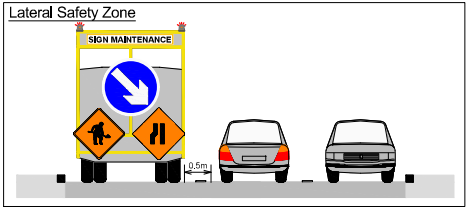
Urban Multi-Lane Street - Side Road



Sign Position Requirements
(If Positioned on Footway)



Lateral Safety Zone



Notes

1. Where numerous side accesses or high traffic volumes are encountered, a flagman / spotter may be required to guide / warn approaching traffic, subject to risk assessment.

Legend

- Visibility: 60m (50m) *relates to 60 km/h (relates to 50 km/h)*
- Traffic Sign
- Works Area

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Urban Multi-Lane Street
Lane 1

50 OR 60

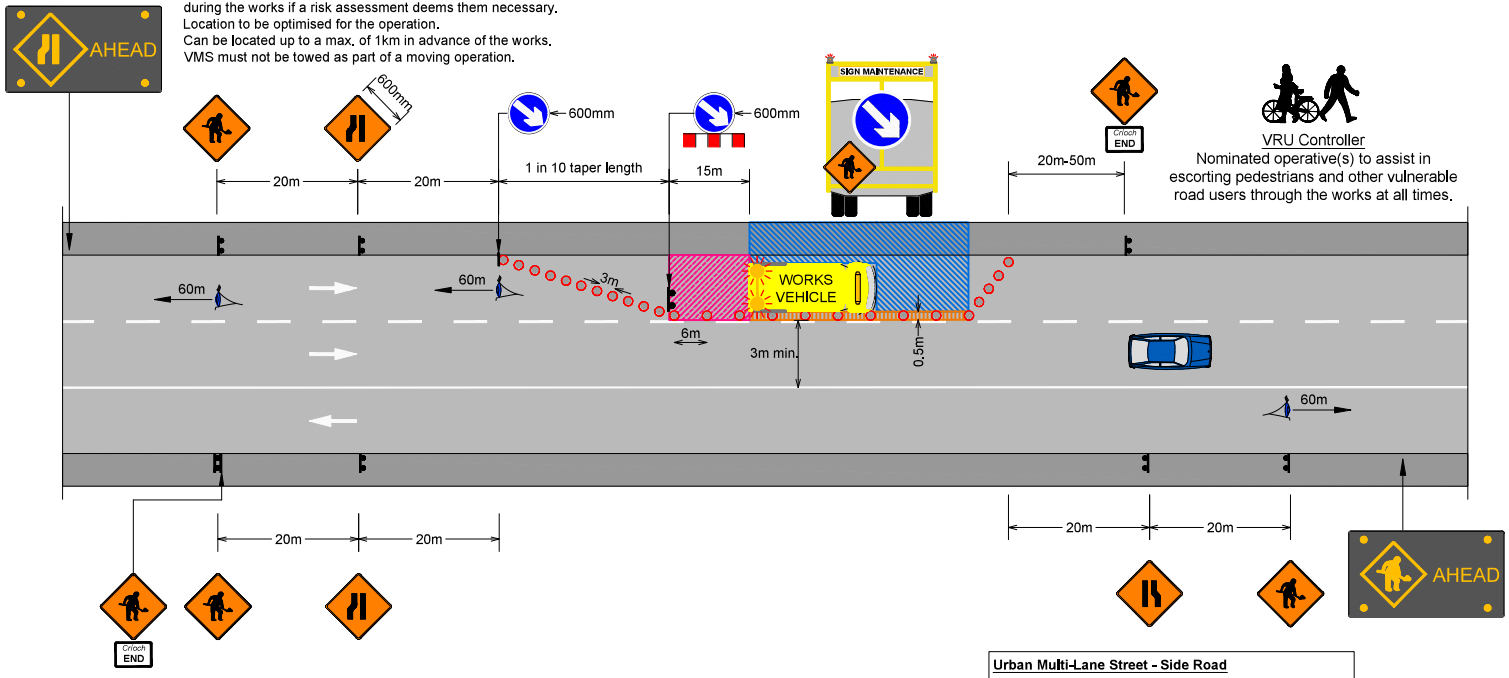
TS 133

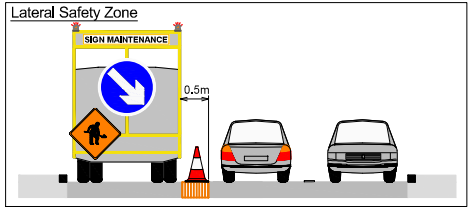
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

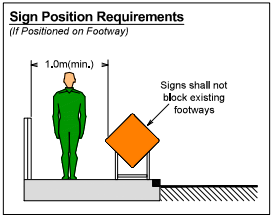
VMS **may be used** to provide additional warning of particular operations during the works if a risk assessment deems them necessary.
Location to be optimised for the operation.
Can be located up to a max. of 1km in advance of the works.
VMS must not be towed as part of a moving operation.

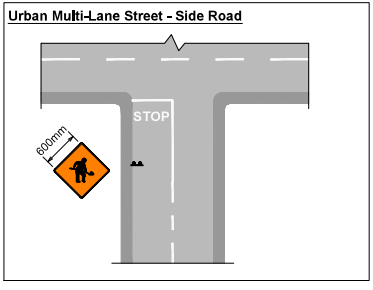


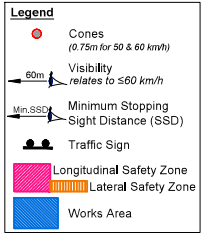


Notes

1. Where numerous side accesses or high traffic volumes are encountered, a flagman / spotter may be required to guide / warn approaching traffic, subject to risk assessment.







Standard Works
Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static
Type B >15 mins

Urban Multi-Lane Street
Lane 1 Closure

50 km/h OR 60 mph

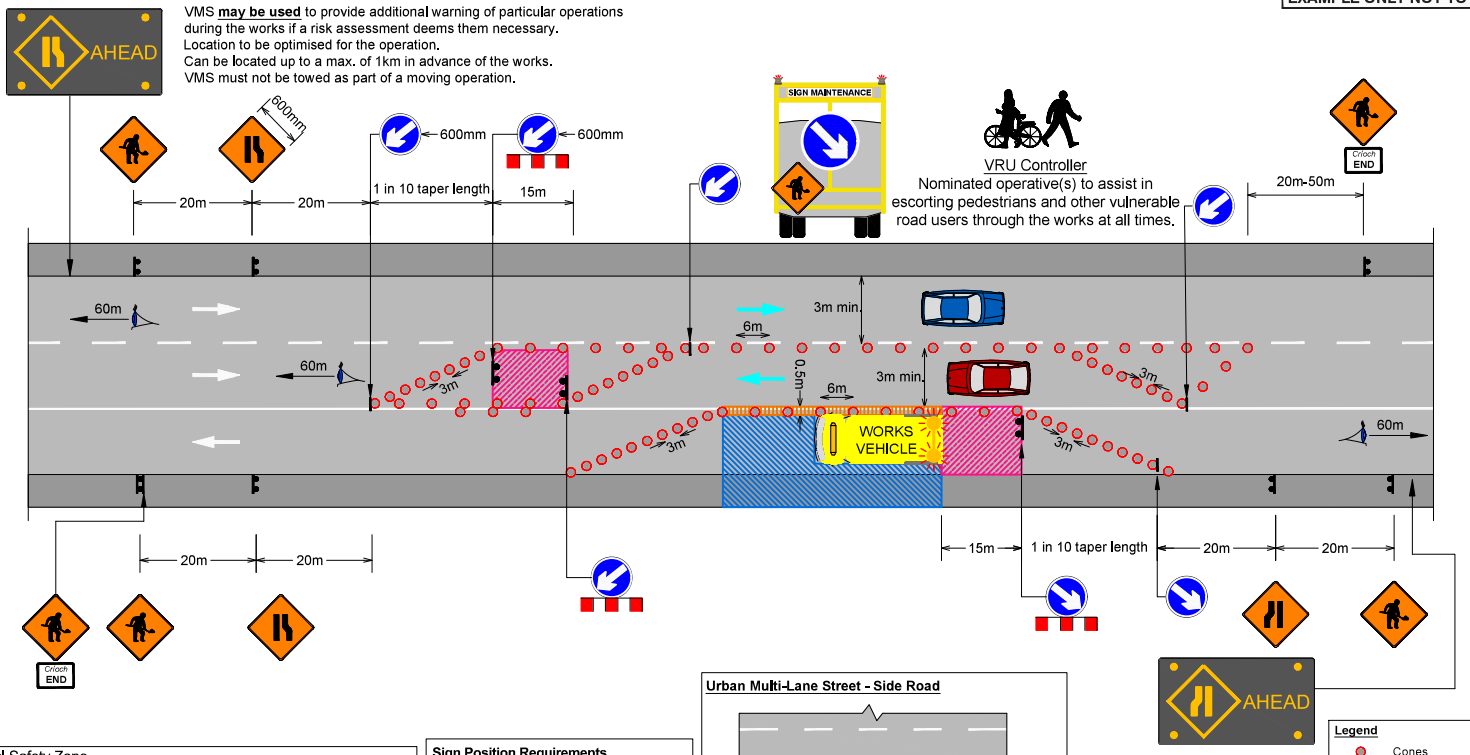
TS 134

Traffic Signs

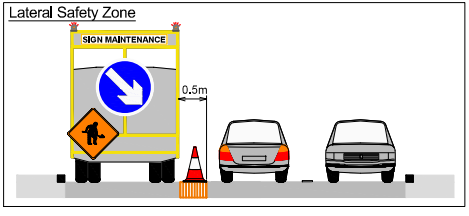
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

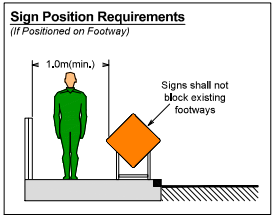
VMS **may be used** to provide additional warning of particular operations during the works if a risk assessment deems them necessary.
Location to be optimised for the operation.
Can be located up to a max. of 1km in advance of the works.
VMS must not be towed as part of a moving operation.



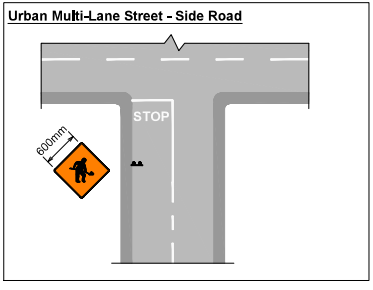
Lateral Safety Zone



Sign Position Requirements
(If Positioned on Footway)



Urban Multi-Lane Street - Side Road



Notes

1. Where numerous side accesses or high traffic volumes are encountered, a flagman / spotter may be required to guide / warn approaching traffic, subject to risk assessment.

Legend

- Cones *(0.75m for 50 & 60 km/h)*
- 60m — Visibility *relates to ≤60 km/h*
- Min.SSD — Minimum Stopping Sight Distance (SSD)
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static
Type B >15 mins

Urban Multi-Lane Street
Closure of Opposing Lane

50 OR 60

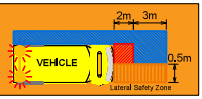
TS 135

Temporary Traffic Management Guidance Handbook

Traffic Signs

Site Specific Assessment:
Prior to using this layout, the contractor shall consult with a TTM Designer to ensure that the site specific conditions have been accounted for in the operation.

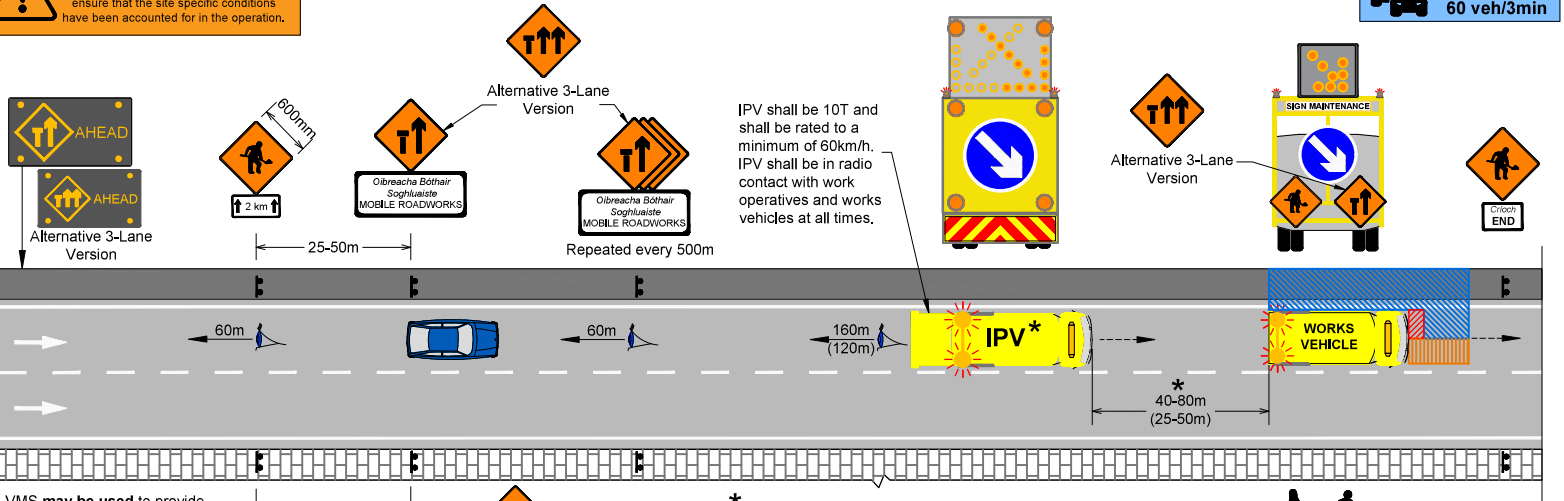
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



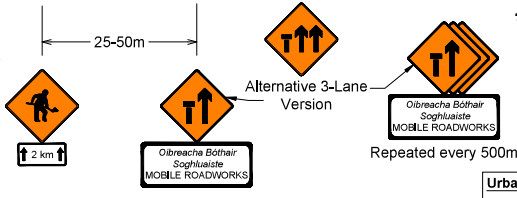
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **60 veh/3min**



VMS **may be used** to provide additional warning of particular operations during the works if a risk assessment deems them necessary.
Location to be optimised for the operation.
Can be located up to a max. of 1km in advance of the works.
VMS must not be towed as part of a moving operation.



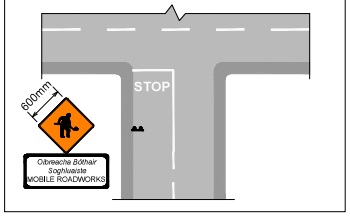
* **Note A:**
IPV vehicle may be replaced with a 4.5T Block Vehicle fitted with a crash attenuation device rated to 60km/h. Where used, the following distance shall be provided between the Block Vehicle and the rear of the Warning Vehicle:

Speed 50km/h - Distance: 40-80m
Speed 60km/h - Distance: 50-100m

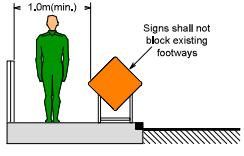
VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Crioch
END

Urban Dual Carriageway- Side Road



Sign Position Requirements
(If Positioned on Footway)



Legend

- 160m (120m) — Visibility *relates to 60 km/h (relates to 50 km/h)*
- Traffic Sign
- Works Area

Notes

1. **Layout is subject to a site-specific TTMP and is therefore provided for guidance only.**
2. Layout not suitable for use during peak hours. Queues to be monitored and queue lengths kept to a minimum. Operatives to be particularly observant of queuing through junctions.
3. Traffic volumes are restricted to 60 veh / 3 mins (1200 veh/h). Three minute traffic counts should be carried out at regular intervals to ensure flows are not exceeded.
4. Where numerous side accesses or high traffic volumes are encountered, a flagman / spotter may be required to guide / warn approaching traffic, subject to risk assessment.
5. Where required, pedestrians and cyclists are to be guided safely through or around the works.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Urban Dual Carriageway
Lane 1

50 kph OR 60 kph

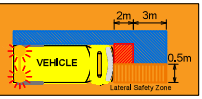
TS 136

Temporary Traffic Management Guidance Handbook

Traffic Signs

Site Specific Assessment:
Prior to using this layout, the contractor shall consult with a TTM Designer to ensure that the site specific conditions have been accounted for in the operation.

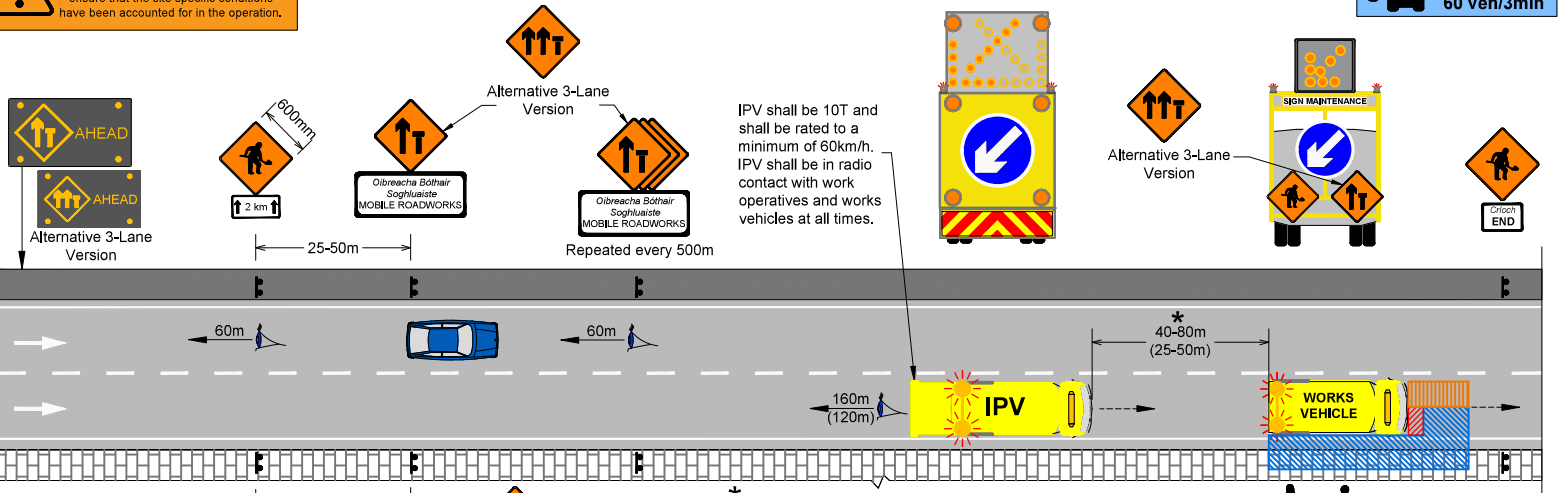
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



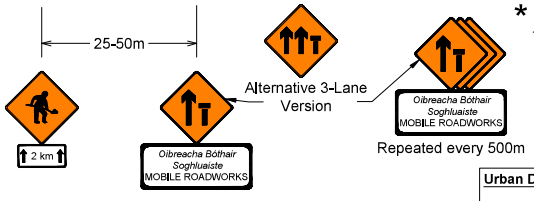
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **60 veh/3min**



VMS **may be used** to provide additional warning of particular operations during the works if a risk assessment deems them necessary.
Location to be optimised for the operation.
Can be located up to a max. of 1km in advance of the works.
VMS must not be towed as part of a moving operation.



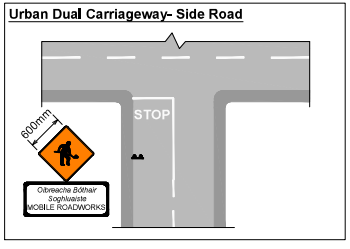
* **Note A:**
IPV vehicle may be replaced with a 4.5T Block Vehicle fitted with a crash attenuation device rated to 60km/h. Where used, the following distance shall be provided between the Block Vehicle and the rear of the Warning Vehicle:

Speed 50km/h - Distance: 40-80m
Speed 60km/h - Distance: 50-100m

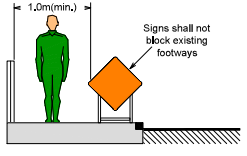
VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

Oíche END

Urban Dual Carriageway- Side Road



Sign Position Requirements
(If Positioned on Footway)



Legend

- 160m (120m) — Visibility relates to 60 km/h (relates to 50 km/h)
- Traffic Sign
- Works Area

Notes

1. **Layout is subject to a site-specific TTMP and is therefore provided for guidance only.**
2. Layout not suitable for use during peak hours. Queues to be monitored and queue lengths kept to a minimum. Operatives to be particularly observant of queuing through junctions.
3. Traffic volumes are restricted to 60 veh / 3 mins (1200 veh/h). Three minute traffic counts should be carried out at regular intervals to ensure flows are not exceeded.
4. Where numerous side accesses or high traffic volumes are encountered, a flagman / spotter may be required to guide / warn approaching traffic, subject to risk assessment.
5. Where required, pedestrians and cyclists are to be guided safely through or around the works.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Urban Dual Carriageway
Lane 2

50 OR 60

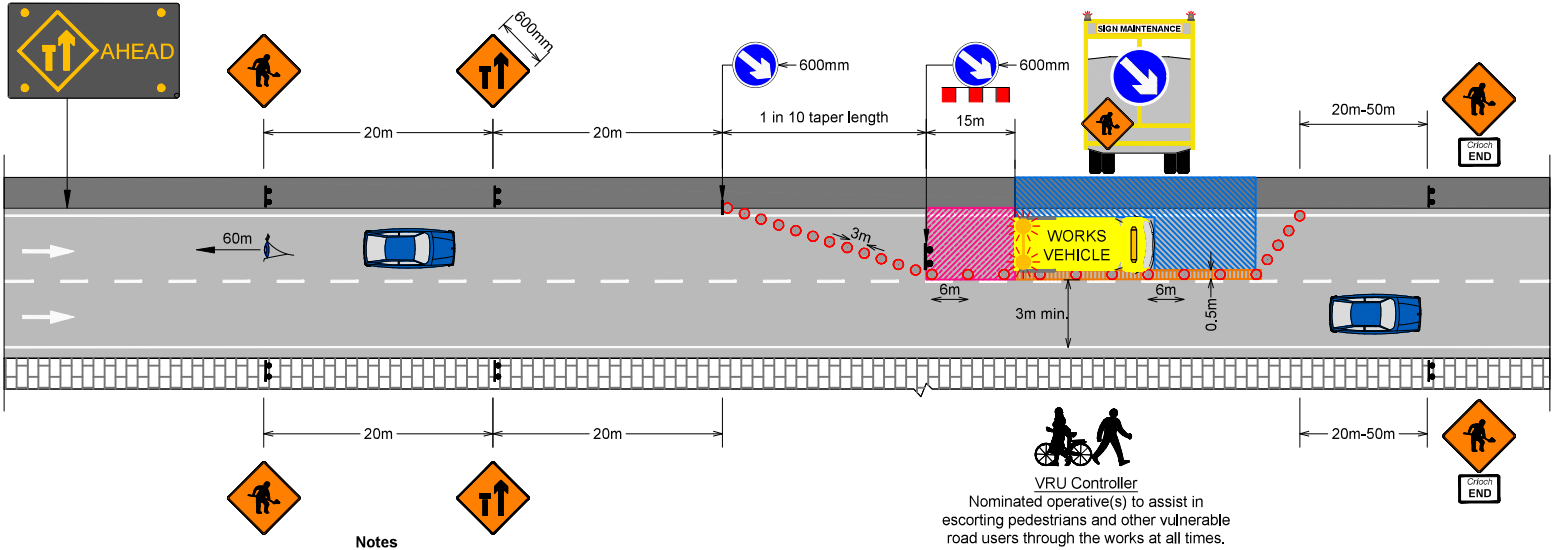
TS 137

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

VMS **may be used** to provide additional warning of particular operations during the works if a risk assessment deems them necessary.
VMS to give drivers advance notification of the operation ahead.
Location to be optimised for the operation.
Can be located up to a max. of 1km in advance of the works.

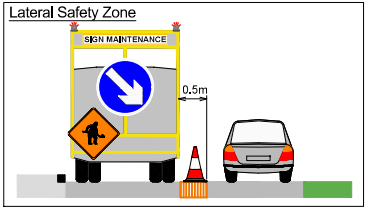


VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

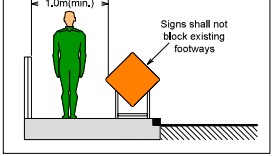
Notes

1. Layout not suitable for use during peak hours. Queues to be monitored and queue lengths kept to a minimum. Operatives to be particularly observant of queuing through junctions.
2. Traffic volumes are restricted to 60 veh / 3 mins (1200 veh/h). Three minute traffic counts should be carried out at regular intervals to ensure flows are not exceeded.
3. Where numerous side accesses or high traffic volumes are encountered, a flagman / spotter may be required to guide / warn approaching traffic, subject to risk assessment.
4. Operatives to be clearly visible to, and be facing oncoming traffic when crossing the carriageway.

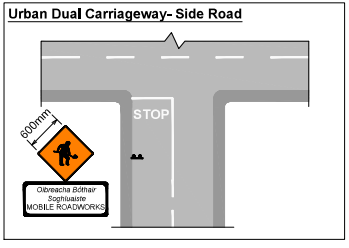
Lateral Safety Zone



Sign Position Requirements
(If Positioned on Footway)



Urban Dual Carriageway- Side Road



Legend

- Cones *(0.75m for 50 & 60 km/h)*
- 60m — Visibility *relates to ≤60 km/h*
- Min.SSD — Minimum Stopping Sight Distance (SSD)
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static
Type B >15 mins

Urban Dual Carriageway
Lane 1 Closure

50 km/h OR 60 km/h

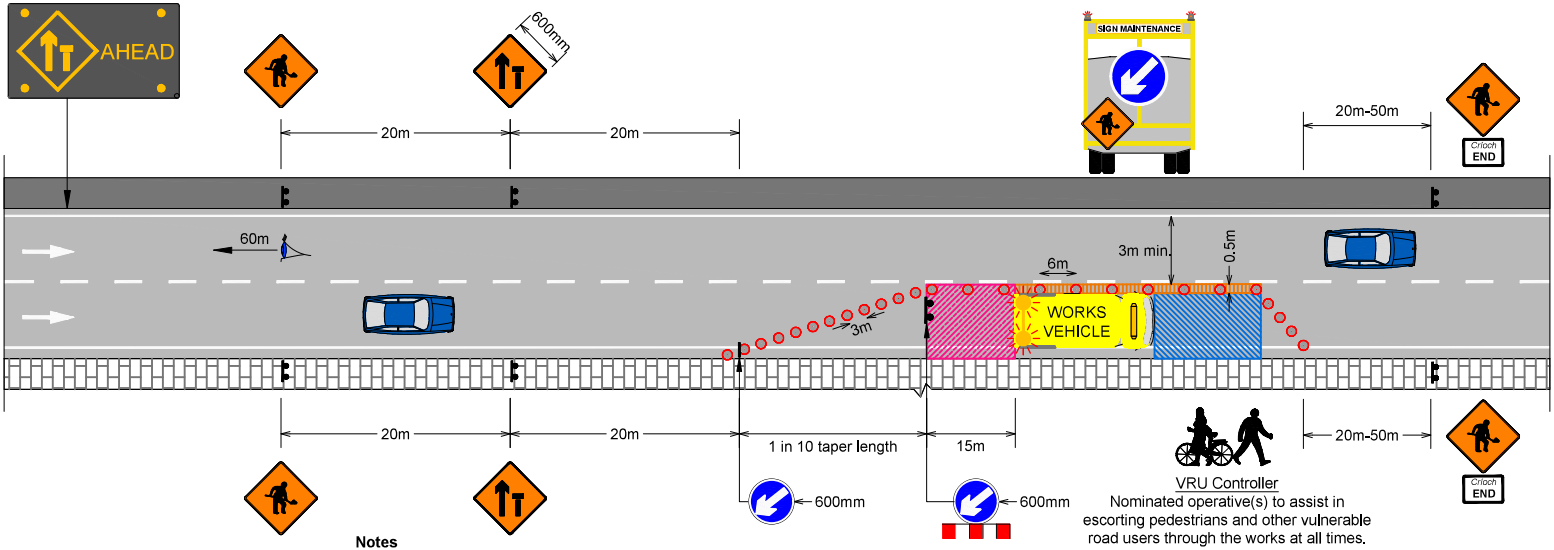
TS 138

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

VMS **may be used** to provide additional warning of particular operations during the works if a risk assessment deems them necessary.
VMS to give drivers advance notification of the operation ahead.
Location to be optimised for the operation.
Can be located up to a max. of 1km in advance of the works.

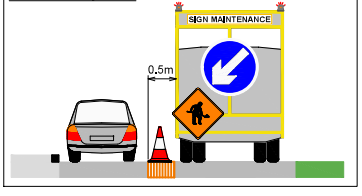


VRU Controller
Nominated operative(s) to assist in escorting pedestrians and other vulnerable road users through the works at all times.

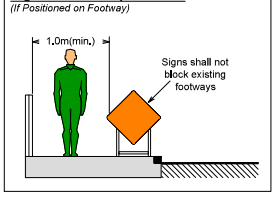
Notes

1. Layout not suitable for use during peak hours. Queues to be monitored and queue lengths kept to a minimum. Operatives to be particularly observant of queuing through junctions.
2. Traffic volumes are restricted to 60 veh / 3 mins (1200 veh/h). Three minute traffic counts should be carried out at regular intervals to ensure flows are not exceeded.
3. Where numerous side accesses or high traffic volumes are encountered, a flagman / spotter may be required to guide / warn approaching traffic, subject to risk assessment.
4. Operatives to be clearly visible to, and be facing oncoming traffic when crossing the carriageway.

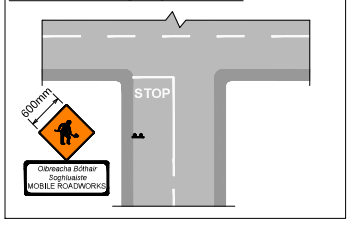
Lateral Safety Zone



Sign Position Requirements
(If Positioned on Footway)



Urban Dual Carriageway- Side Road



Legend

- Cones *(0.75m for 50 & 60 km/h)*
- 60m — Visibility *relates to ≤60 km/h*
- Min.SSD — Minimum Stopping Sight Distance (SSD)
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations & Removals / Hedge & Tree Clearance / Landscaping / Reinstatement

Static
Type B >15 mins

Urban Dual Carriageway
Lane 2 Closure

50 km/h OR 60 km/h

TS 139

Temporary Traffic Management Layout Diagrams

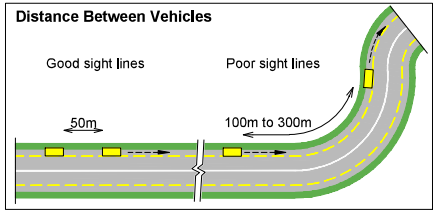
For

TRAFFIC SIGNS
LEVEL 2(i) & 2(ii) ROADS

Traffic Signs

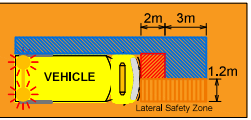
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



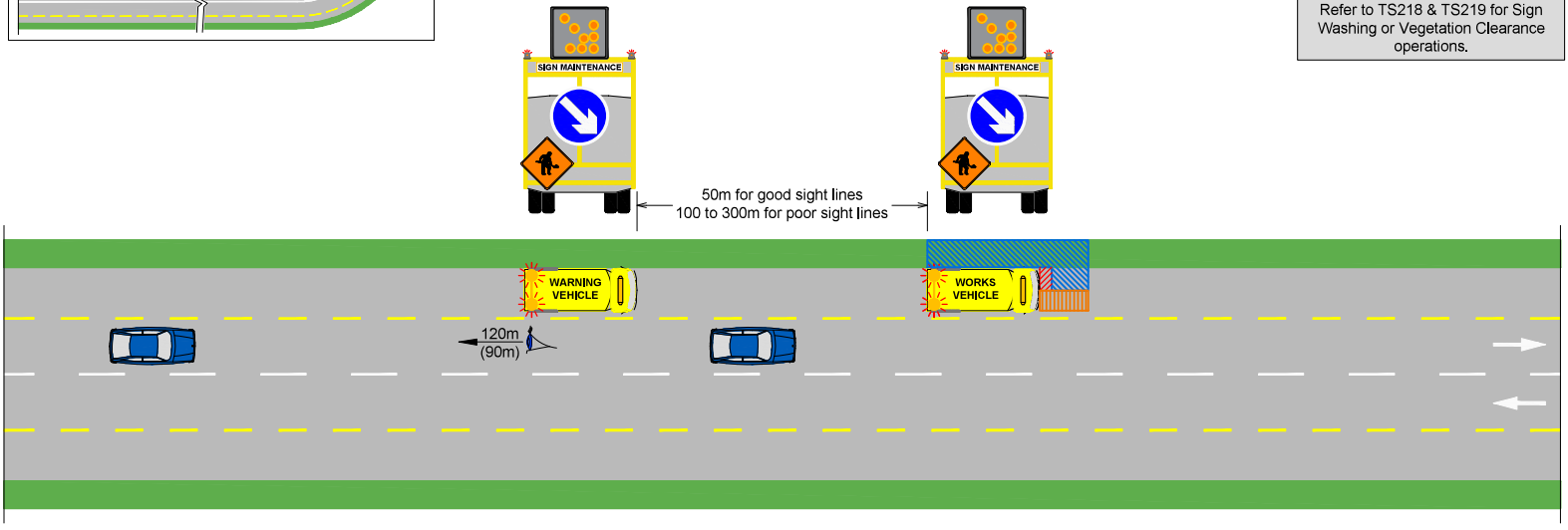
Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Type C - Discrete Work Only

Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.



Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. Where the works vehicle cannot be positioned off the carriageway, it shall be legally parked in accordance with the requirements set out within the Chapter 8 Operations Guidance.
3. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
4. Should not be used in poor visibility conditions.

Reliable communication system recommended

Legend

- 120m (90m) — Visibility relates to 100 km/h (relates to 80km/h)
- Fend Zone Lateral Safety Zone
- Works Area

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Single C/W - With H/S

Hard Shoulder

100 OR 80

TS 201

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

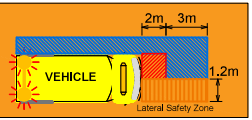
EXAMPLE ONLY NOT TO SCALE

Type C - Discrete Work Only

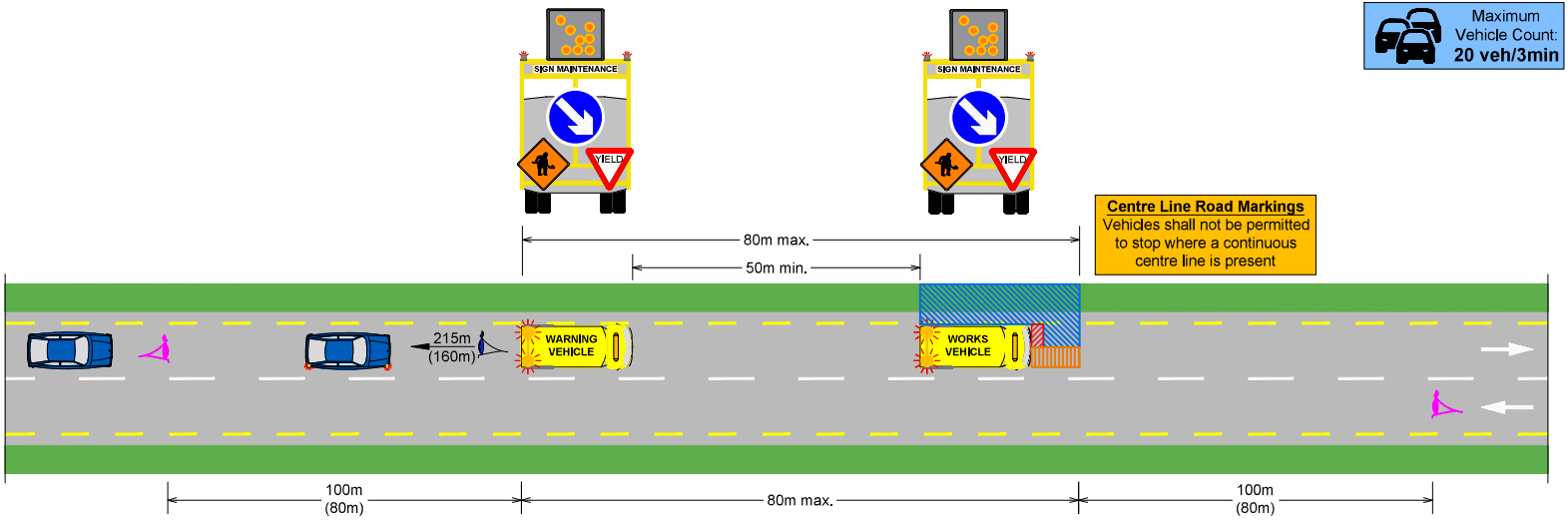
Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.

Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Maximum Vehicle Count: **20 veh/3min**



Centre Line Road Markings

Vehicles shall not be permitted to stop where a continuous centre line is present

Legend

- 215m (160m) — Stopping Sight Distance *relates to 100km/h (relates to 80km/h)*
- 280m (240m) — Visibility *relates to 100 km/h (relates to 80km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area

Reliable communication system recommended

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. Where the works vehicle cannot be positioned off the carriageway, it shall be legally parked in accordance with the requirements set out within the Chapter 8 Operations Guidance.
3. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
4. Should not be used in poor visibility conditions.
5. Where sight lines are poor refer to TS203 or TS204 as appropriate.

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Single C/W - No H/S

Give and Take

100 km/h OR 80 km/h

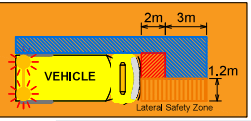
TS 202

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Type C - Discrete Work Only

Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.

Maximum Vehicle Count: **20 veh/3min**

Centre Line Road Markings
Vehicles shall not be permitted to stop where a continuous centre line is present

Works Vehicle: Where a continuous centre line is present at the position of the works, the operation shown in **TS 204** shall be used

Layout to be used where the minimum visibility requirement cannot be achieved to the Works Vehicle.
&
A broken centreline is present across the position of the works

Legend

- 215m (160m) — Stopping Sight Distance *relates to 100km/h (relates to 80km/h)*
- 215m (175m) — Visibility *relates to 100 km/h (relates to 80km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area

Reliable communication system recommended

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
3. Should not be used in poor visibility conditions.

Minor Works
Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work
Type C <15 mins

Single C/W - No H/S
Give and Take

100 OR 80

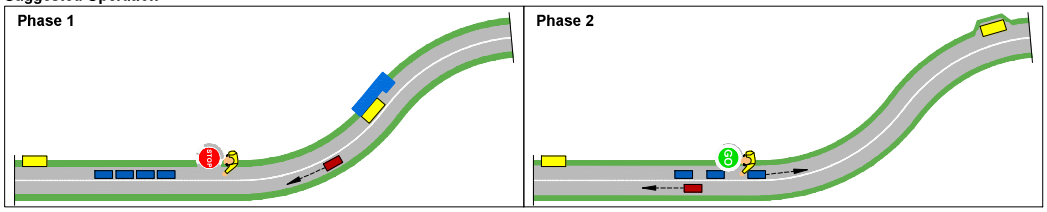
TS 203

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

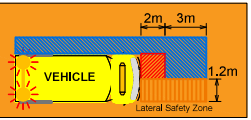
EXAMPLE ONLY NOT TO SCALE

Suggested Operation



Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



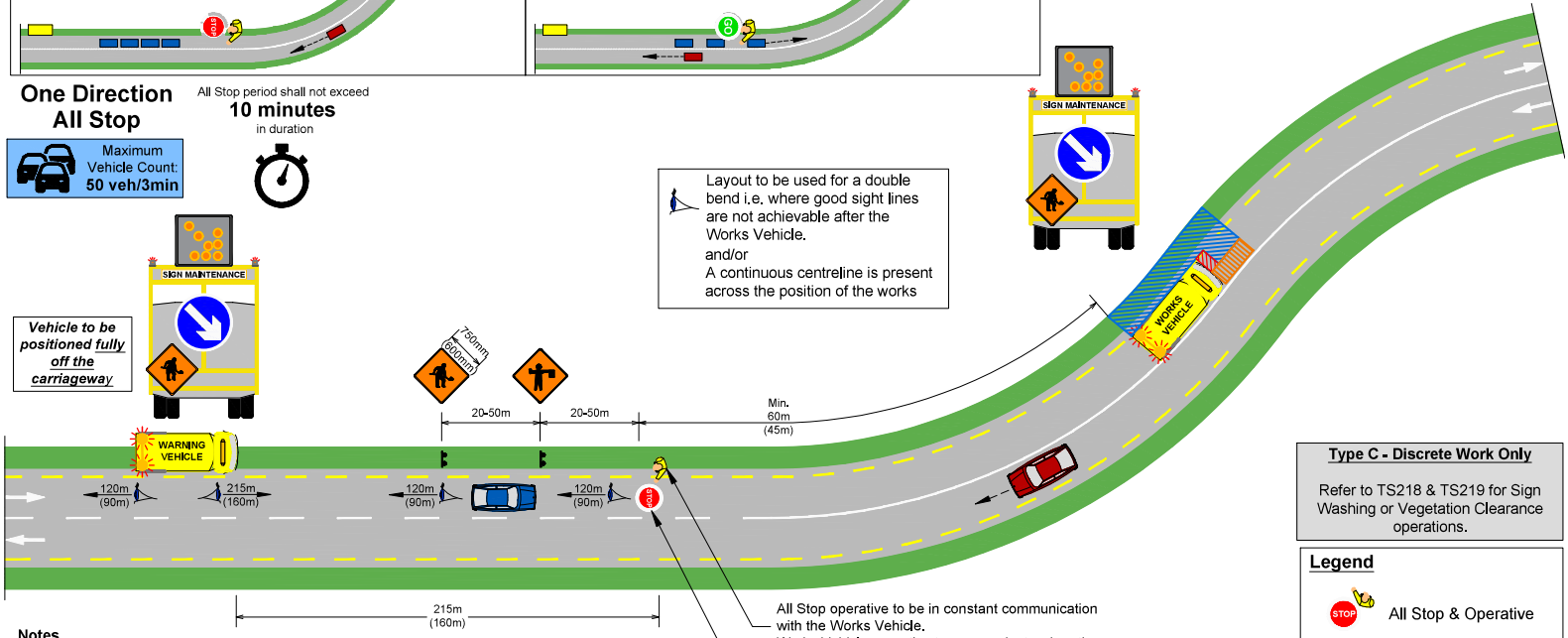
One Direction All Stop

All Stop period shall not exceed **10 minutes** in duration

Maximum Vehicle Count: **50 veh/3min**

Layout to be used for a double bend i.e. where good sight lines are not achievable after the Works Vehicle.
and/or
A continuous centreline is present across the position of the works

Vehicle to be positioned fully off the carriageway



All Stop operative to be in constant communication with the Works Vehicle.
Works Vehicle operative to communicate when the vehicle is off the running carriageway (see Phase 2 above).

All STOP in one direction

Type C - Discrete Work Only

Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.

Legend

- All Stop & Operative
- Visibility *relates to 100 km/h (relates to 80km/h)*
- Fend Zone Lateral Safety Zone
- Works Area

Reliable communication system recommended

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
3. Should not be used in poor visibility conditions.
4. Flagman to be positioned in a safe location off the live lane.
5. Where the flagman observes excessive queuing, he must communicate to the works vehicle to pull off the running lane and allow traffic to pass.

Minor Works
Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work
Type C <15 mins

Single C/W - No H/S
One Direction All Stop

100 OR 80

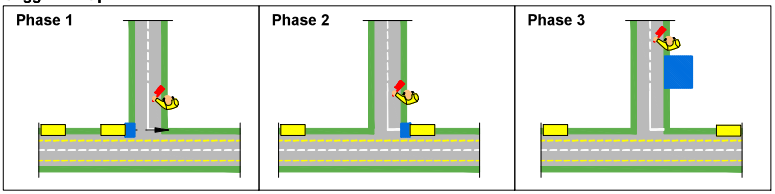
TS 204

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Suggested Operation



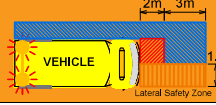
Type C - Discrete Work Only

Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.

Vehicles to be positioned so as not to obscure visibility from the side road junction

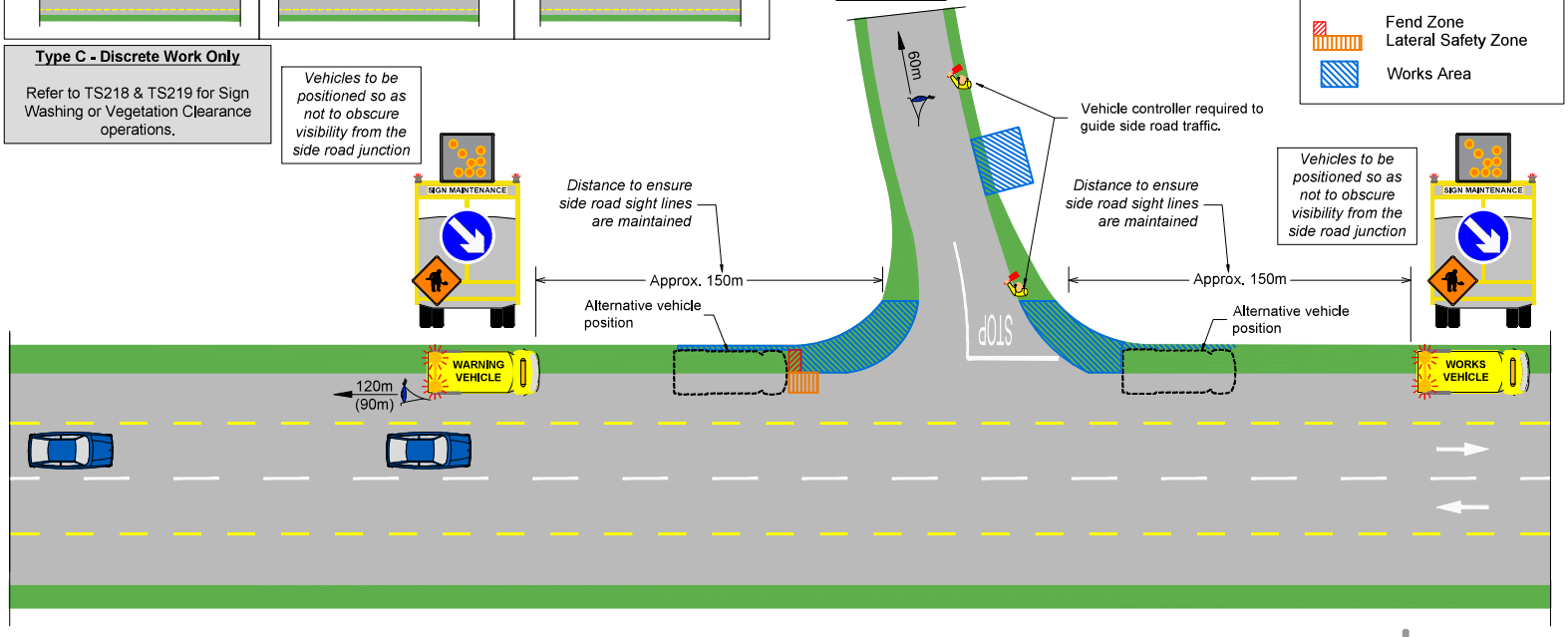
Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Legend

- Vehicle Controller (as required)
- Visibility 120m (90m) *relates to 100 km/h (relates to 80km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area



Reliable communication system recommended

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
3. Should not be used in poor visibility conditions.

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Single C/W - With H/S

Hard Shoulder - Minor Road T-Junction

100 OR 80

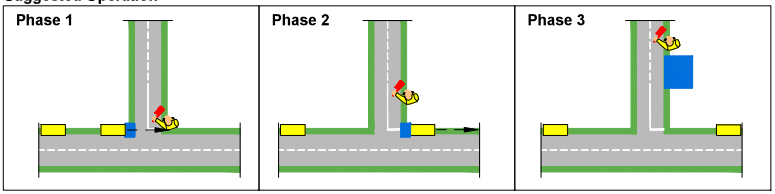
TS 205

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

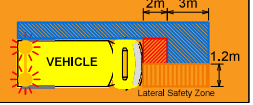
EXAMPLE ONLY NOT TO SCALE

Suggested Operation



Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Legend

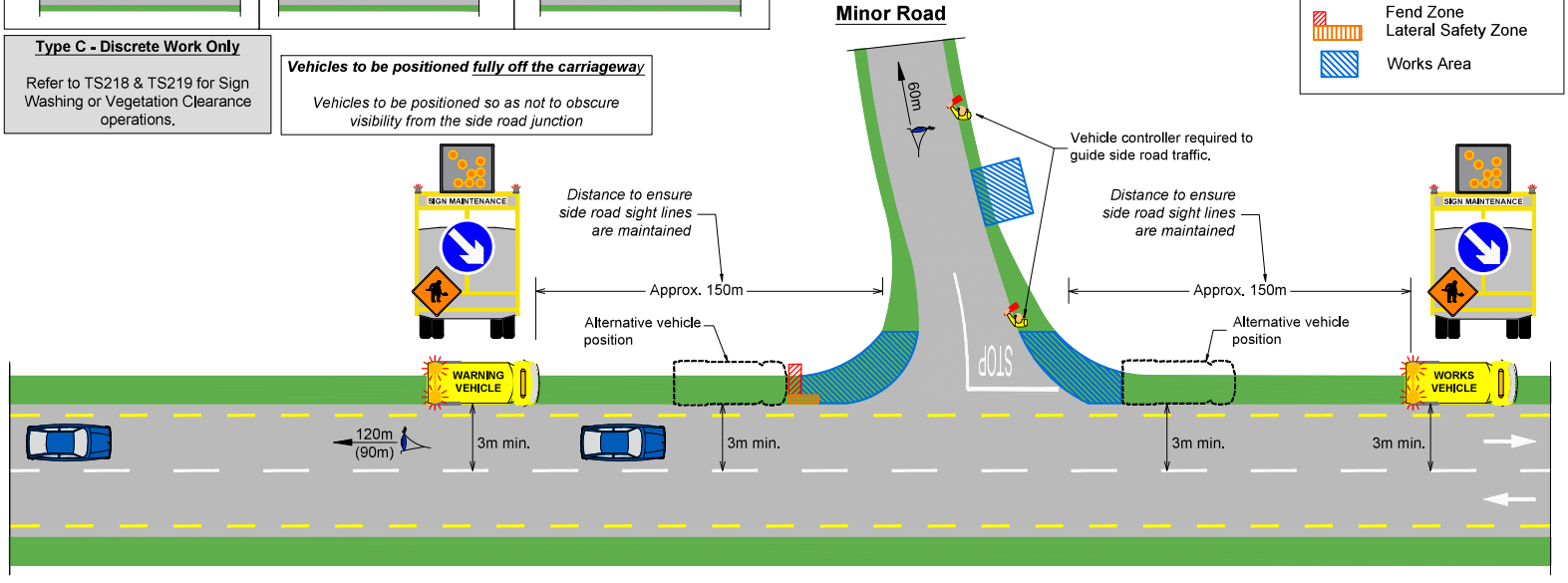
- Vehicle Controller (as required)
- Visibility 120m (90m) *relates to 100 km/h (relates to 80km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area

Type C - Discrete Work Only

Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.

Vehicles to be positioned fully off the carriageway

Vehicles to be positioned so as not to obscure visibility from the side road junction



Reliable communication system recommended

Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
3. Should not be used in poor visibility conditions.

Minor Works
Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work
Type C <15 mins

Single C/W - No H/S
2 Way Traffic - Minor Road T-Junction

100 OR 80

TS 206

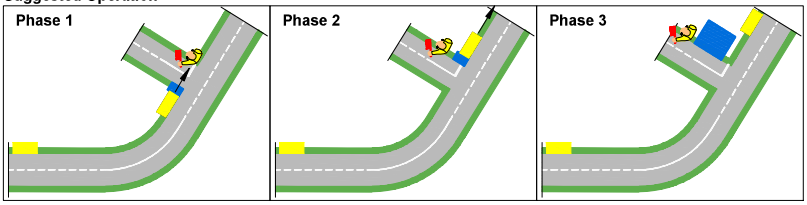
Temporary Traffic Management Guidance Handbook

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

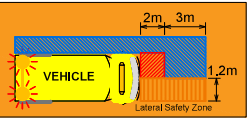
EXAMPLE ONLY NOT TO SCALE

Suggested Operation



Fend Vehicle

Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
3. Should not be used in poor visibility conditions.

Type C - Discrete Work Only

Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.

Legend

- Vehicle Controller (as required)
- Visibility 120m (90m) *relates to 100 km/h (relates to 80km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Single C/W - No H/S

2 Way Traffic - Minor Road T-Junction (D.B)

100 OR 80

TS 207

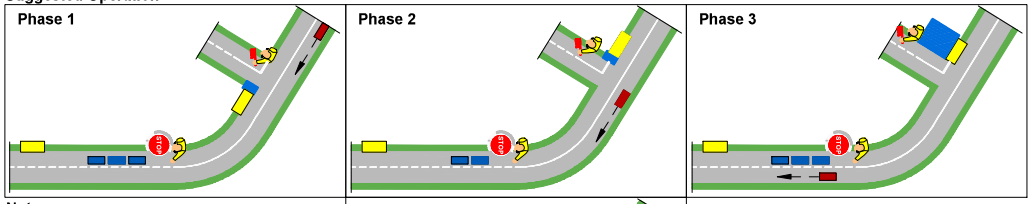
Temporary Traffic Management Guidance Handbook

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Suggested Operation



Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
3. Should not be used in poor visibility conditions.
4. Flagman to be positioned in a safe location off the live lane.
5. Where the flagman observes excessive queuing, he must communicate to the works vehicle to pull off the running lane and allow traffic to pass.

One Direction All Stop

Maximum Vehicle Count: **50 veh/3min**

All Stop period shall not exceed **10 minutes** in duration

Works Vehicle to be positioned so as not to obscure visibility from the side road junction

SIGN MAINTENANCE

WORKS VEHICLE

Minor Road

60m

STOP

Vehicle controller required to guide side road traffic.

Alternative vehicle position

All STOP in one direction

All Stop operative to be in constant communication with the Works Vehicle. Works Vehicle operative to communicate when the vehicle is off the running carriageway (see Phase 2 above).

Vehicle to be positioned fully off the carriageway

SIGN MAINTENANCE

750mm (600mm)

20-50m

20-50m

Min. 60m (45m)

WARNING VEHICLE

120m (90m)

120m (90m)

120m (90m)

215m (160m)

Reliable communication system recommended

Layout to be used for a double bend i.e. where good sight lines are not achievable after the Works Vehicle.

Type C - Discrete Work Only

Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.

Legend

- Vehicle Controller (as required)
- All Stop & Operative
- Visibility 120m (90m) *relates to 100 km/h (relates to 80km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Single C/W - No H/S

One Direction All Stop - Minor Road T-Junction (D,B)

100 OR 80

TS 208

Traffic Signs

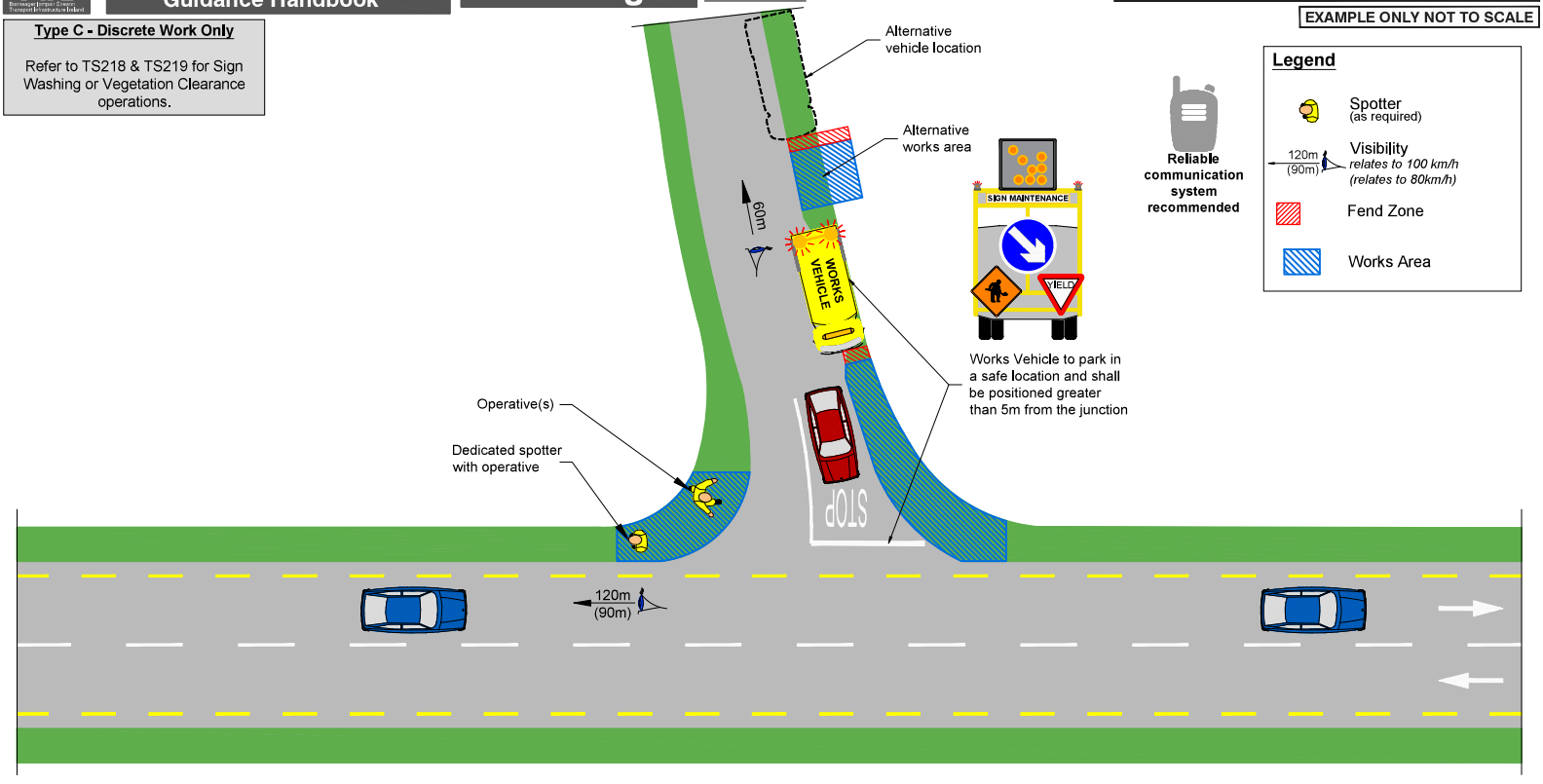
Minor Road

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Type C - Discrete Work Only

Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.



Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
3. Should not be used in poor visibility conditions.
4. Vehicles to have minimal encroachment on the running lanes.
5. Spotter to be positioned in a safe location off the live lane.
6. The duties of the dedicated spotter are separate from the operatives, their function is primarily to spot hazards and to protect the operatives.
7. Warning vehicle to be positioned in a safe position on the minor road, where possible.

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Single C/W - No H/S

Works From the Side Road - Minor Road

100 OR 80

TS 209

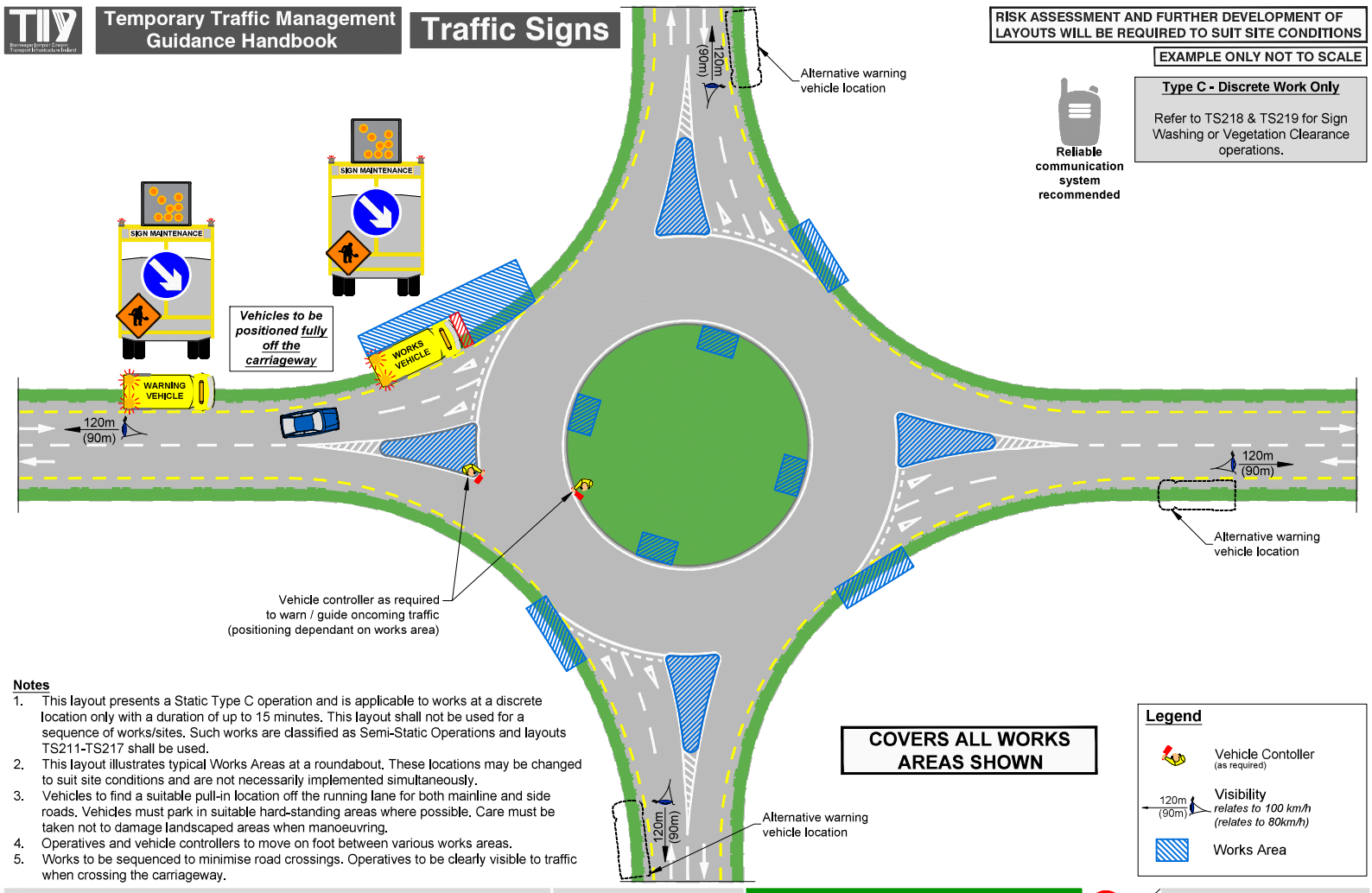
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Type C - Discrete Work Only

Refer to TS218 & TS219 for Sign Washing or Vegetation Clearance operations.



Notes

1. This layout presents a Static Type C operation and is applicable to works at a discrete location only with a duration of up to 15 minutes. This layout shall not be used for a sequence of works/sites. Such works are classified as Semi-Static Operations and layouts TS211-TS217 shall be used.
2. This layout illustrates typical Works Areas at a roundabout. These locations may be changed to suit site conditions and are not necessarily implemented simultaneously.
3. Vehicles to find a suitable pull-in location off the running lane for both mainline and side roads. Vehicles must park in suitable hard-standing areas where possible. Care must be taken not to damage landscaped areas when manoeuvring.
4. Operatives and vehicle controllers to move on foot between various works areas.
5. Works to be sequenced to minimise road crossings. Operatives to be clearly visible to traffic when crossing the carriageway.

COVERS ALL WORKS AREAS SHOWN

Legend

- Vehicle Contoller (as required)
- 120m (90m) Visibility *relates to 100 km/h (relates to 80km/h)*
- Works Area

Minor Works

Pole Caps / Patching / Graffiti Removal / Minor Sign Face Replacement or Removal

Discrete Work

Type C <15 mins

Single C/W - No H/S

All Works Areas - Roundabout

100 km/h OR 80 km/h

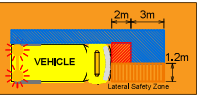
TS 210

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

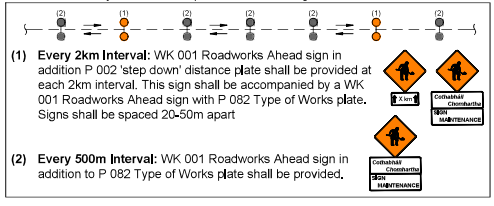
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Maximum Vehicle Count: **130 veh/3min**

Insert A: SSO Repeater Sign Requirements for SSO > 2km

The SSO zone may be extended up to a maximum length of 10km.



(1) **Every 2km Interval:** WK 001 Roadworks Ahead sign in addition P 002 'step down' distance plate shall be provided at each 2km interval. This sign shall be accompanied by a WK 001 Roadworks Ahead sign with P 082 Type of Works plate. Signs shall be spaced 20-50m apart

(2) **Every 500m Interval:** WK 001 Roadworks Ahead sign in addition to P 082 Type of Works plate shall be provided.

Hard Shoulder SSO

Layout presents a Semi-Static Hard Shoulder Operation This layout assumes that the Works Vehicle is fully contained within the hard shoulder and does not encroach into the live lane. Where the hard shoulder is of insufficient width to permit this operation, the work should be undertaken using **TS212 or TS213**, as appropriate.

Legend

- Traffic Sign
- Visibility (120m (90m)) *relates to 100 km/h (relates to 80km/h)*
- Fend Zone / Lateral Safety Zone
- Works Area
- Works Zone

Notes

1. For works at a side road junction refer to TS214 to TS217.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

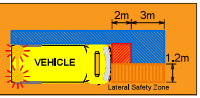
Single C/W - With H/S
Hard Shoulder

100 OR 80

TS 211

Traffic Signs

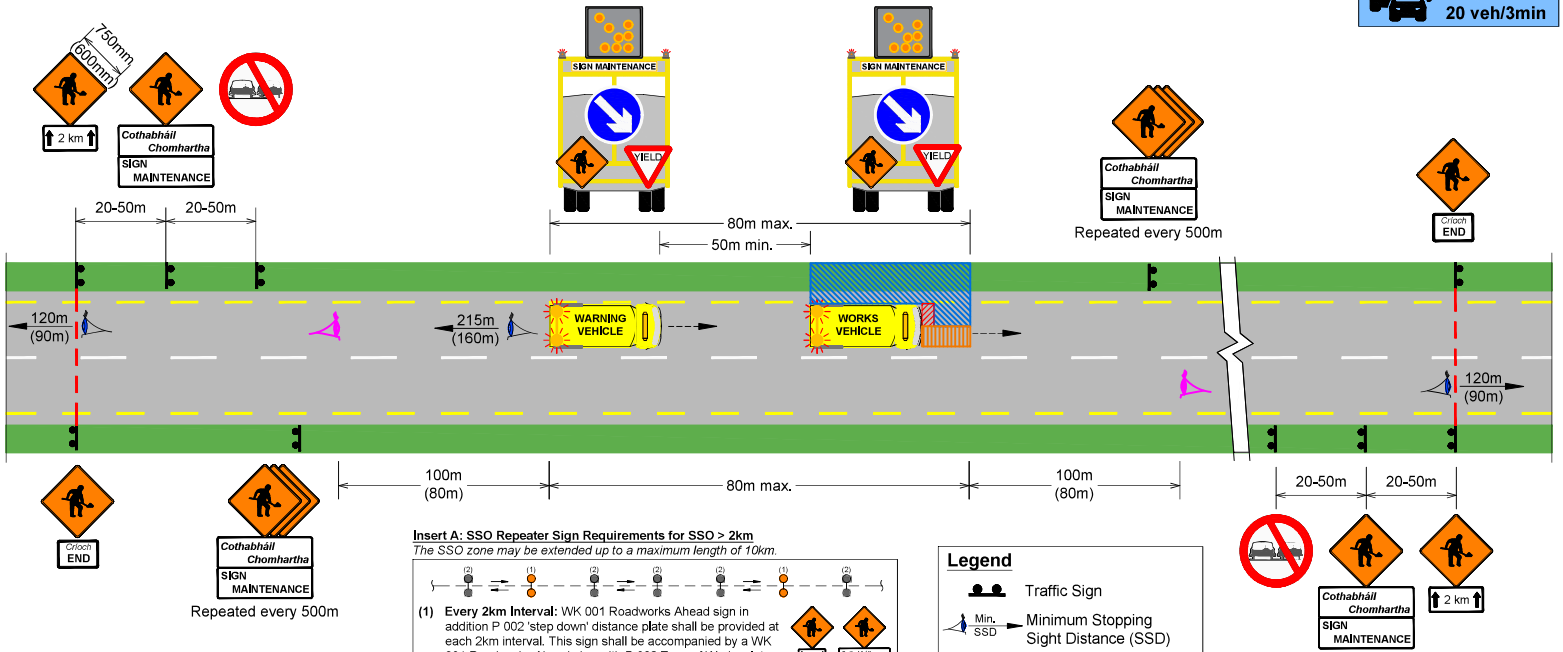
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

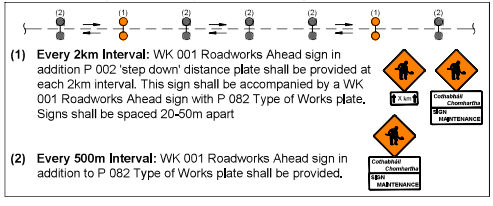
EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **20 veh/3min**



Insert A: SSO Repeater Sign Requirements for SSO > 2km

The SSO zone may be extended up to a maximum length of 10km.



Legend

- Traffic Sign
- Minimum Stopping Sight Distance (SSD) — Min. SSD
- Visibility *relates to 100 km/h (relates to 80km/h)* — 120m (90m)
- Visibility *relates to 100 km/h (relates to 80km/h)* — 280m (240m)
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Notes

1. For works at a side road junction refer to TS214 to TS217.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
4. Vehicles to have minimal encroachment on the running lanes where possible.
5. Care must be taken not to damage verges or cause debris when maneuvering vehicles.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

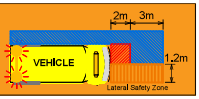
Single C/W - No H/S
Give and Take

100 km/h OR 80 km/h

TS 212

Traffic Signs

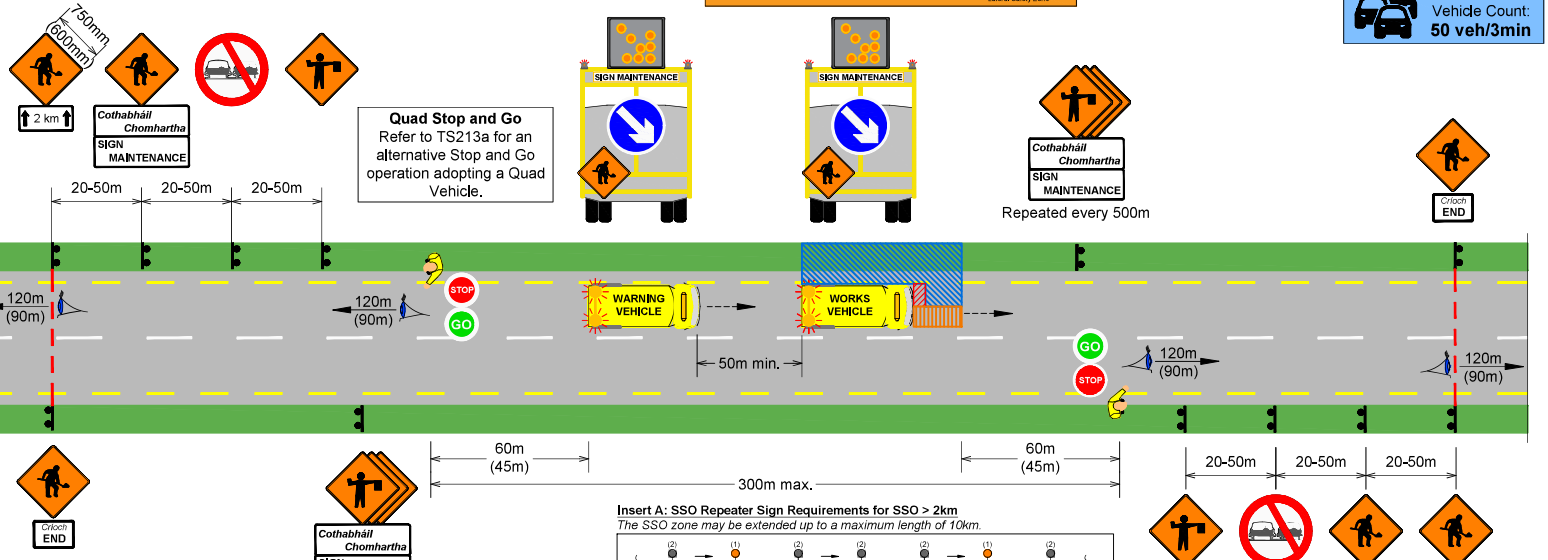
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

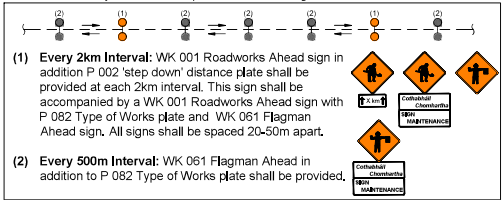
EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **50 veh/3min**



Insert A: SSO Repeater Sign Requirements for SSO > 2km

The SSO zone may be extended up to a maximum length of 10km.



Legend

- Traffic Sign
- Stop/Go & Operative
- Distance (60m / 45m) — *relates to 100 km/h (relates to 80 km/h)*
- Visibility (120m / 90m) — *relates to 100 km/h (relates to 80km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Notes

1. For works at a side road junction refer to TS214 to TS217.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved.
4. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
5. Vehicles to have minimal encroachment on the running lanes where possible.
6. Care must be taken not to damage verges or cause debris when maneuvering vehicles.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Single C/W - No H/S
Stop and Go - On Foot

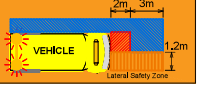
100 km/h OR 80 km/h

TS 213

Temporary Traffic Management Guidance Handbook

Traffic Signs

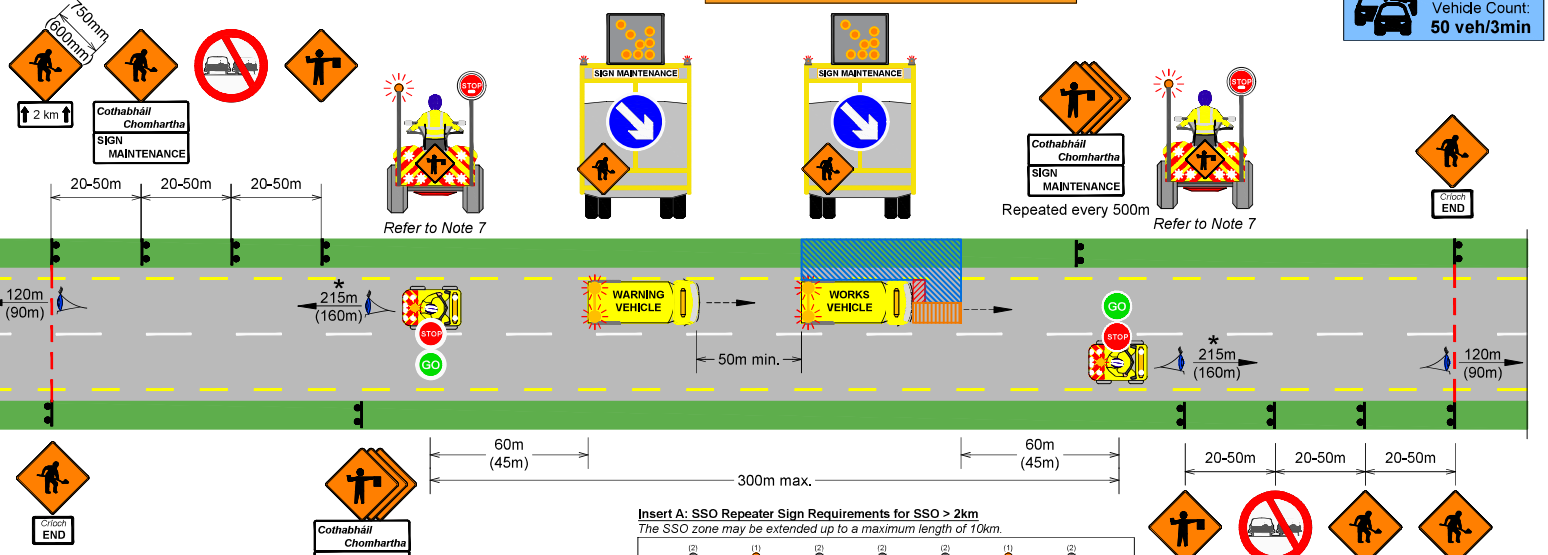
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

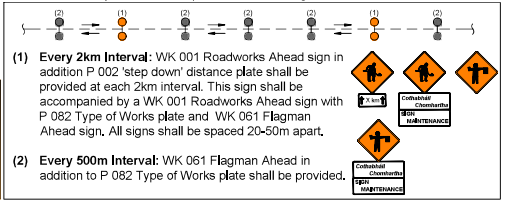
EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **50 veh/3min**



Insert A: SSO Repeater Sign Requirements for SSO > 2km

The SSO zone may be extended up to a maximum length of 10km.



(1) Every 2km Interval: WK 001 Roadworks Ahead sign in addition P 002 'step down' distance plate shall be provided at each 2km interval. This sign shall be accompanied by a WK 001 Roadworks Ahead sign with P 082 Type of Works plate and WK 061 Flagman Ahead sign. All signs shall be spaced 20-50m apart.

(2) Every 500m Interval: WK 061 Flagman Ahead in addition to P 082 Type of Works plate shall be provided.

* **Visibility**
Where the required visibility to the Quad cannot be achieved, the layout shown in RM213 shall be used

Legend

- Traffic Sign
- Stop/Go on Quad
- Distance (60m / 45m) — *relates to 100 km/h (relates to 80 km/h)*
- Visibility (120m / 90m) — *relates to 100 km/h (relates to 80km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Notes

1. For works at a side road junction refer to TS214 to TS217.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved.
4. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
5. Vehicles to have minimal encroachment on the running lanes where possible.
6. Care must be taken not to damage verges or cause debris when maneuvering vehicles.
7. Operatives may dismount from the quad vehicle to face oncoming vehicles when carrying out Stop and Go control. When the driver dismounts the quad, and the quad has been legally parked, the visibility requirement for the quad reduces to 120m for 100km/h and 90m for 80km/h.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Single C/W - No H/S
Stop and Go - On Foot

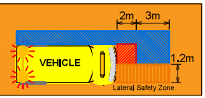
100 km/h OR 80 km/h

TS 213a

Temporary Traffic Management Guidance Handbook

Traffic Signs

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



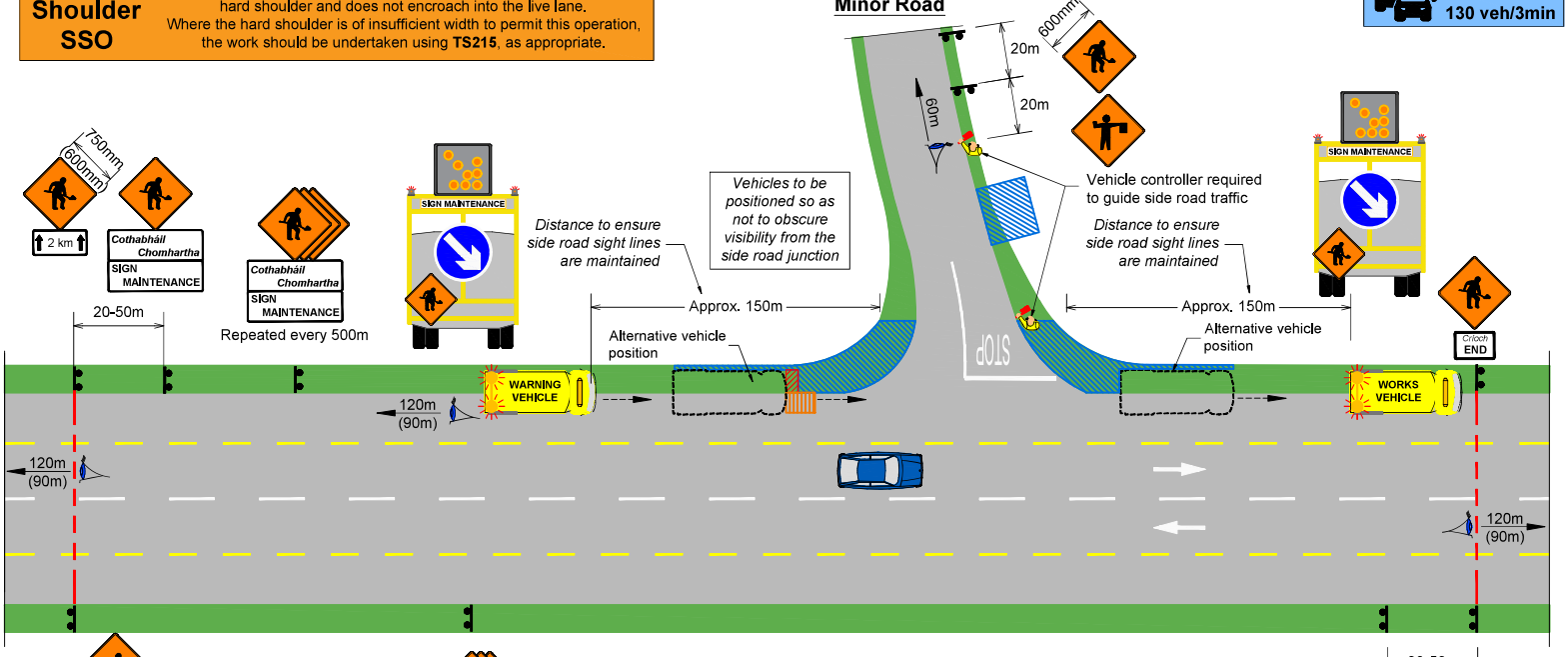
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **130 veh/3min**

Hard Shoulder SSO

Layout presents a Semi-Static Hard Shoulder Operation
This layout assumes that the Works Vehicle is fully contained within the hard shoulder and does not encroach into the live lane.
Where the hard shoulder is of insufficient width to permit this operation, the work should be undertaken using **TS215**, as appropriate.



Notes

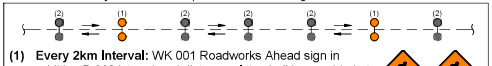
1. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
2. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. When the side road cross section and traffic volumes are similar to the mainline, TTM as per the mainline is to be implemented on the side road.

Legend

- Traffic Sign
- Visibility (120m / 90m) *relates to 100 km/h (relates to 80km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Insert A: SSO Repeater Sign Requirements for SSO > 2km

The SSO zone may be extended up to a maximum length of 10km.

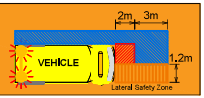


(1) **Every 2km Interval:** WK 001 Roadworks Ahead sign in addition P 002 'step down' distance plate shall be provided at each 2km interval. This sign shall be accompanied by a WK 001 Roadworks Ahead sign with P 082 Type of Works plate. Signs shall be spaced 20-50m apart

(2) **Every 500m Interval:** WK 001 Roadworks Ahead sign in addition to P 082 Type of Works plate shall be provided.

Traffic Signs

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

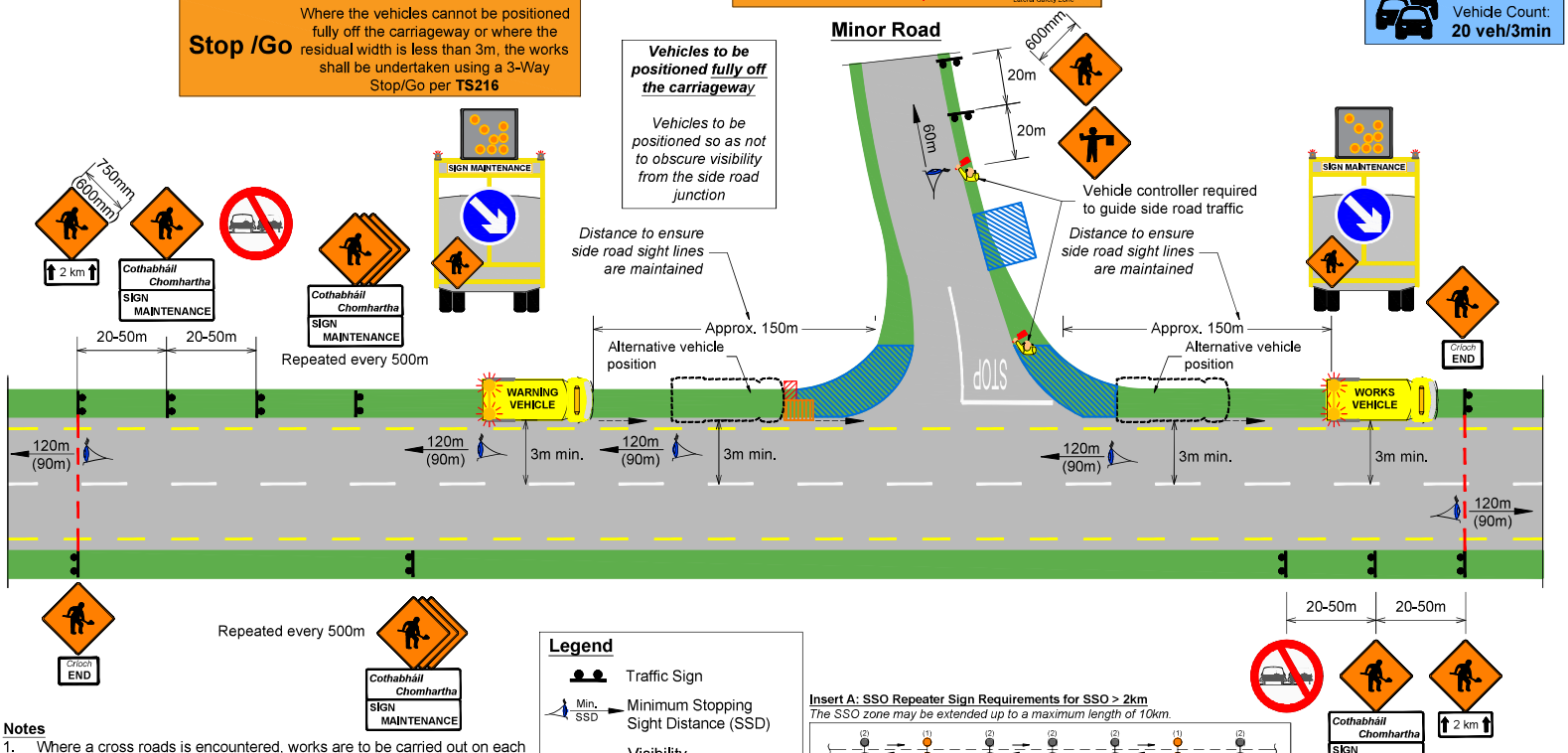
EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **20 veh/3min**

Stop /Go Where the vehicles cannot be positioned fully off the carriageway or where the residual width is less than 3m, the works shall be undertaken using a 3-Way Stop/Go per **TS216**

Vehicles to be positioned fully off the carriageway

Vehicles to be positioned so as not to obscure visibility from the side road junction

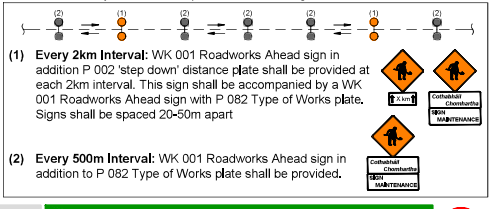


Legend

- Traffic Sign
- Min. SSD — Minimum Stopping Sight Distance (SSD)
- 120m (90m) — Visibility *relates to 100 km/h (relates to 80km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Insert A: SSO Repeater Sign Requirements for SSO > 2km

The SSO zone may be extended up to a maximum length of 10km.



Notes

1. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
2. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. When the side road cross section and traffic volumes are similar to the mainline, TTM as per the mainline is to be implemented on the side road.
4. Vehicles to have minimal encroachment on the running lanes where possible.
5. Care must be taken not to damage verges or cause debris when maneuvering vehicles.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Single C/W - No H/S
2 Way Traffic - Minor Road T-Junction

100 km/h OR 80 km/h

TS 215

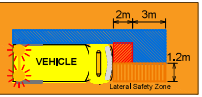
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **50 veh/3min**

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



Insert A: SSO Repeater Sign Requirements for SSO > 2km

The SSO zone may be extended up to a maximum length of 10km.

Legend

- Traffic Sign
- Stop/Go & Operative
- Distance (60m / 45m) — *relates to 100 km/h (relates to 80 km/h)*
- Visibility (120m / 90m) — *relates to 100 km/h (relates to 80km/h)*
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Notes

1. Where sight lines are poor, e.g. on bends, Stop/Go to operate from either end of the bends, where min. visibility can be achieved.
2. Where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. Care must be taken not to damage verges or cause debris when maneuvering vehicles.
4. Operatives may dismount from the quad vehicle to face oncoming vehicles when carrying out Stop and Go control. When the driver dismounts the quad, and the quad has been legally parked, the visibility requirement for the quad reduces to 120m for 100km/h and 90m for 80km/h.

Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Single C/W - No H/S
Stop and Go - Minor Road T-Junction

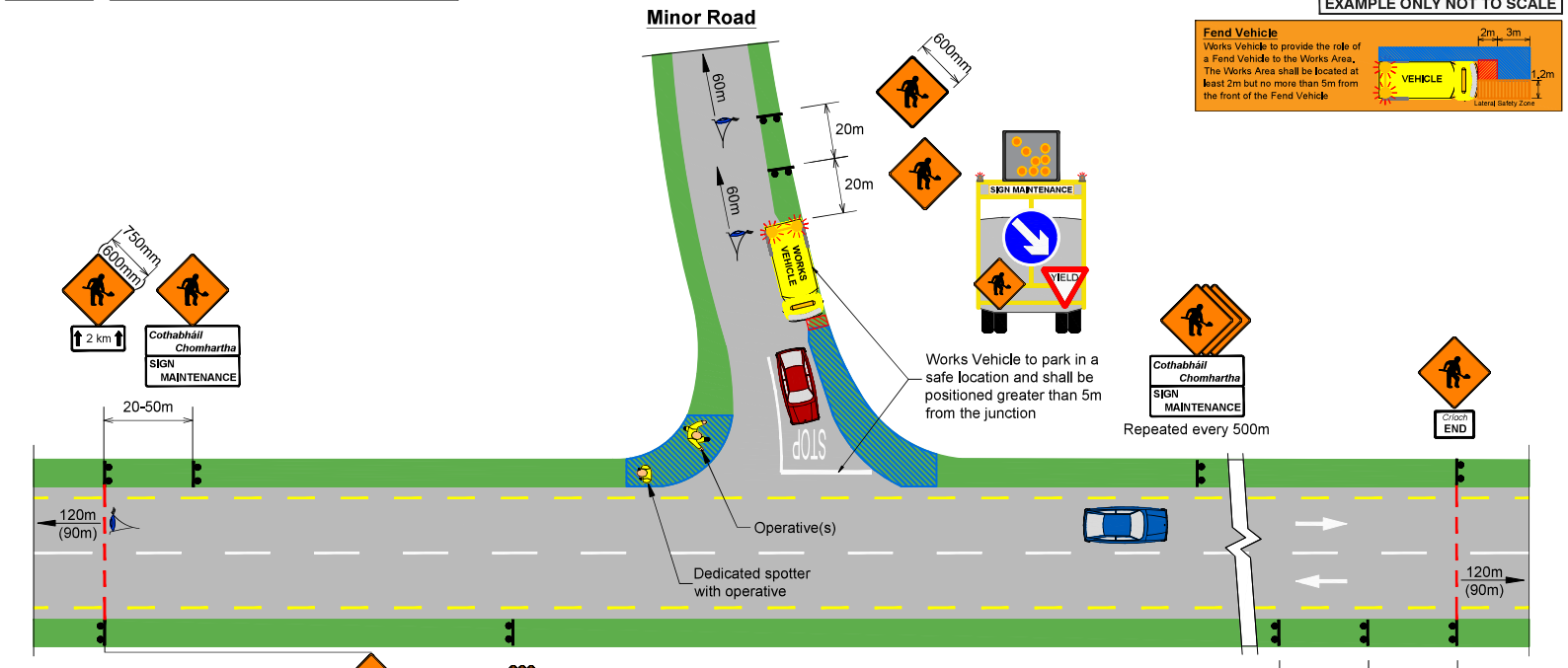
100 OR 80

TS 216

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle

Legend

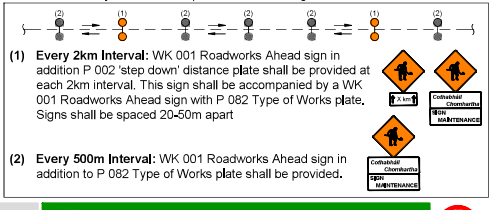
- Traffic Sign
- Spotter (as required)
- Visibility 120m (90m) relates to 100 km/h (relates to 80km/h)
- Fend Zone Lateral Safety Zone
- Works Area
- Works Zone

Notes

1. Vehicles to have minimal encroachment on the side road where possible.
2. Care must be taken not to damage verges or cause debris when maneuvering vehicles.
3. Should not be used in poor visibility conditions.
4. Further risk assessment and additional TTM development may be required to suit site conditions.
5. The duties of the dedicated spotter are separate from the operatives, their function is primarily to spot hazards and to protect the operatives.

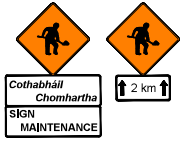
Insert A: SSO Repeater Sign Requirements for SSO > 2km

The SSO zone may be extended up to a maximum length of 10km.



(1) **Every 2km Interval:** WK 001 Roadworks Ahead sign in addition P 002 'step down' distance plate shall be provided at each 2km interval. This sign shall be accompanied by a WK 001 Roadworks Ahead sign with P 082 Type of Works plate. Signs shall be spaced 20-50m apart

(2) **Every 500m Interval:** WK 001 Roadworks Ahead sign in addition to P 082 Type of Works plate shall be provided.



Standard Maintenance / Minor Works
Sign Face Replacement / Minor Removals / Sign Washing / Vegetation Cutting

SSO
<15 mins

Single C/W - No H/S
Works From the Side Road - Minor Road

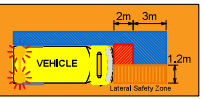
100 OR 80

TS 217

Temporary Traffic Management Guidance Handbook

Traffic Signs

Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



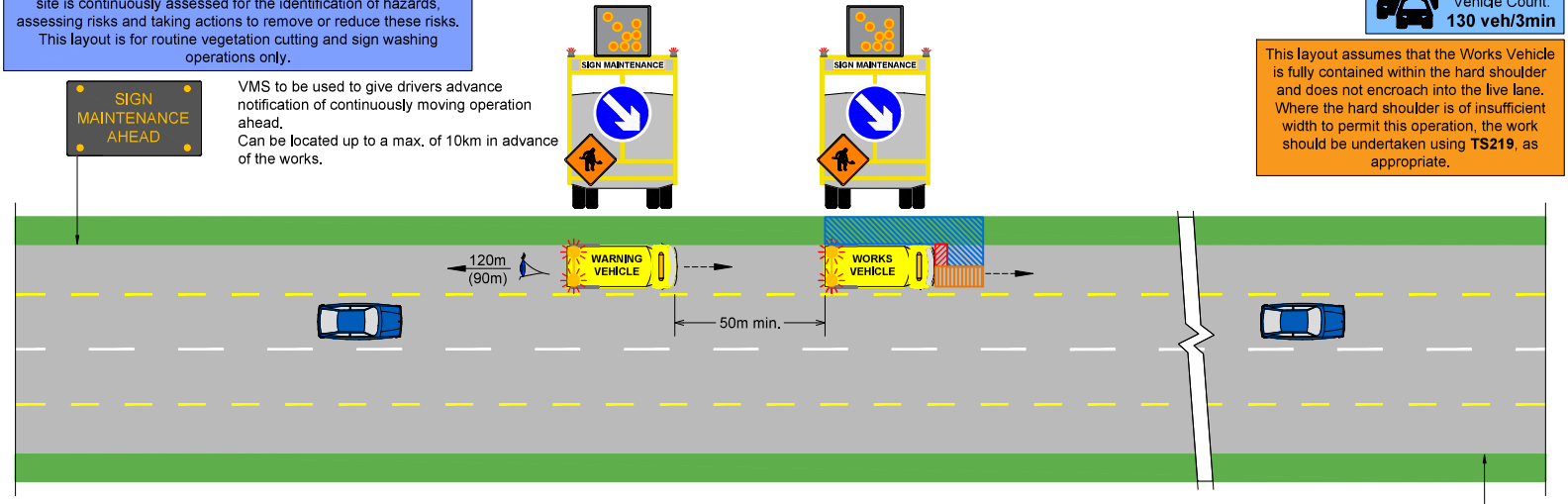
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

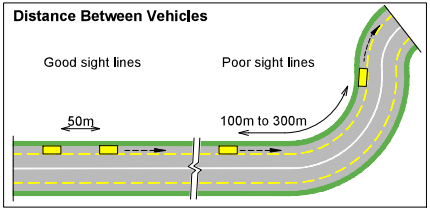
EXAMPLE ONLY NOT TO SCALE

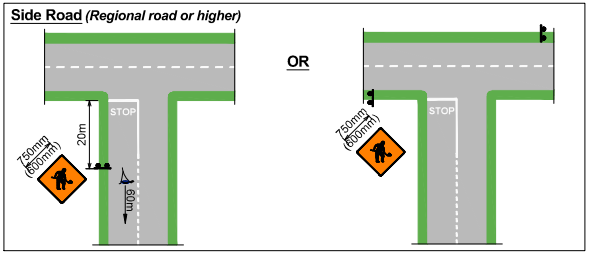
Maximum Vehicle Count: **130 veh/3min**

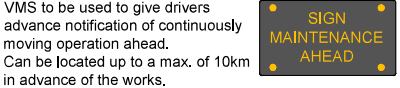
Dynamic:
Layout is subject to dynamic site specific risk assessment where the site is continuously assessed for the identification of hazards, assessing risks and taking actions to remove or reduce these risks. This layout is for routine vegetation cutting and sign washing operations only.

This layout assumes that the Works Vehicle is fully contained within the hard shoulder and does not encroach into the live lane. Where the hard shoulder is of insufficient width to permit this operation, the work should be undertaken using **TS219**, as appropriate.









Legend

- 120m (90m) — Visibility *relates to 100 km/h (relates to 80km/h)*
- Fend Zone Lateral Safety Zone
- Works Area

Notes

1. Layouts to be used for routine vegetation cutting and sign washing operations **only**. Operation is subject to a dynamic risk assessment process, both before and during the course of the operation.
2. This layout is also permissible where the vehicles can be positioned fully off the carriageway within the verge (i.e. where no hard shoulder is present).
3. For continuously moving operations, where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
4. Where the operation encounters a side road junction, the works vehicles shall be positioned as to not obscure visibility from the side road.

Minor Maintenance (Continuously Moving)
Sign Washing / Vegetation Cutting

Dynamic
<5 mins

Single C/W - With H/S
Hard Shoulder

100 OR 80

TS 218

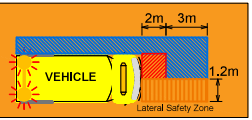
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Dynamic:
Layout is subject to dynamic site specific risk assessment where the site is continuously assessed for the identification of hazards, assessing risks and taking actions to remove or reduce these risks. This layout is for routine vegetation cutting and sign washing operations only.

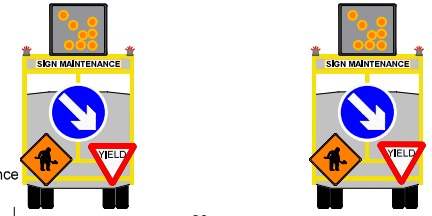
Fend Vehicle
Works Vehicle to provide the role of a Fend Vehicle to the Works Area. The Works Area shall be located at least 2m but no more than 5m from the front of the Fend Vehicle



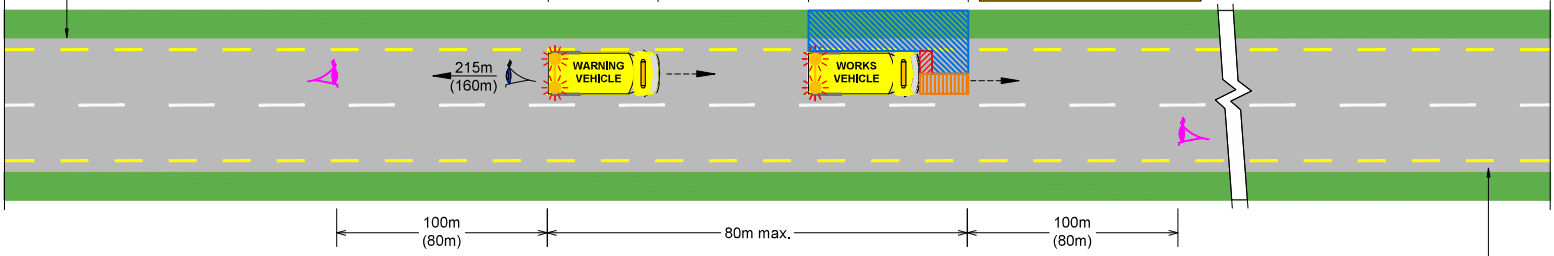
Maximum Vehicle Count: **20 veh/3min**

SIGN MAINTENANCE AHEAD

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 10km in advance of the works.



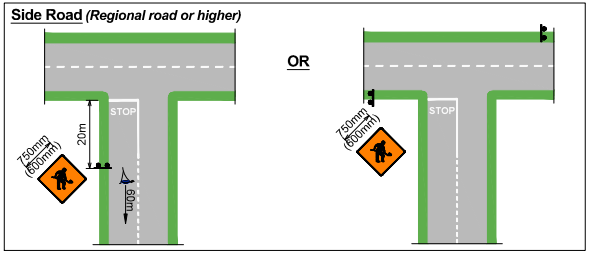
Centre Line Road Markings
Vehicles shall not be permitted to stop where a continuous centre line is present



VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 10km in advance of the works.

SIGN MAINTENANCE AHEAD

Side Road *(Regional road or higher)*



Legend

- 215m (160m) — Stopping Sight Distance *relates to 100km/h (relates to 80km/h)*
- 280m (240m) — Visibility *relates to 100 km/h (relates to 80km/h)*
- Fend Zone Lateral Safety Zone
- Works Area

Notes

1. Layouts to be used for routine vegetation cutting and sign washing operations **only**. Operation is subject to a dynamic risk assessment process, both before and during the course of the operation.
2. For continuously moving operations, where present, a nominated operative / VRU Controller shall guide pedestrians and cyclists safely through or around the works.
3. Where the operation encounters a side road junction, the works vehicles shall be positioned as to not obscure visibility from the side road.

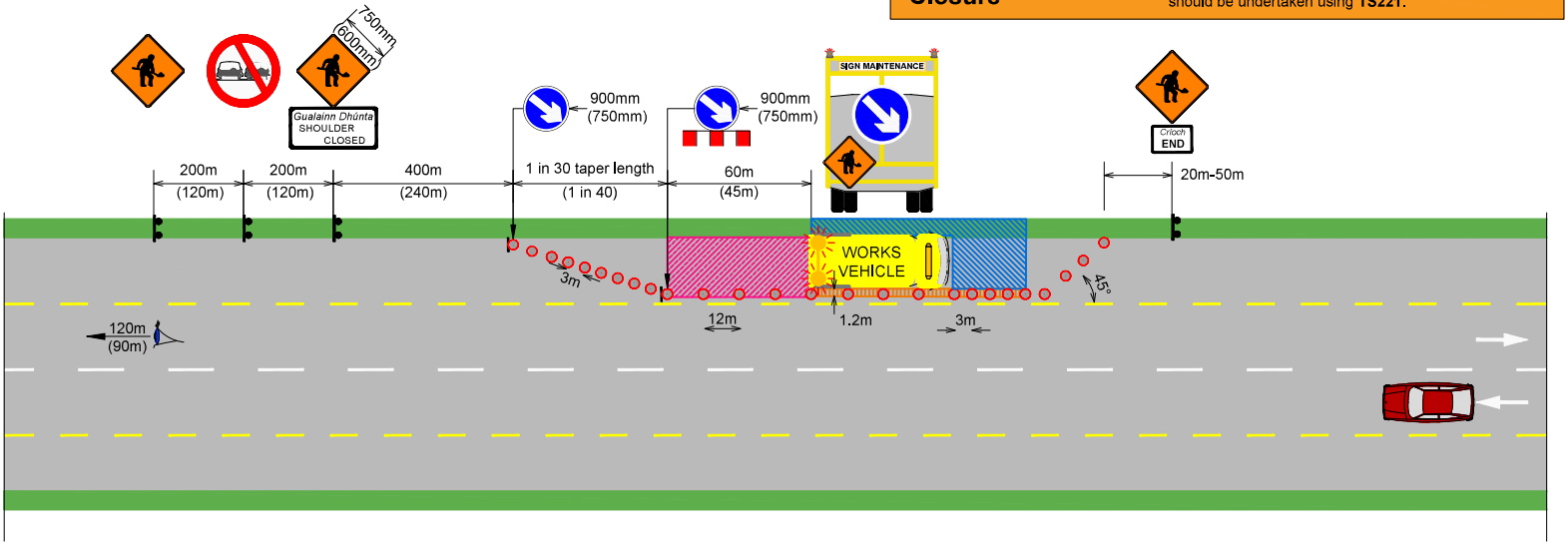
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Hard Shoulder Closure

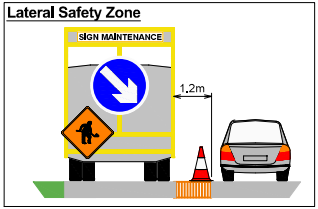
Layout presents a Static Hard Shoulder Closure
This layout assumes that the works, including all vehicles and equipment are fully contained within the hard shoulder and do not encroach into the live lane.
Where the hard shoulder is of insufficient width to permit this operation, the work should be undertaken using **TS221.**



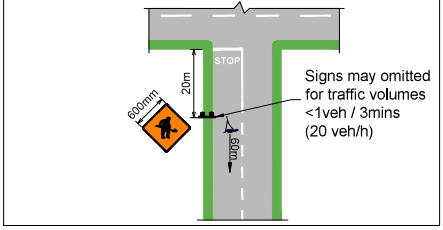
Notes

1. For works at a side road junction refer to TS224 to TS229.
2. For works directly opposite a junction (e.g. header sign), this layout may not be suitable if the hard shoulder is reduced to accommodate right turning movements. In such instances TS229 should be used, with traffic control required on the side road also.
3. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.

Lateral Safety Zone



Side Road ***(Minor Road)***



Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- Visibility 120m (90m) relates to 100 km/h (relates to 80km/h)
- Distance 200m (120m) relates to 100 km/h (relates to 80km/h)
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static
Type B >15 mins

Single C/W - With H/S
Hard Shoulder Closure

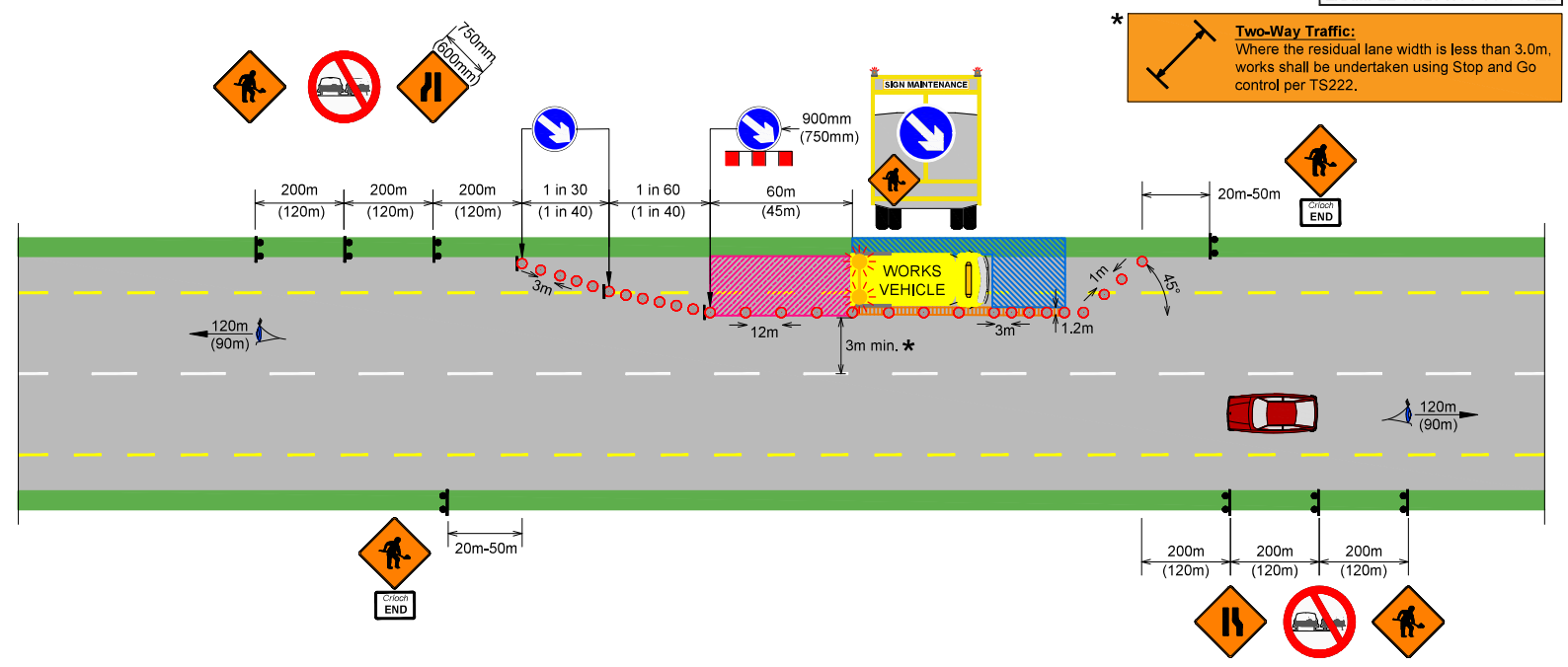
100 OR 80

TS 220

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

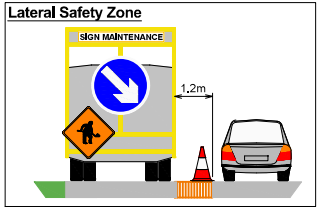
EXAMPLE ONLY NOT TO SCALE



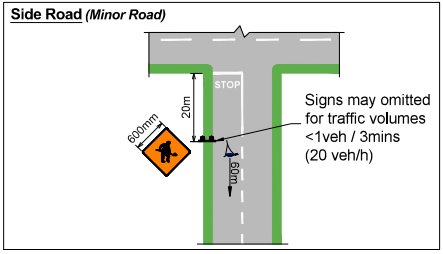
Notes

1. For works at a side road junction refer to TS224 to TS229.
2. For works directly opposite a junction (e.g. header sign), this layout may not be suitable if the hard shoulder is reduced to accommodate right turning movements. In such instances TS229 should be used, with traffic control required on the side road also.
3. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.

Lateral Safety Zone



Side Road ***(Minor Road)***



Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- Visibility 120m (90m) relates to 100 km/h (relates to 80km/h)
- Distance 200m (120m) relates to 100 km/h (relates to 80km/h)
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - With H/S

2 Way Traffic

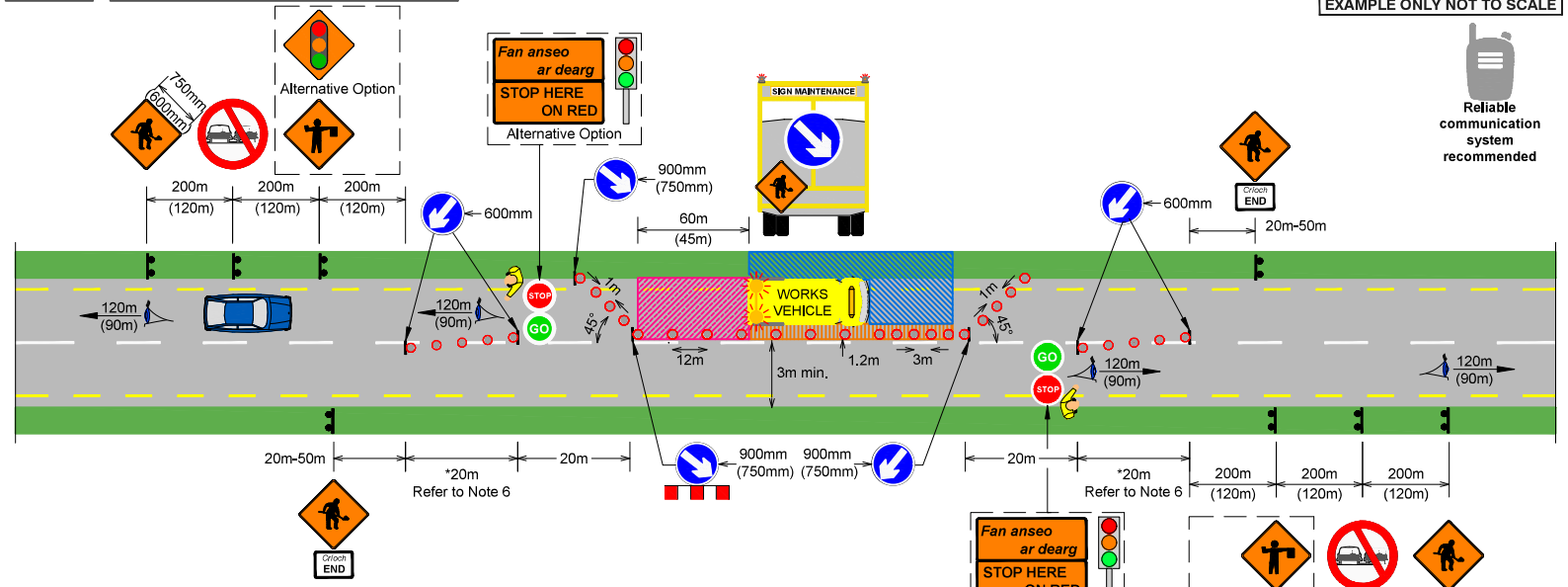
100 OR 80

TS 221

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

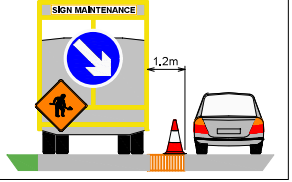
EXAMPLE ONLY NOT TO SCALE



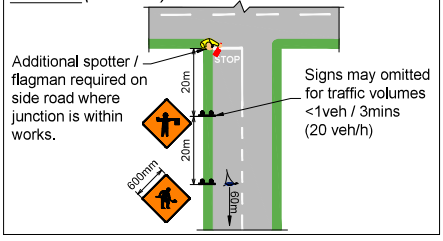
Notes

1. For works at a side road junction refer to TS224 to TS229.
2. If this layout is used for works directly opposite a junction (header sign), full traffic control (Stop/Go) is required on the side road.
3. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
4. Where the works and TTM can be contained completely off the running carriageway in the verge, consideration can be given to using a layout similar to TS220, but only where risk assessment deems it suitable and appropriate based on site conditions.
5. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.
6. Central coning may be omitted where the paved road width is less than 7m.

Lateral Safety Zone



Side Road *(Minor Road)*



Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - No H/S

Stop and Go

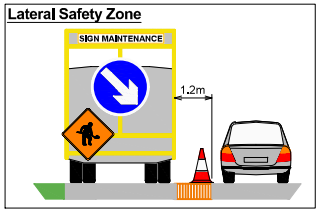
100 OR 80

TS 222

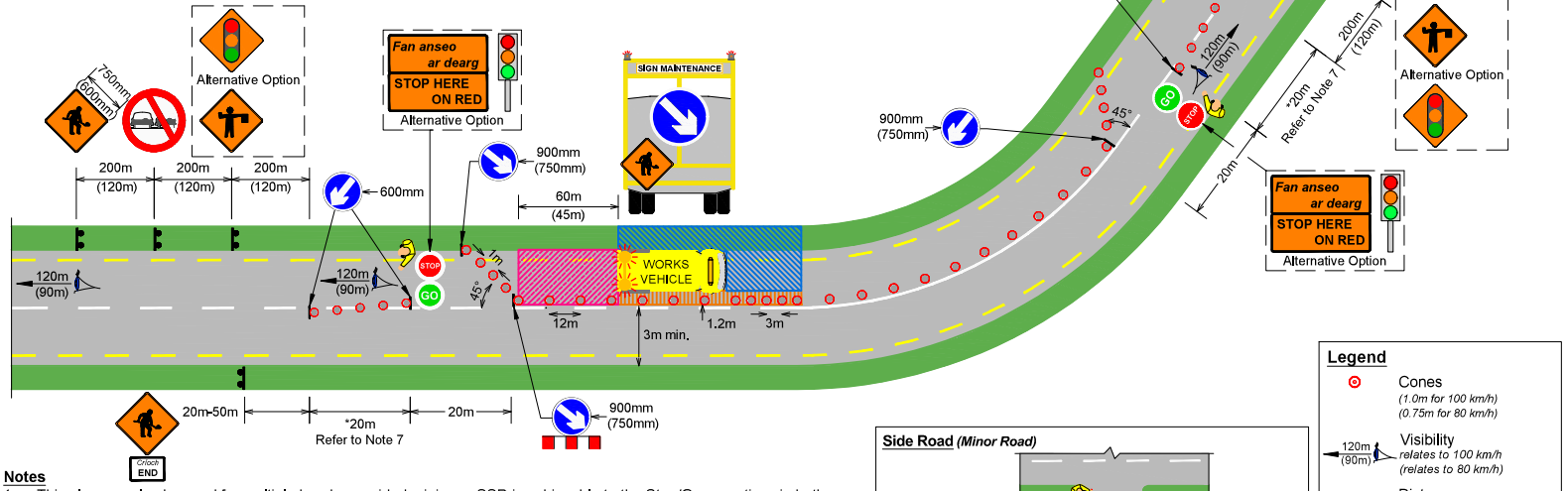
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



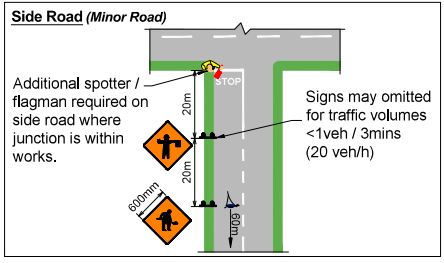
Reliable communication system recommended



Notes

1. This plan can also be used for multiple bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. For works at a side road junction refer to TS224 to TS229.
3. If this layout is used for works directly opposite a junction (header sign), full traffic control (Stop/Go) is required on the side road.
4. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
5. Where the works and TTM can be contained completely off the running carriageway in the verge, consideration can be given to the use TS220, but only where risk assessment deems it suitable and appropriate based on site conditions.
6. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.
7. Central coning may be omitted where the paved road width is less than 7m.

Side Road *(Minor Road)*



Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- 120m (90m) Visibility relates to 100 km/h (relates to 80 km/h)
- 200m (120m) Distance relates to 100 km/h (relates to 80 km/h)
- Traffic Sign
- STOP GO Stop/Go & Operative
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static
Type B >15 mins

Single C/W - No H/S
Stop and Go - Around a Bend

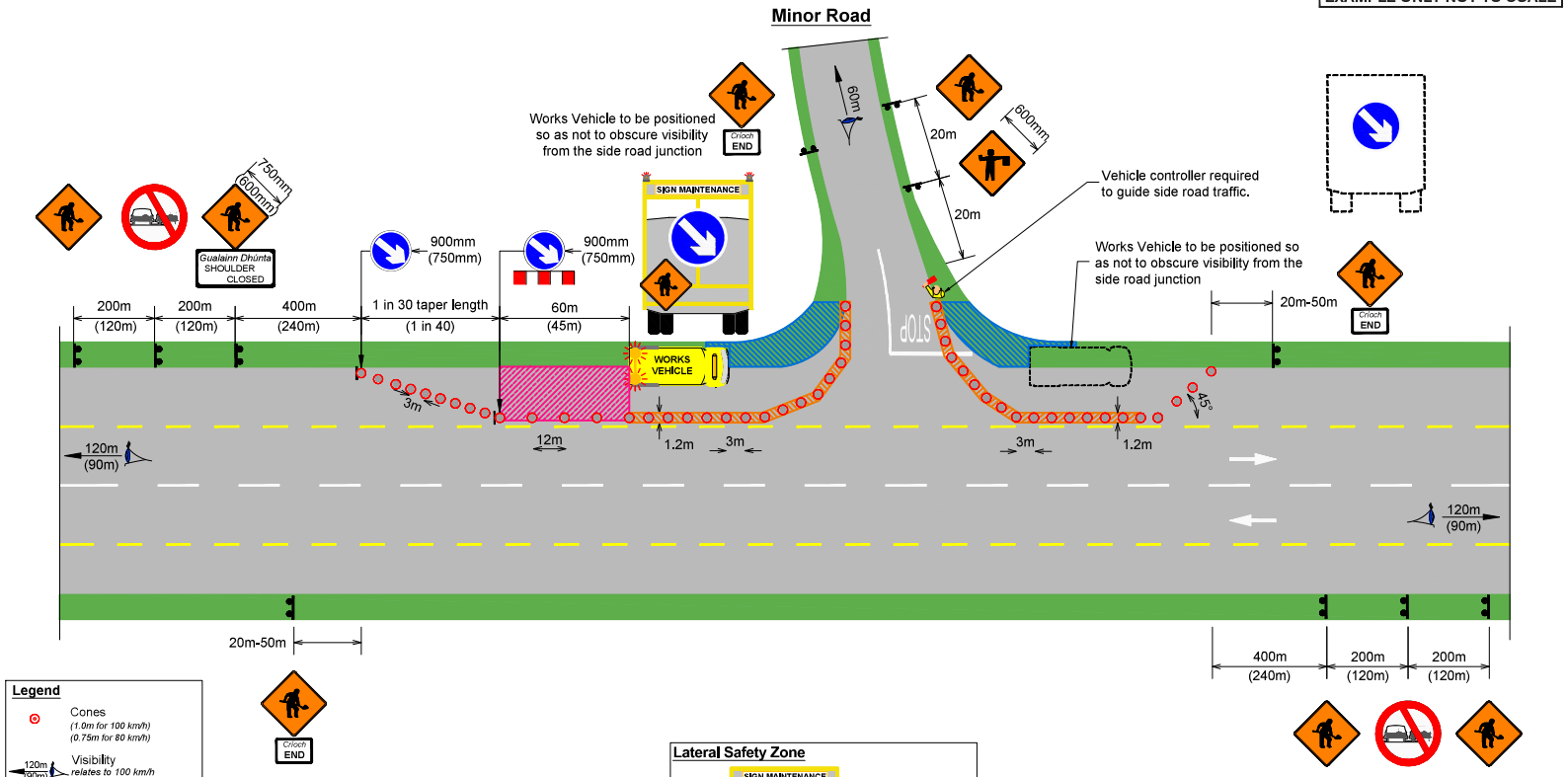
100 OR 80

TS 223

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



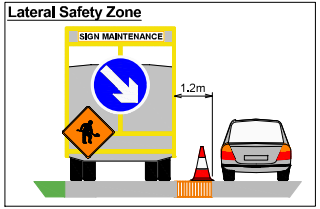
Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- Visibility 120m (90m) relates to 100 km/h (relates to 80km/h)
- Distance 200m (120m) relates to 100 km/h (relates to 80km/h)
- Traffic Sign
- Longitudinal Safety Zone / Lateral Safety Zone
- Works Area

Hard Shoulder Closure

Layout presents a Static Hard Shoulder Closure This layout assumes that the works, including all vehicles and equipment are fully contained within the hard shoulder and do not encroach into the live lane.

Lateral Safety Zone



Notes

1. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.

Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - With H/S

Hard Shoulder Closure - Minor Road T-Junction

100 km/h OR 80 km/h

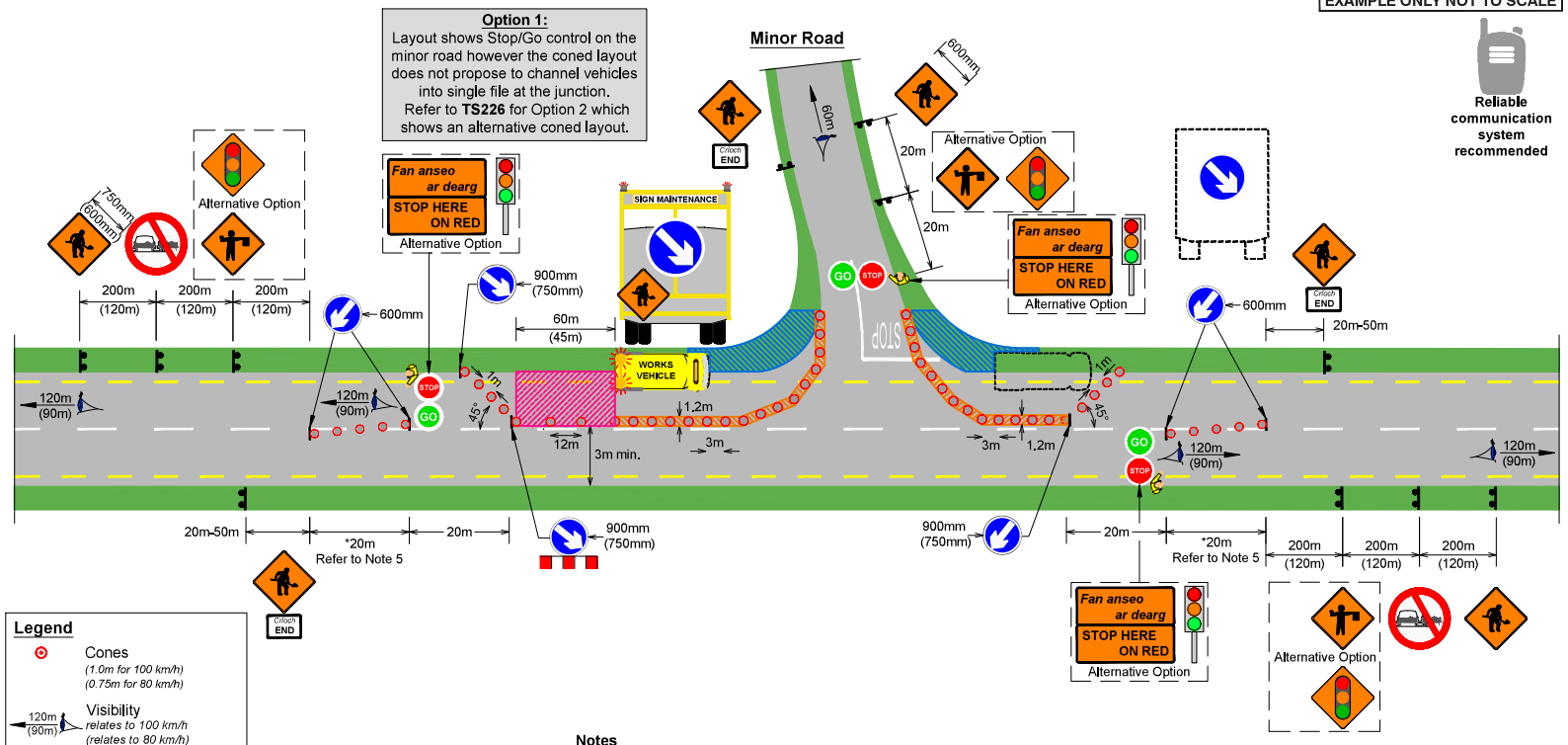
TS 224

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

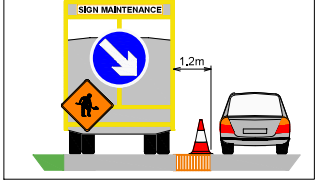
Option 1:
Layout shows Stop/Go control on the minor road however the coned layout does not propose to channel vehicles into single file at the junction.
Refer to **TS226** for Option 2 which shows an alternative coned layout.



Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- Visibility 120m (90m) relates to 100 km/h (relates to 80 km/h)
- Distance 200m (120m) relates to 100 km/h (relates to 80 km/h)
- Traffic Sign
- Stop/Go & Operative
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Lateral Safety Zone



Notes

1. This plan can also be used for junctions on bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where the works and TTM can be contained completely off the running carriageway in the verge, consideration can be given to the use TS224, but only where risk assessment deems it suitable and appropriate based on site conditions.
4. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.
5. Central coning may be omitted where the paved road width is less than 7m.

Standard Works
Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static
Type B >15 mins

Single C/W - No H/S
Stop and Go - Minor Road T-Junction - Option 1

100 km/h OR 80 km/h

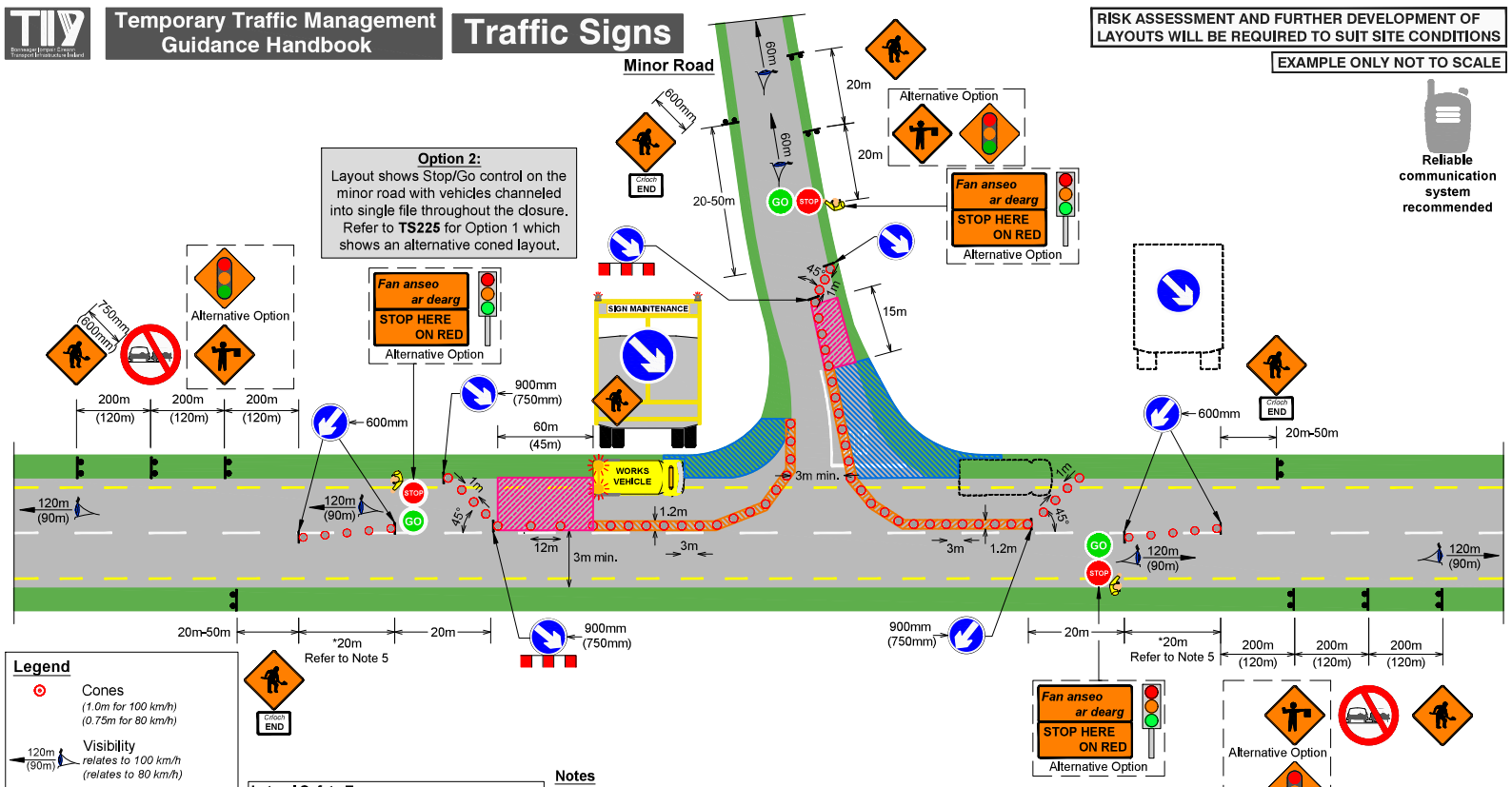
TS 225

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

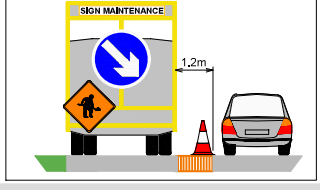
Option 2:
Layout shows Stop/Go control on the minor road with vehicles channeled into single file throughout the closure. Refer to **TS225** for Option 1 which shows an alternative coned layout.



Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- Visibility 120m (90m) relates to 100 km/h (relates to 80 km/h)
- Distance 200m (120m) relates to 100 km/h (relates to 80 km/h)
- Traffic Sign
- Stop/Go & Operative
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Lateral Safety Zone



Notes

1. This plan can also be used for junctions on bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. Where the works and TTM can be contained completely off the running carriageway in the verge, consideration can be given to the use TS224, but only where risk assessment deems it suitable and appropriate based on site conditions.
4. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.
5. Central coning may be omitted where the paved road width is less than 7m.

Standard Works
Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static
Type B >15 mins

Single C/W - No H/S
Stop and Go - Minor Road T-Junction - Option 2

100 kph OR 80 kph

TS 226

Traffic Signs

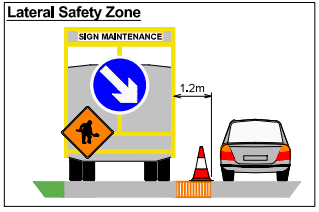
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- 120m (90m) Visibility relates to 100 km/h (relates to 80 km/h)
- 200m (120m) Distance relates to 100 km/h (relates to 80 km/h)
- Traffic Sign
- Stop/Go & Operative
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Lateral Safety Zone



Notes

1. This plan can also be used for junctions on bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.
4. Central coning may be omitted where the paved road width is less than 7m.

Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - No H/S

Stop and Go - Major Road T-Junction - Position 1

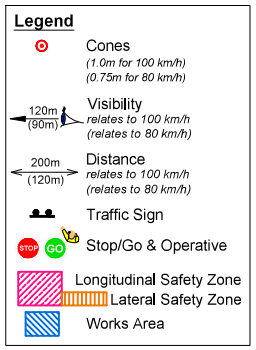
100 kph OR 80 kph

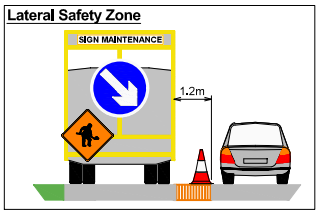
TS 227

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE





Notes

1. This plan can also be used for junctions on bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.
4. Central coning may be omitted where the paved road width is less than 7m.

Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - No H/S

Stop and Go - Major Road T-Junction - Position 2

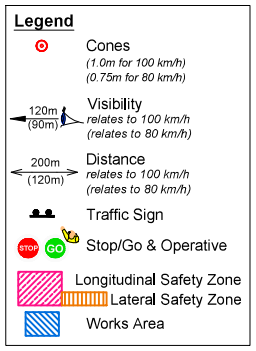
100 OR 80

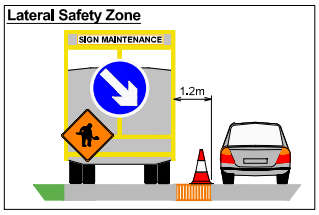
TS 228

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE





Notes

1. This plan can also be used for junctions on bends, provided minimum SSD is achievable to the Stop/Go operatives in both directions. Further risk assessment and additional TTM development may be required to suit site conditions.
2. Where a cross roads is encountered, works are to be carried out on each side of the carriageway as separate operations.
3. When using temporary traffic signals, the Flagman Ahead sign (WK 061) shall be replaced with a Temporary Traffic Signals (WK 060) sign.
4. Central coning may be omitted where the paved road width is less than 7m.

Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - No H/S

Stop and Go - Major Road T-Junction - Position 3

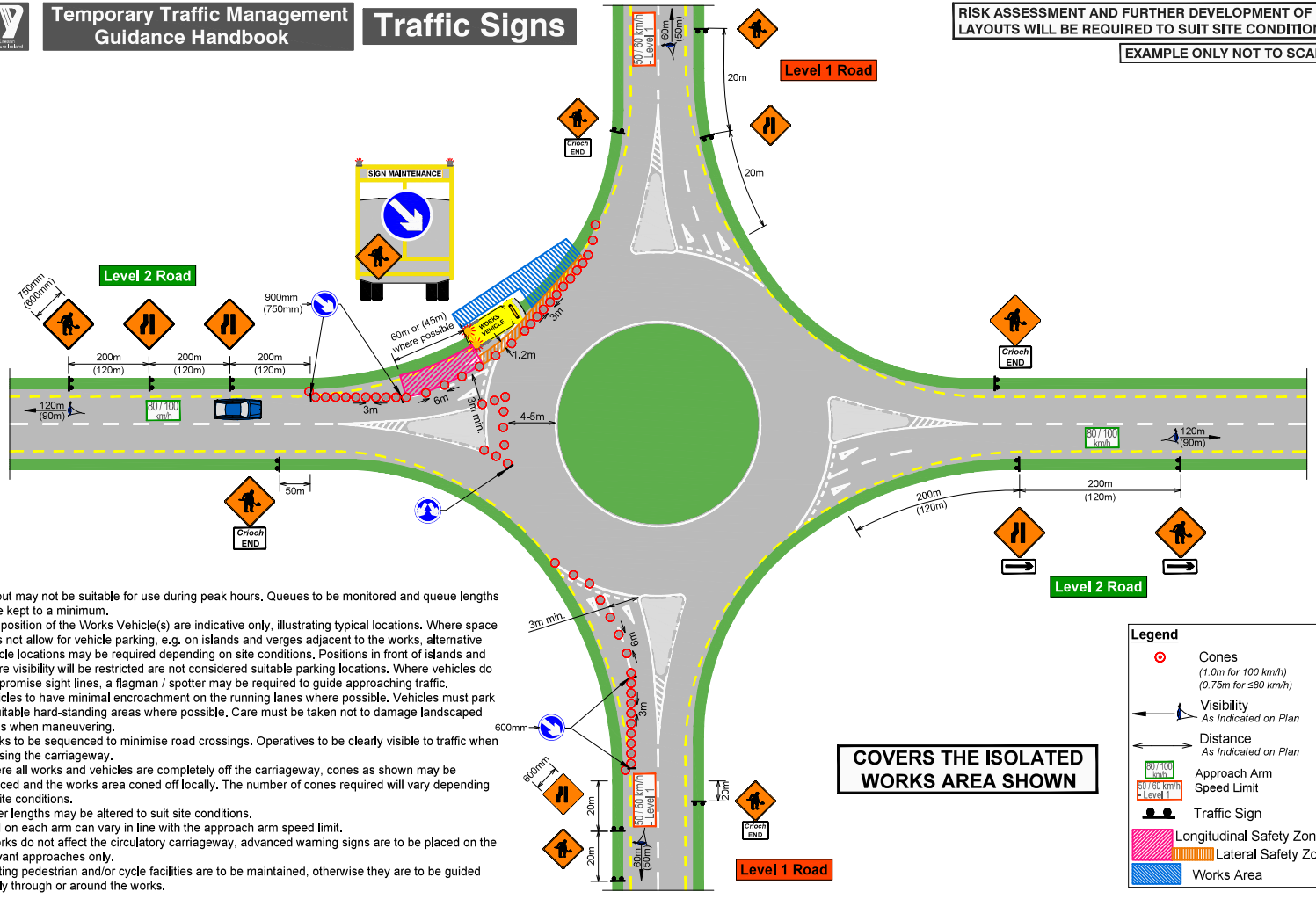
100 km/h OR 80 km/h

TS 229

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. Layout may not be suitable for use during peak hours. Queues to be monitored and queue lengths to be kept to a minimum.
2. The position of the Works Vehicle(s) are indicative only, illustrating typical locations. Where space does not allow for vehicle parking, e.g. on islands and verges adjacent to the works, alternative vehicle locations may be required depending on site conditions. Positions in front of islands and where visibility will be restricted are not considered suitable parking locations. Where vehicles do compromise sight lines, a flagman / spotter may be required to guide approaching traffic.
3. Vehicles to have minimal encroachment on the running lanes where possible. Vehicles must park in suitable hard-standing areas where possible. Care must be taken not to damage landscaped areas when maneuvering.
4. Works to be sequenced to minimise road crossings. Operatives to be clearly visible to traffic when crossing the carriageway.
5. Where all works and vehicles are completely off the carriageway, cones as shown may be reduced and the works area coned off locally. The number of cones required will vary depending on site conditions.
6. Taper lengths may be altered to suit site conditions.
7. TTM on each arm can vary in line with the approach arm speed limit.
8. If works do not affect the circulatory carriageway, advanced warning signs are to be placed on the relevant approaches only.
9. Existing pedestrian and/or cycle facilities are to be maintained, otherwise they are to be guided safely through or around the works.

COVERS THE ISOLATED WORKS AREA SHOWN

Legend

- Cones (1.0m for 100 km/h) (0.75m for ≤80 km/h)
- Visibility — As Indicated on Plan
- Distance — As Indicated on Plan
- 80 / 100 km/h — Approach Arm Speed Limit
- 30 / 60 km/h - Level 1
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - Roundabout

Entry Verge - Isolated Works Area

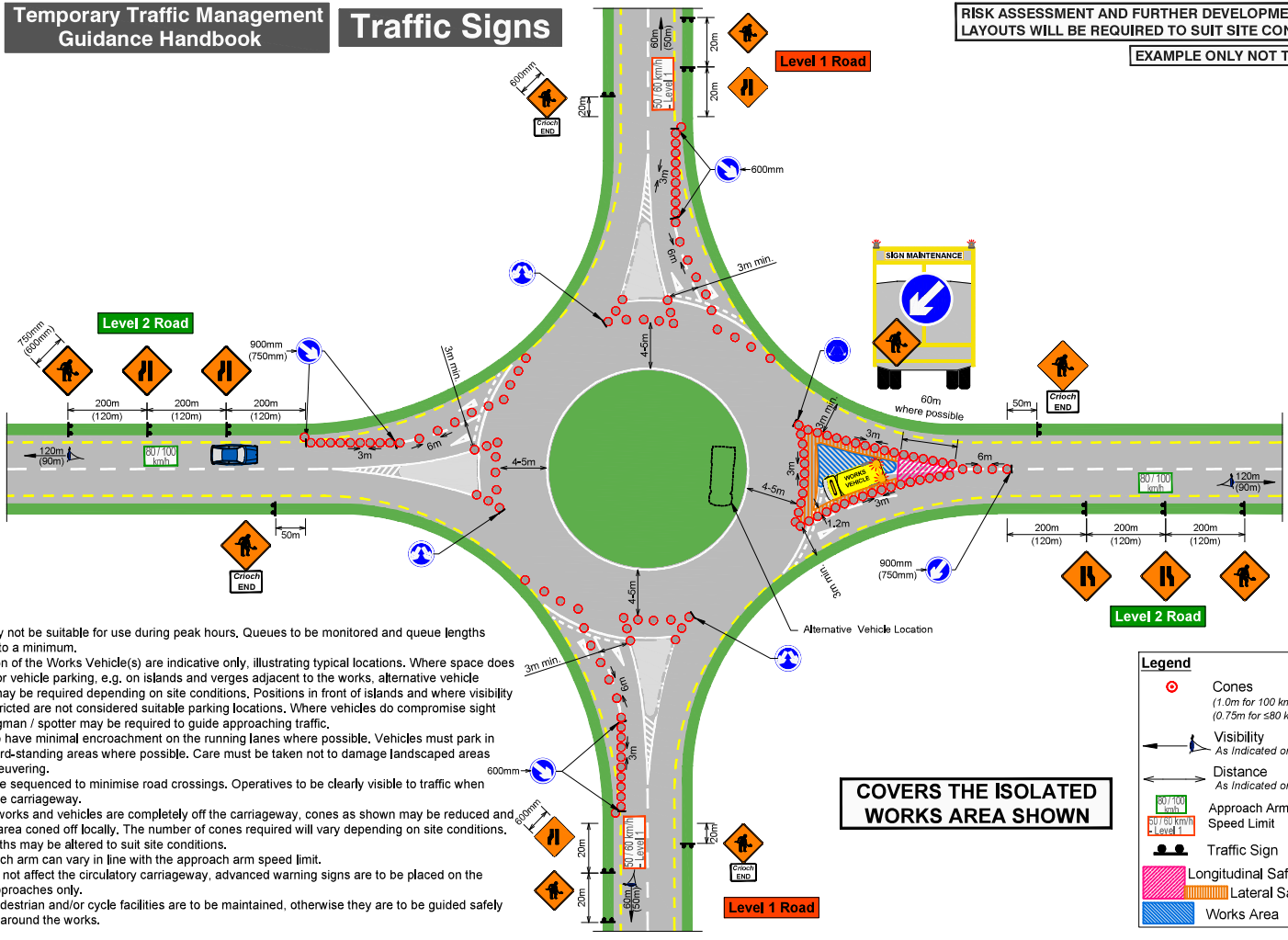
VARIES

TS 230

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. Layout may not be suitable for use during peak hours. Queues to be monitored and queue lengths to be kept to a minimum.
2. The position of the Works Vehicle(s) are indicative only, illustrating typical locations. Where space does not allow for vehicle parking, e.g. on islands and verges adjacent to the works, alternative vehicle locations may be required depending on site conditions. Positions in front of islands and where visibility will be restricted are not considered suitable parking locations. Where vehicles do compromise sight lines, a flagman / spotter may be required to guide approaching traffic.
3. Vehicles to have minimal encroachment on the running lanes where possible. Vehicles must park in suitable hard-standing areas where possible. Care must be taken not to damage landscaped areas when maneuvering.
4. Works to be sequenced to minimise road crossings. Operatives to be clearly visible to traffic when crossing the carriageway.
5. Where all works and vehicles are completely off the carriageway, cones as shown may be reduced and the works area coned off locally. The number of cones required will vary depending on site conditions.
6. Taper lengths may be altered to suit site conditions.
7. TTM on each arm can vary in line with the approach arm speed limit.
8. If works do not affect the circulatory carriageway, advanced warning signs are to be placed on the relevant approaches only.
9. Existing pedestrian and/or cycle facilities are to be maintained, otherwise they are to be guided safely through or around the works.

COVERS THE ISOLATED WORKS AREA SHOWN

Legend

- Cones (1.0m for 100 km/h) (0.75m for ≤80 km/h)
- Visibility As Indicated on Plan
- Distance As Indicated on Plan
- 80/100 km/h — Approach Arm Speed Limit
- 50/60 km/h - Level 1
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Surface Reinstatement

Static
Type B >15 mins

Single C/W - Roundabout
Traffic Island - Isolated Works Area

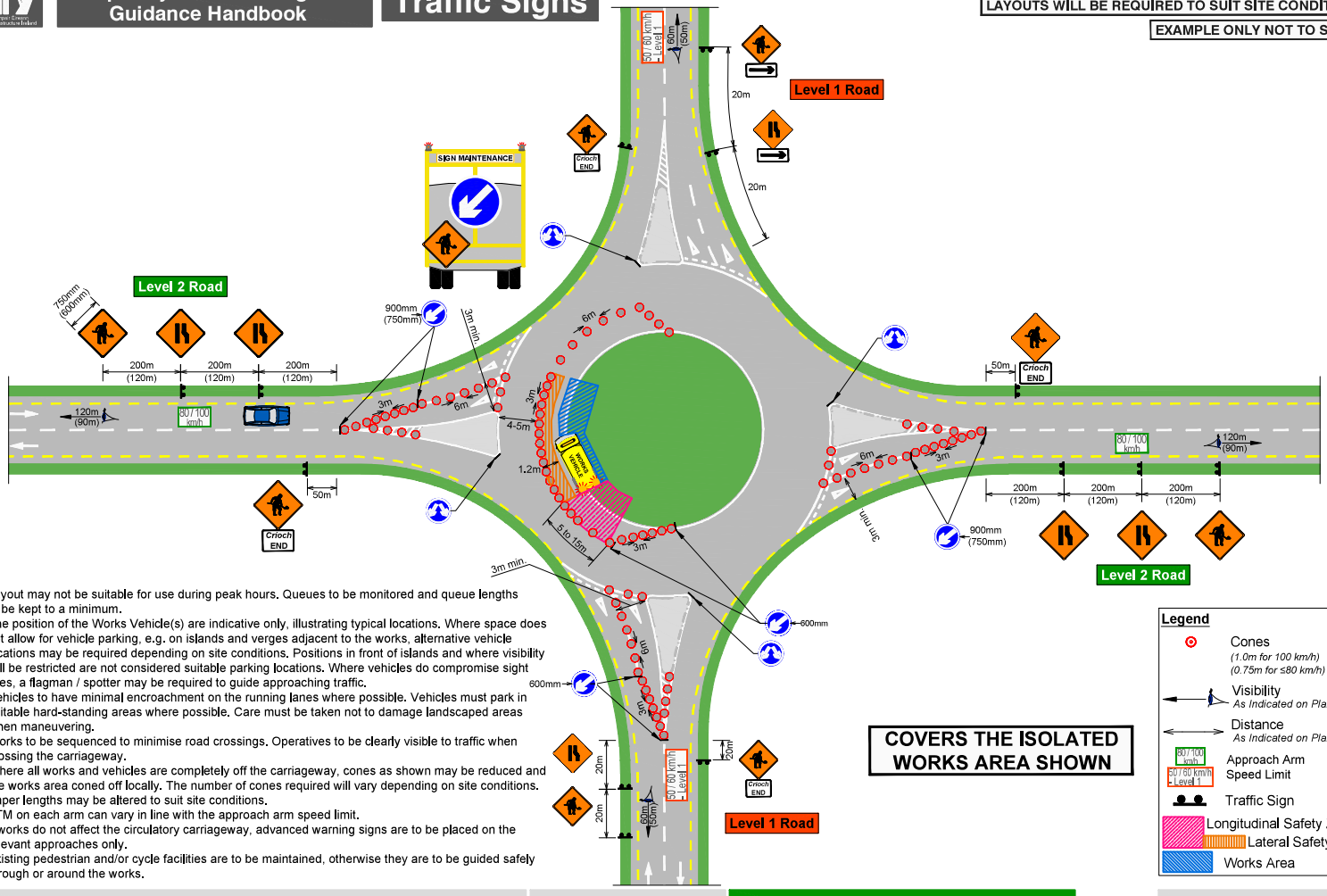
VARIES

TS 231

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. Layout may not be suitable for use during peak hours. Queues to be monitored and queue lengths to be kept to a minimum.
2. The position of the Works Vehicle(s) are indicative only, illustrating typical locations. Where space does not allow for vehicle parking, e.g. on islands and verges adjacent to the works, alternative vehicle locations may be required depending on site conditions. Positions in front of islands and where visibility will be restricted are not considered suitable parking locations. Where vehicles do compromise sight lines, a flagman / spotter may be required to guide approaching traffic.
3. Vehicles to have minimal encroachment on the running lanes where possible. Vehicles must park in suitable hard-standing areas where possible. Care must be taken not to damage landscaped areas when maneuvering.
4. Works to be sequenced to minimise road crossings. Operatives to be clearly visible to traffic when crossing the carriageway.
5. Where all works and vehicles are completely off the carriageway, cones as shown may be reduced and the works area coned off locally. The number of cones required will vary depending on site conditions.
6. Taper lengths may be altered to suit site conditions.
7. TTM on each arm can vary in line with the approach arm speed limit.
8. If works do not affect the circulatory carriageway, advanced warning signs are to be placed on the relevant approaches only.
9. Existing pedestrian and/or cycle facilities are to be maintained, otherwise they are to be guided safely through or around the works.

Legend

- Cones (1.0m for 100 km/h) (0.75m for ≤80 km/h)
- Visibility — As Indicated on Plan
- Distance — As Indicated on Plan
- 80/100 km/h — Approach Arm Speed Limit
- 50/60 km/h Level 1 — Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

COVERS THE ISOLATED WORKS AREA SHOWN

Standard Works
Sign Installations / Sign Removals / Landscaping

Static
Type B >15 mins

Single C/W - Roundabout
Central Island - Isolated Works Area

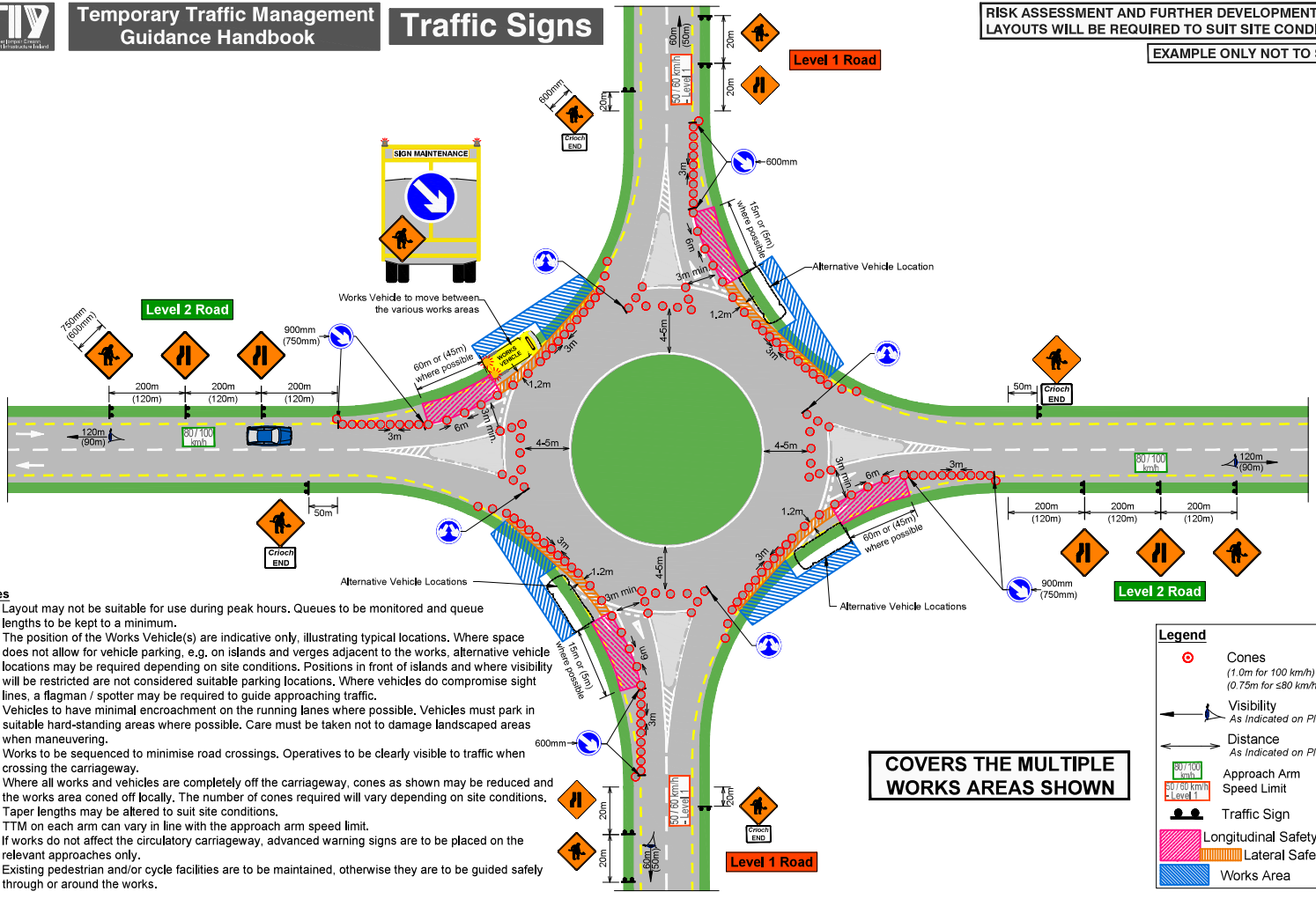
VARIES

TS 232

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. Layout may not be suitable for use during peak hours. Queues to be monitored and queue lengths to be kept to a minimum.
2. The position of the Works Vehicle(s) are indicative only, illustrating typical locations. Where space does not allow for vehicle parking, e.g. on islands and verges adjacent to the works, alternative vehicle locations may be required depending on site conditions. Positions in front of islands and where visibility will be restricted are not considered suitable parking locations. Where vehicles do compromise sight lines, a flagman / spotter may be required to guide approaching traffic.
3. Vehicles to have minimal encroachment on the running lanes where possible. Vehicles must park in suitable hard-standing areas where possible. Care must be taken not to damage landscaped areas when maneuvering.
4. Works to be sequenced to minimise road crossings. Operatives to be clearly visible to traffic when crossing the carriageway.
5. Where all works and vehicles are completely off the carriageway, cones as shown may be reduced and the works area coned off locally. The number of cones required will vary depending on site conditions.
6. Taper lengths may be altered to suit site conditions.
7. TTM on each arm can vary in line with the approach arm speed limit.
8. If works do not affect the circulatory carriageway, advanced warning signs are to be placed on the relevant approaches only.
9. Existing pedestrian and/or cycle facilities are to be maintained, otherwise they are to be guided safely through or around the works.

Legend

- Cones (1.0m for 100 km/h) (0.75m for ≤80 km/h)
- Visibility — As Indicated on Plan
- Distance — As Indicated on Plan
- Approach Arm Speed Limit (30 / 100 km/h; 50 / 60 km/h Level 1)
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - Roundabout

Entry Verge - Multiple Works Areas

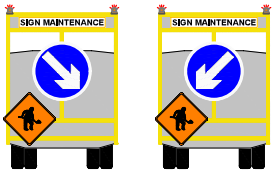
VARIES

TS 233

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Works Vehicle Options

Notes

1. Layout may not be suitable for use during peak hours. Queues to be monitored and queue lengths to be kept to a minimum.
2. The position of the Works Vehicle(s) are indicative only, illustrating typical locations. Where space does not allow for vehicle parking, e.g. on islands and verges adjacent to the works, alternative vehicle locations may be required depending on site conditions. Positions in front of islands and where visibility will be restricted are not considered suitable parking locations. Where vehicles do compromise sight lines, a flagman / spotter may be required to guide approaching traffic.
3. Vehicles to have minimal encroachment on the running lanes where possible. Vehicles must park in suitable hard-standing areas where possible. Care must be taken not to damage landscaped areas when maneuvering.
4. Works to be sequenced to minimise road crossings. Operatives to be clearly visible to traffic when crossing the carriageway.
5. Where all works and vehicles are completely off the carriageway, cones as shown may be reduced and the works area coned off locally. The number of cones required will vary depending on site conditions.
6. Taper lengths may be altered to suit site conditions.
7. TTM on each arm can vary in line with the approach arm speed limit.
8. If works do not affect the circulatory carriageway, advanced warning signs are to be placed on the relevant approaches only.
9. Existing pedestrian and/or cycle facilities are to be maintained, otherwise they are to be guided safely through or around the works.

COVERS THE MULTIPLE WORKS AREAS SHOWN

Legend

- Cones (1.0m for 100 km/h) (0.75m for ≤80 km/h)
- Visibility *As Indicated on Plan*
- Distance *As Indicated on Plan*
- 80 / 100 km/h — Approach Arm Speed Limit
- 50 / 60 km/h - Level 1
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Surface Reinstatement

Static

Type B >15 mins

Single C/W - Roundabout

Traffic Island - Multiple Works Areas

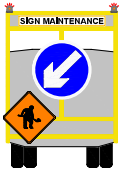
VARIES

TS 234

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. Layout may not be suitable for use during peak hours. Queues to be monitored and queue lengths to be kept to a minimum.
2. The position of the Works Vehicle(s) are indicative only, illustrating typical locations. Where space does not allow for vehicle parking, e.g. on islands and verges adjacent to the works, alternative vehicle locations may be required depending on site conditions. Positions in front of islands and where visibility will be restricted are not considered suitable parking locations. Where vehicles do compromise sight lines, a flagman / spotter may be required to guide approaching traffic.
3. Vehicles to have minimal encroachment on the running lanes where possible. Vehicles must park in suitable hard-standing areas where possible. Care must be taken not to damage landscaped areas when maneuvering.
4. Works to be sequenced to minimise road crossings. Operatives to be clearly visible to traffic when crossing the carriageway.
5. Where all works and vehicles are completely off the carriageway, cones as shown may be reduced and the works area coned off locally. The number of cones required will vary depending on site conditions.
6. Taper lengths may be altered to suit site conditions.
7. TTM on each arm can vary in line with the approach arm speed limit.
8. If works do not affect the circulatory carriageway, advanced warning signs are to be placed on the relevant approaches only.
9. Existing pedestrian and/or cycle facilities are to be maintained, otherwise they are to be guided safely through or around the works.

Legend

- Cones (1.0m for 100 km/h) (0.75m for ≤80 km/h)
- Visibility As Indicated on Plan
- Distance As Indicated on Plan
- 80/100 km/h — Approach Arm Speed Limit
- 50/60 km/h Level 1 — Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

COVERS THE MULTIPLE WORKS AREAS SHOWN

Standard Works
Sign Installations / Sign Removals / Landscaping

Static
Type B >15 mins

Single C/W - Roundabout
Central Island - Multiple Works Areas

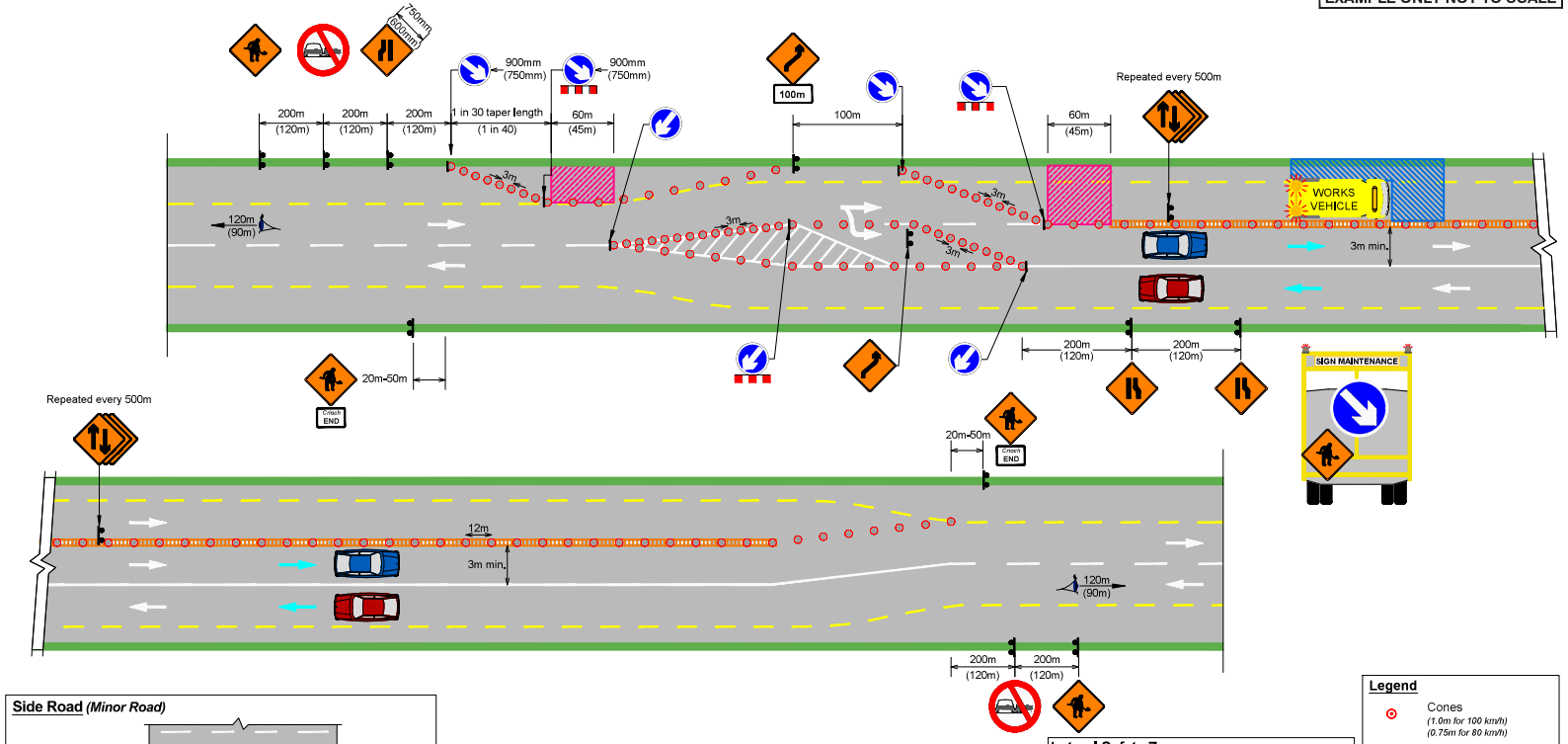
VARIES

TS 235

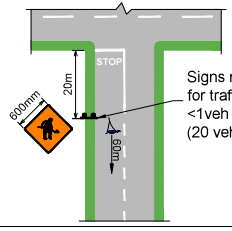
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Side Road *(Minor Road)*

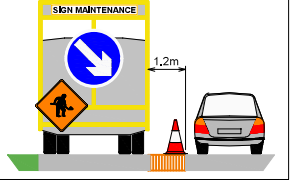


Signs may omitted for traffic volumes <1veh / 3mins (20 veh/h)

Notes

1. Closures of Lane 1 should commence prior to the start of the overtaking lane on the single carriageway section and the closure should extend over the full length of the overtaking lane.
2. All contradictory permanent signs (e.g. W 100: Start of Passing Lane sign) to be covered for the full length of the overtaking lane closure.

Lateral Safety Zone



Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- Visibility 120m (90m) relates to 100 km/h (relates to 80km/h)
- Distance 200m (120m) relates to 100 km/h (relates to 80km/h)
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - Climbing Lane

Lane 1 Closure

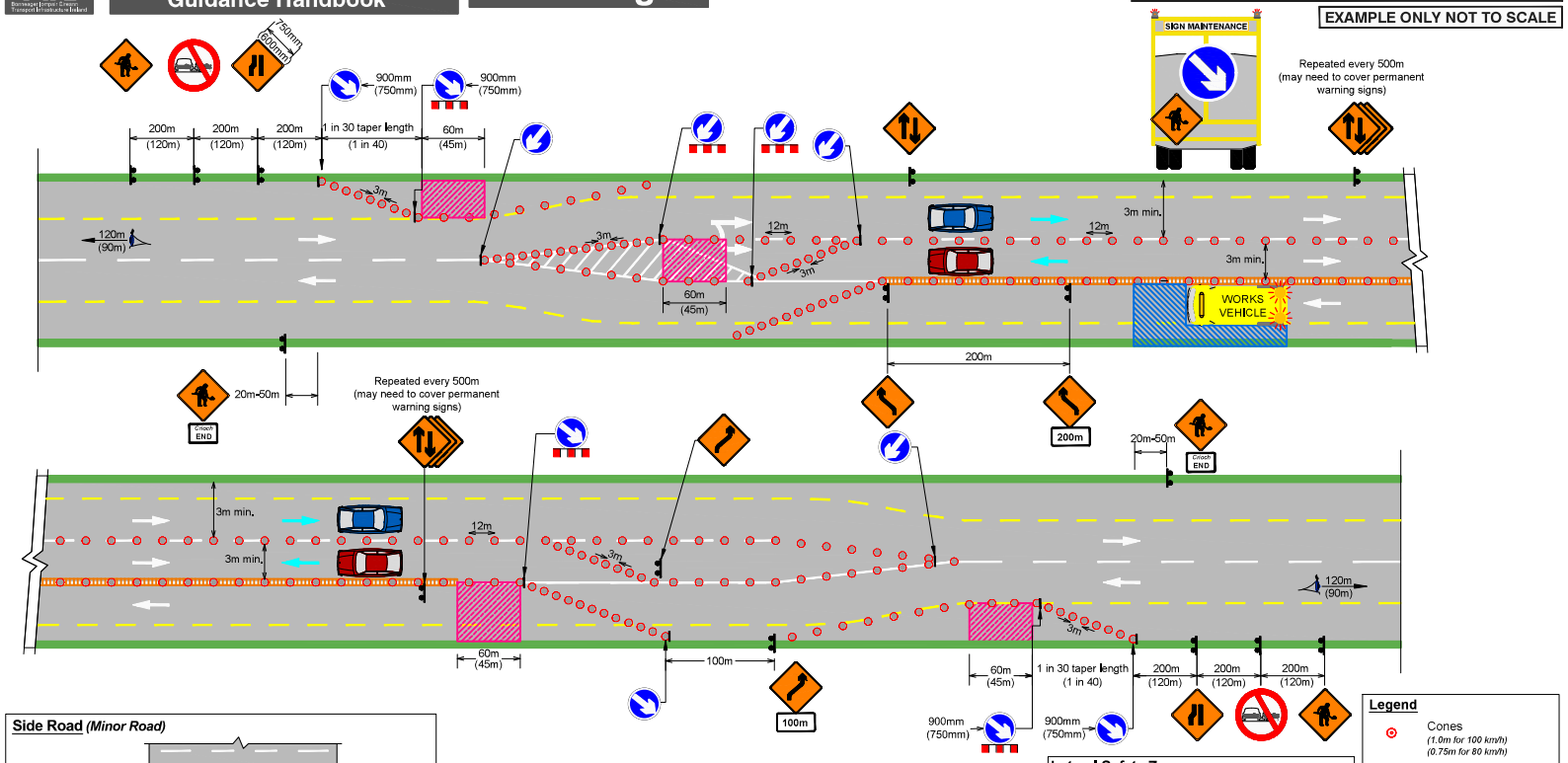
100 OR 80

TS 236

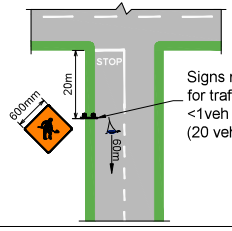
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

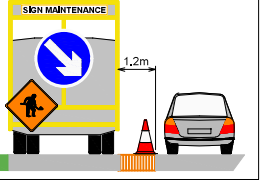


Side Road *(Minor Road)*



Signs may omitted for traffic volumes <1veh / 3mins (20 veh/h)

Lateral Safety Zone



Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- Visibility 120m (90m) relates to 100 km/h (relates to 80km/h)
- Distance 200m (120m) relates to 100 km/h (relates to 80km/h)
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Notes

1. Closures of Lane 2 should commence prior to the start of the overtaking lane on the single carriageway section and the closure should extend over the full length of the overtaking lane.
2. All contradictory permanent signs (e.g. W 100: Start of Passing Lane sign) to be covered for the full length of the overtaking lane closure.

Standard Works

Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static

Type B >15 mins

Single C/W - Climbing Lane

Downhill Lane Closure

100 OR 80

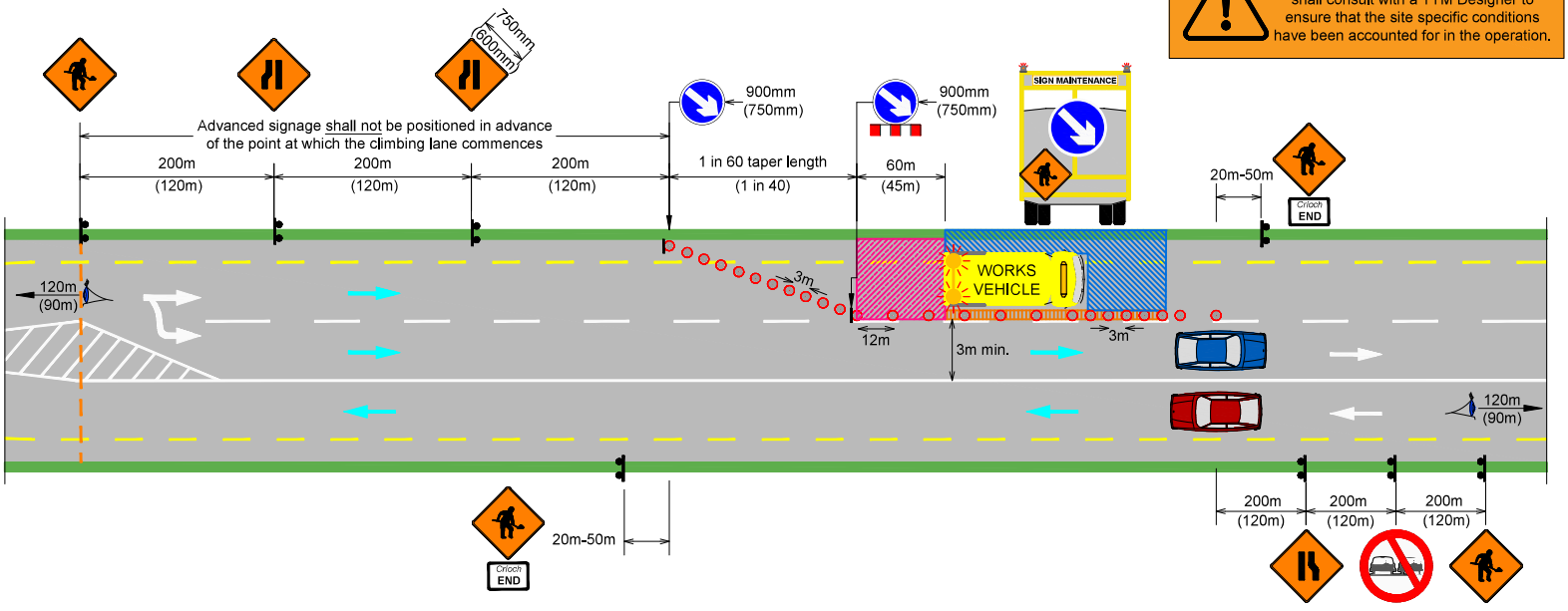
TS 237

Traffic Signs

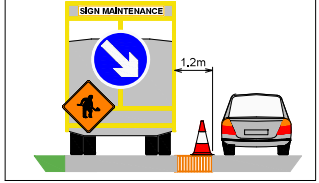
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

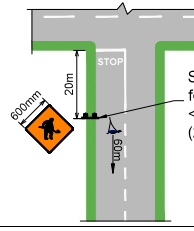
Site Specific Assessment:
Prior to using this layout, the contractor shall consult with a TTM Designer to ensure that the site specific conditions have been accounted for in the operation.



Lateral Safety Zone



Side Road ***(Minor Road)***



Signs may omitted for traffic volumes <1veh / 3mins (20 veh/h)

Legend

- Cones (1.0m for 100 km/h) (0.75m for 80 km/h)
- Visibility 120m (90m) relates to 100 km/h (relates to 80km/h)
- Distance 200m (120m) relates to 100 km/h (relates to 80km/h)
- Traffic Sign
- Longitudinal Safety Zone / Lateral Safety Zone
- Works Area

Notes

1. **Layout is subject to a site-specific TTMP and is therefore provided for guidance only.**
2. An IPV should be used to protect operatives during installation of the lane closure. Use of an IPV is subject to a site specific risk assessment by the TTM Designer and a minimum visibility of 160m for 80km/hr roads and 215m for a 100km/h road is required.

Standard Works
Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static
Type B >15 mins

Single C/W - Climbing Lane
Closure Within Lane 1

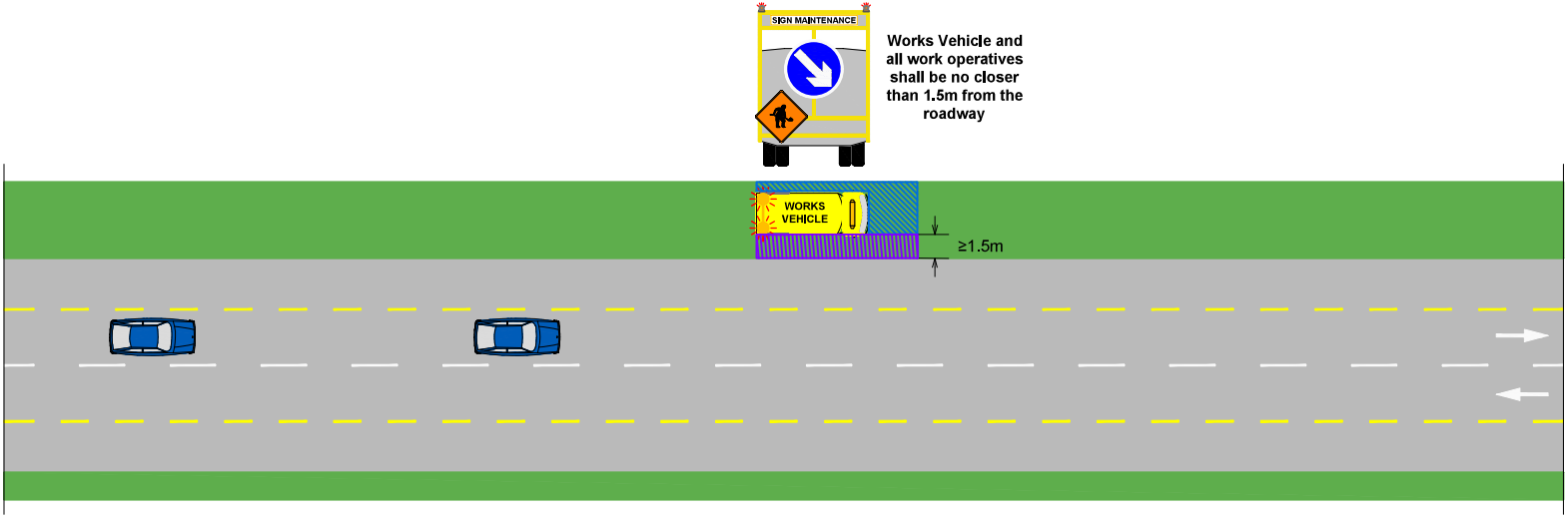
100 km/h OR 80 km/h

TS 238

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Legend

- 60m — Visibility
- Separation Distance
- Works Area

Notes

1. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
2. Should not be used in poor visibility conditions.
3. For Level 2 roads advance warning signage may not be required on the roadway where works vehicles can be parked such that they are no closer than 1.5m from the roadway.

Standard Works
Sign Installations / Sign Removals / Hedge or Tree Clearance / Landscaping

Static
Type B >15 mins

Single C/W - With H/S
Works Off The Carriageway

100 OR 80

TS 239

Temporary Traffic Management Layout Diagrams

For

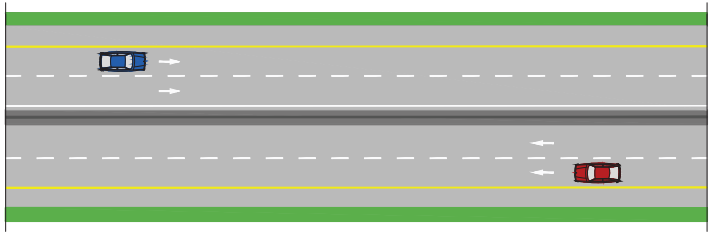
TRAFFIC SIGNS
LEVEL 3(i) & 3(ii) ROADS

Part 1

Type 1 Dual Carriageways

A divided all-purpose road with a minimum of two lanes and hard shoulder in each direction constructed to the geometic standards of DN-GEO-03031 and CC-SCD-0006.

(definition per DN-GEO-03036 of TII Publications)



Typical Cross Section Parameters:

Verge Width - 2m (min)
Hard Shoulder Width - 2.5m
Lane Width - 2 No. 3.5m Lanes (each direction)
Offside Hard Strip - 1m
Central Reserve Width - 2.6m (min)

Contents

**Layout provided for guidance only, site specific design and risk assessment required for this operation*

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **65 veh/3 minute** *Per Lane*

Minimum Visibility of: **500m** *Required to Mobile Operation*

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 10km in advance of the works.

Not required for one-off isolated works.
VMS must not be towed as part of a moving operation.

SIGN MAINTENANCE AHEAD

600mm

IPV shall be of 10T minimum road weight

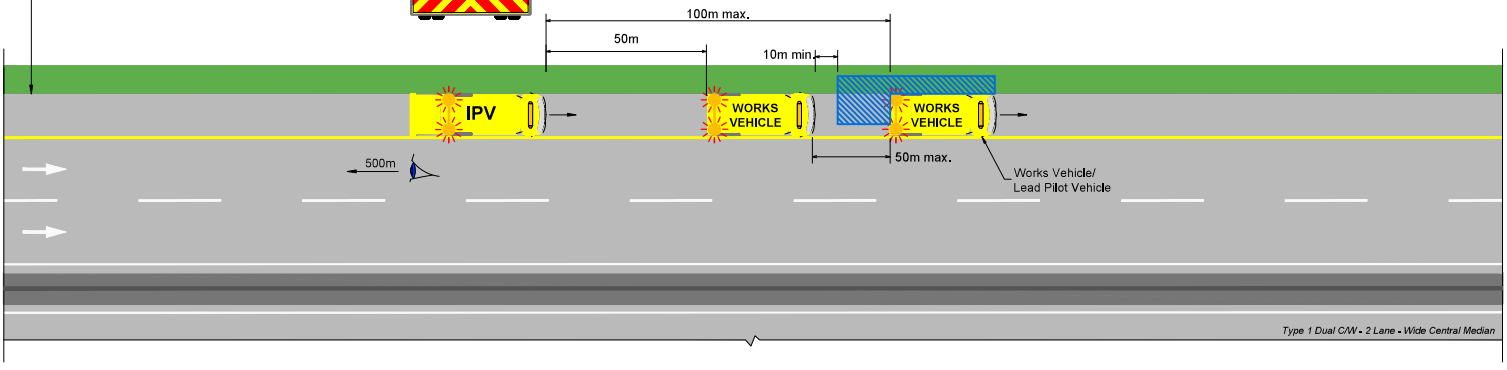
A dedicated communication system shall be used between all vehicles

ROAD MAINTENANCE

ROAD MAINTENANCE

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts shall be taken at 15 minute intervals during the closure.
- The closure should be removed if 2 successive traffic counts are above the permissible level or the traffic counts show a rising trend and with last count being above the permissible level.



Notes

1. Minimum of 500m visibility required to implement this layout. The mobile lane closure should not be implemented where this visibility requirement cannot be achieved. In scenarios where this visibility requirement cannot be achieved due to road alignment or other site constraints, the works should be undertaken using a static operation.
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Mobile Works Across Junctions:
Where the mobile operation crosses a junction(s), a Roadworks Ahead (WK 001) sign accompanied by a 'Mobile Roadworks' supplementary plate (P 082) shall be provided on the verge side of the merge lane to warn motorists entering the mainline carriageway.

Oibreacha Bóthair Soghluaiste
MOBILE ROADWORKS

Legend
Works Area

Minor Maintenance (Continuously Moving)
Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Type 1 Dual Carriageway - 2 Lane
Hard Shoulder - Verge

120 100 OR 80

TS301

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 10km in advance of the works.

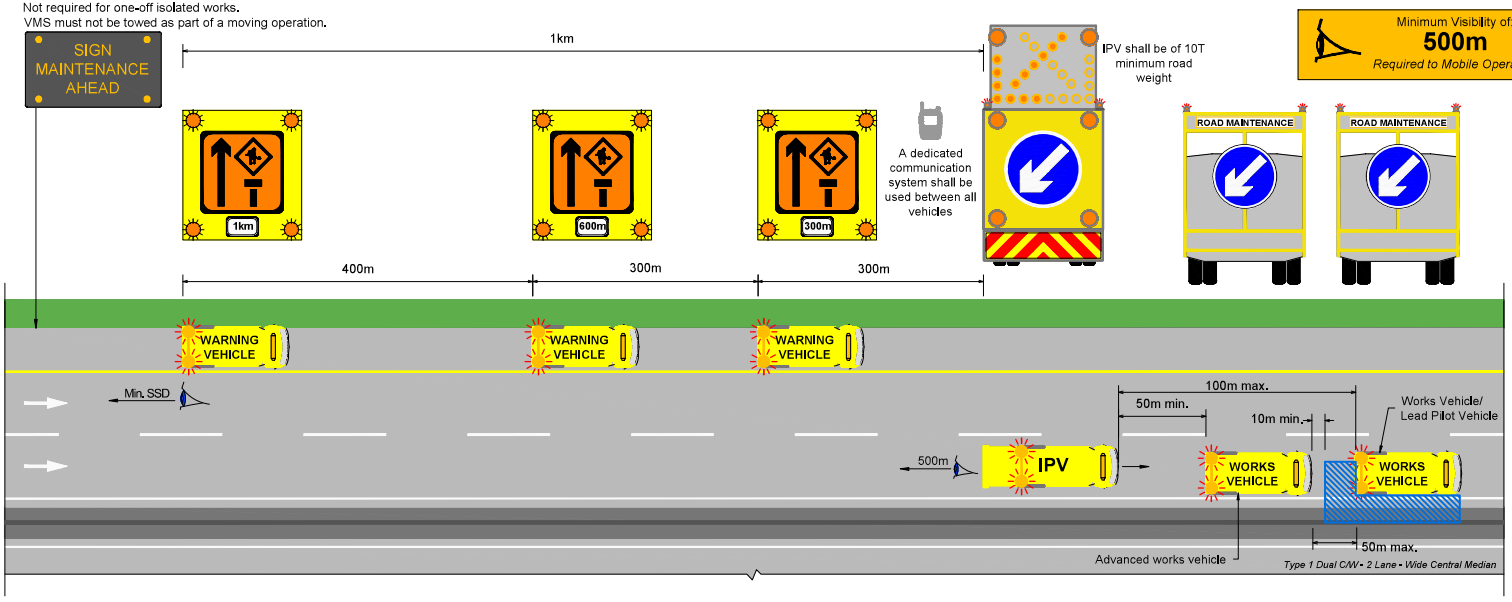
Not required for one-off isolated works.
VMS must not be towed as part of a moving operation.

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts shall be taken at 15 minute intervals during the closure.
- The closure should be removed if 2 successive traffic counts are above the permissible level or the traffic counts show a rising trend and with last count being above the permissible level.

Permissible 3 Minute Traffic Counts for Lane 2 Closure				
Road Type	HGV Level	If HGV Count ≤ HGV Level then Max Traffic Count (Veh/3min)	If HGV Count ≥ HGV Level then Max Traffic Count (Veh/3min)	Max Permitted HGV Count (Veh/3min)
Dual Two-Lane Carriageway	15	60	55	20

Minimum Visibility of: **500m** *Required to Mobile Operation*



Notes

1. Minimum of 500m visibility required to implement this layout. The mobile lane closure should not be implemented where this visibility requirement cannot be achieved. In scenarios where this visibility requirement cannot be achieved due to road alignment or other site constraints, the works should be undertaken using a static operation.
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Mobile Works Across Junctions:
Where the mobile operation crosses a junction(s), a Roadworks Ahead (WK 001) sign accompanied by a 'Mobile Roadworks' supplementary plate (P 082) shall be provided on the verge side of the merge lane to warn motorists entering the mainline carriageway.

Oibreacha Bóthair Soghluaiste MOBILE ROADWORKS

Legend
Works Area

Minor Maintenance (Continuously Moving)
Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Type 2 Dual Carriageway - 2 Lane
Lane 1 - Median

120 OR 100 80

TS302

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Vehicle Count: **65 veh/3 minute** *Per Lane*

Minimum Visibility of: **500m** *Required to Mobile Operation*

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 10km in advance of the works.

Not required for one-off isolated works.
VMS must not be towed as part of a moving operation.

SIGN MAINTENANCE AHEAD

600mm

IPV shall be of 10T minimum road weight

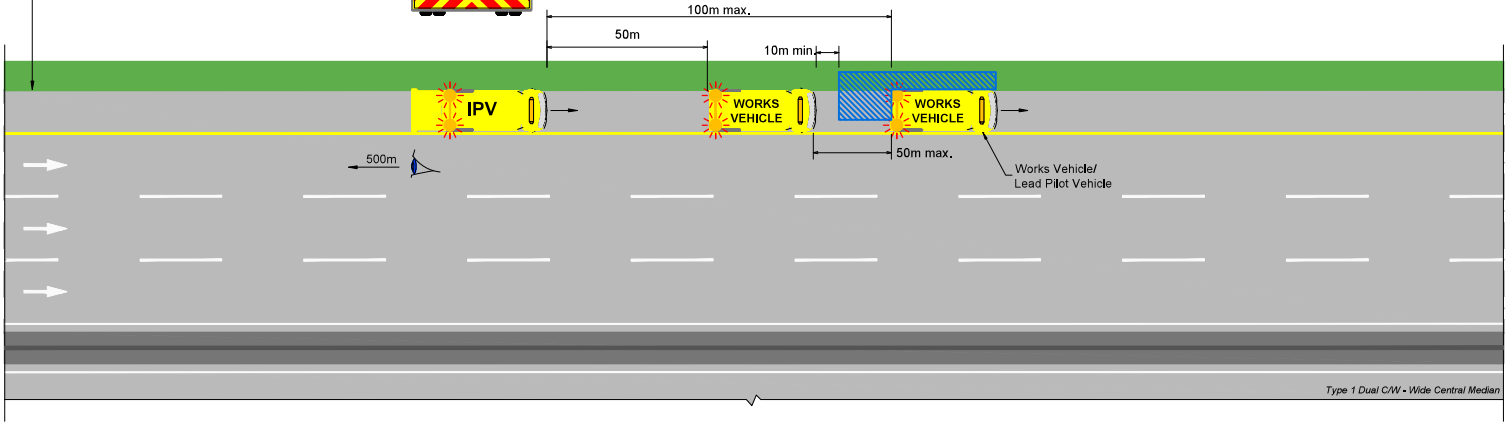
A dedicated communication system shall be used between all vehicles

ROAD MAINTENANCE

ROAD MAINTENANCE

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts shall be taken at 15 minute intervals during the closure.
- The closure should be removed if 2 successive traffic counts are above the permissible level or the traffic counts show a rising trend and with last count being above the permissible level.



Notes

1. Minimum of 500m visibility required to implement this layout. The mobile lane closure should not be implemented where this visibility requirement cannot be achieved. In scenarios where this visibility requirement cannot be achieved due to road alignment or other site constraints, the works should be undertaken using a static operation.
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Mobile Works Across Junctions:
Where the mobile operation crosses a junction(s), a Roadworks Ahead (WK 001) sign accompanied by a 'Mobile Roadworks' supplementary plate (P 082) shall be provided on the verge side of the merge lane to warn motorists entering the mainline carriageway.

Oibreacha Bóthair Soghluaiste
MOBILE ROADWORKS

Legend
Works Area

Minor Maintenance (Continuously Moving)
Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Type 1 Dual Carriageway - 3 Lane
Hard Shoulder - Verge

120 100 OR 80

TS303

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 10km in advance of the works.

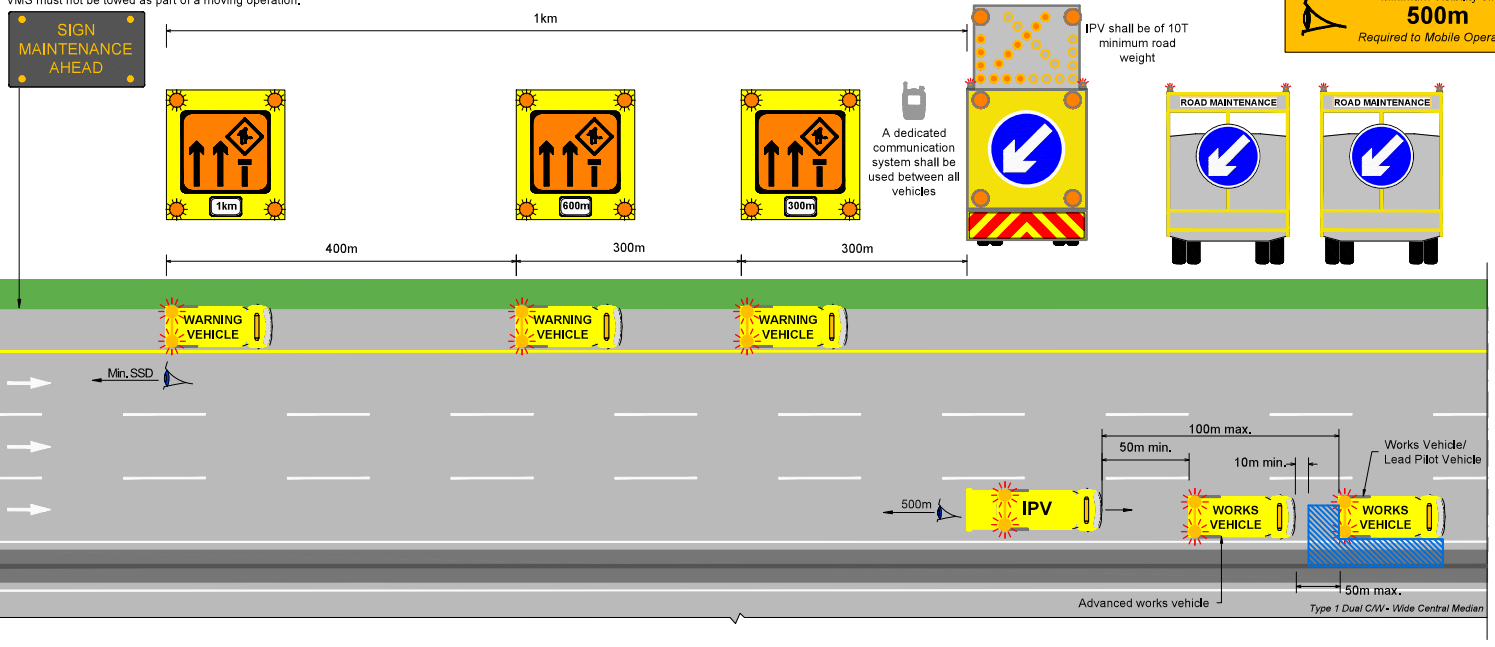
Not required for one-off isolated works.
VMS must not be towed as part of a moving operation.

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts shall be taken at 15 minute intervals during the closure.
- The closure should be removed if 2 successive traffic counts are above the permissible level or the traffic counts show a rising trend and with last count being above the permissible level.

Permissible 3 Minute Traffic Counts for Lane 3 Closure				
Road Type	HGV Level	If HGV Count ≤ HGV Level then Max Traffic Count (Veh/3min)	If HGV Count ≥ HGV Level then Max Traffic Count (Veh/3min)	Max Permitted HGV Count (Veh/3min)
Dual Three-Lane Carriageway	25	135	120	40

Minimum Visibility of: **500m** *Required to Mobile Operation*



SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Notes

1. Minimum of 500m visibility required to implement this layout. The mobile lane closure should not be implemented where this visibility requirement cannot be achieved. In scenarios where this visibility requirement cannot be achieved due to road alignment or other site constraints, the works should be undertaken using a static operation.
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Mobile Works Across Junctions:
Where the mobile operation crosses a junction(s), a Roadworks Ahead (WK 001) sign accompanied by a 'Mobile Roadworks' supplementary plate (P 082) shall be provided on the verge side of the merge lane to warn motorists entering the mainline carriageway.

Oibreacha Bóthair Soghluaiste MOBILE ROADWORKS

Legend
Works Area

Minor Maintenance (Continuously Moving)
Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Type 1 Dual Carriageway - 3 Lane
Lane 3 - Median

120 OR 100 80

TS304

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

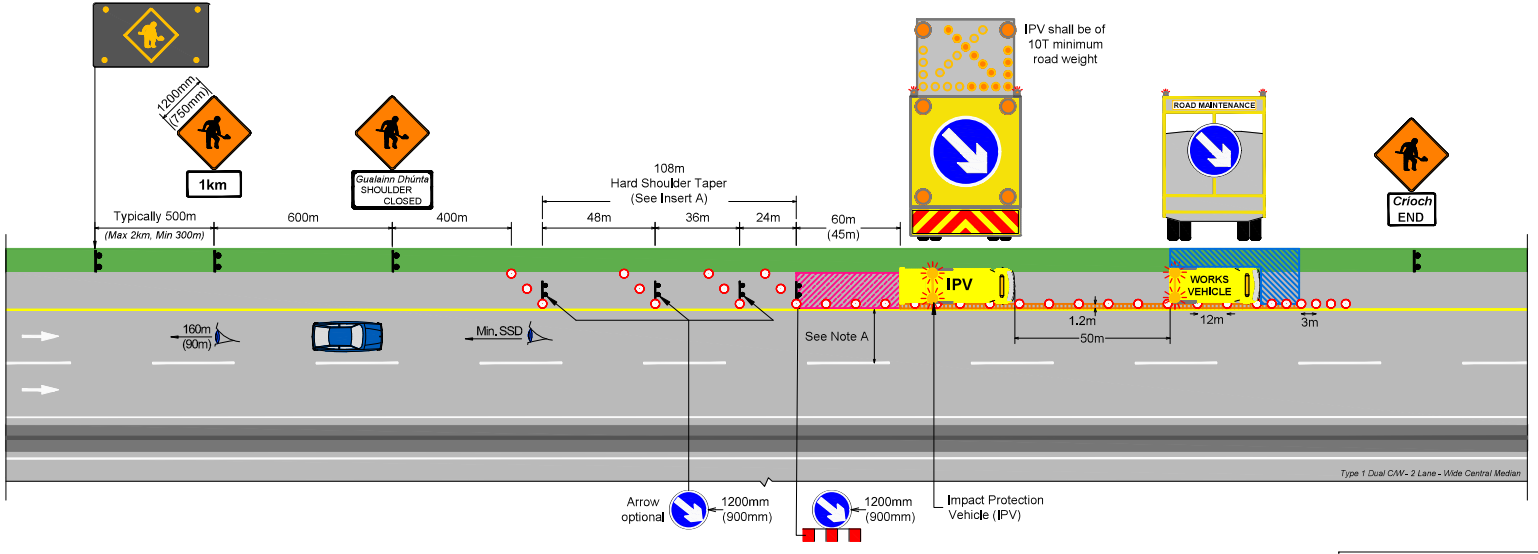
EXAMPLE ONLY NOT TO SCALE

Note A:
This layout assumes that the works area, lateral safety zone and all vehicles are contained to the hard shoulder and do not encroach into Lane 1. Where this is not achievable, the works shall be undertaken using a Lane 1 closure as per TS307.

Traffic Count Notes:

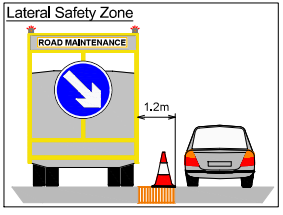
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Hard Shoulder Closure		
Road Type	Maximum Allowable Traffic Flow **per Lane**	
	Veh/hr	Veh/3min
Dual Two Lane Carriageway	1300	65



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 60m (45m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
Hard Shoulder Closure - Verge

120 OR 100 OR 80

TS305

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

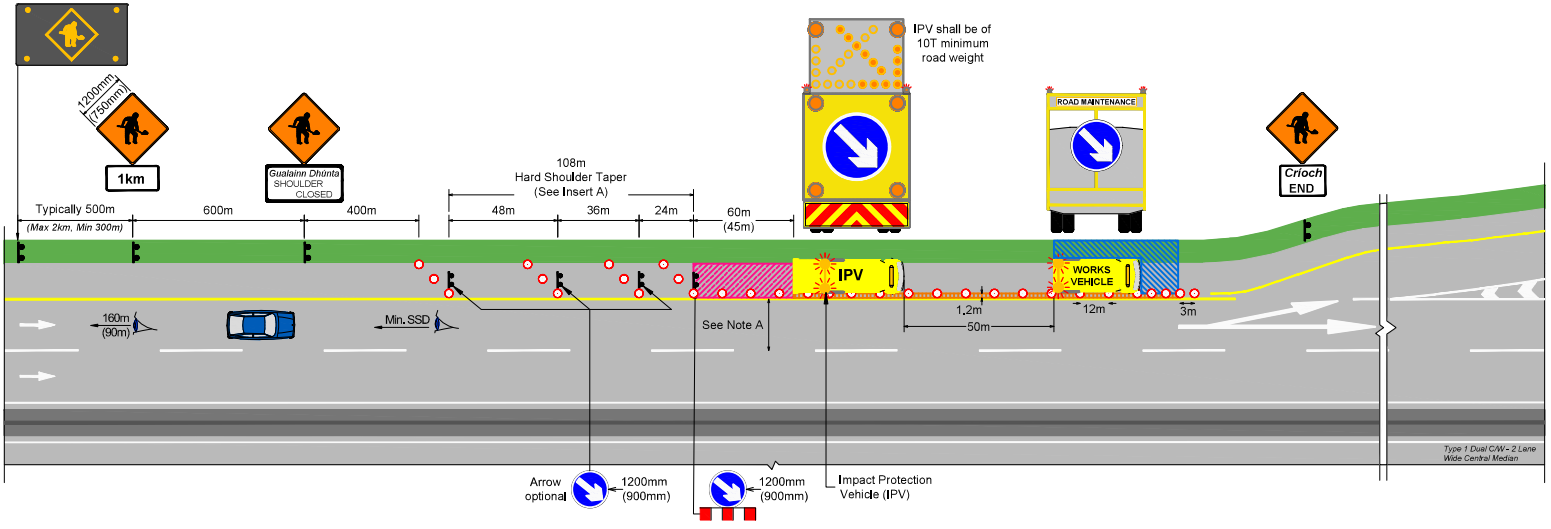
EXAMPLE ONLY NOT TO SCALE

Note A:
This layout assumes that the works area, lateral safety zone and all vehicles are contained to the hard shoulder and do not encroach into Lane 1. Where this is not achievable, the works shall be undertaken using a Lane 1 closure as per TS308.

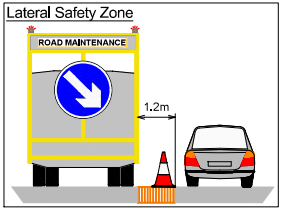
Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Hard Shoulder Closure		
Road Type	Maximum Allowable Traffic Flow **per Lane**	
	Veh/hr	Veh/3min
Dual Two Lane Carriageway	1300	65



SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 60m (45m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone / Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
Hard Shoulder Closure - Diverge Taper

120 OR 100 OR 80

TS306

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

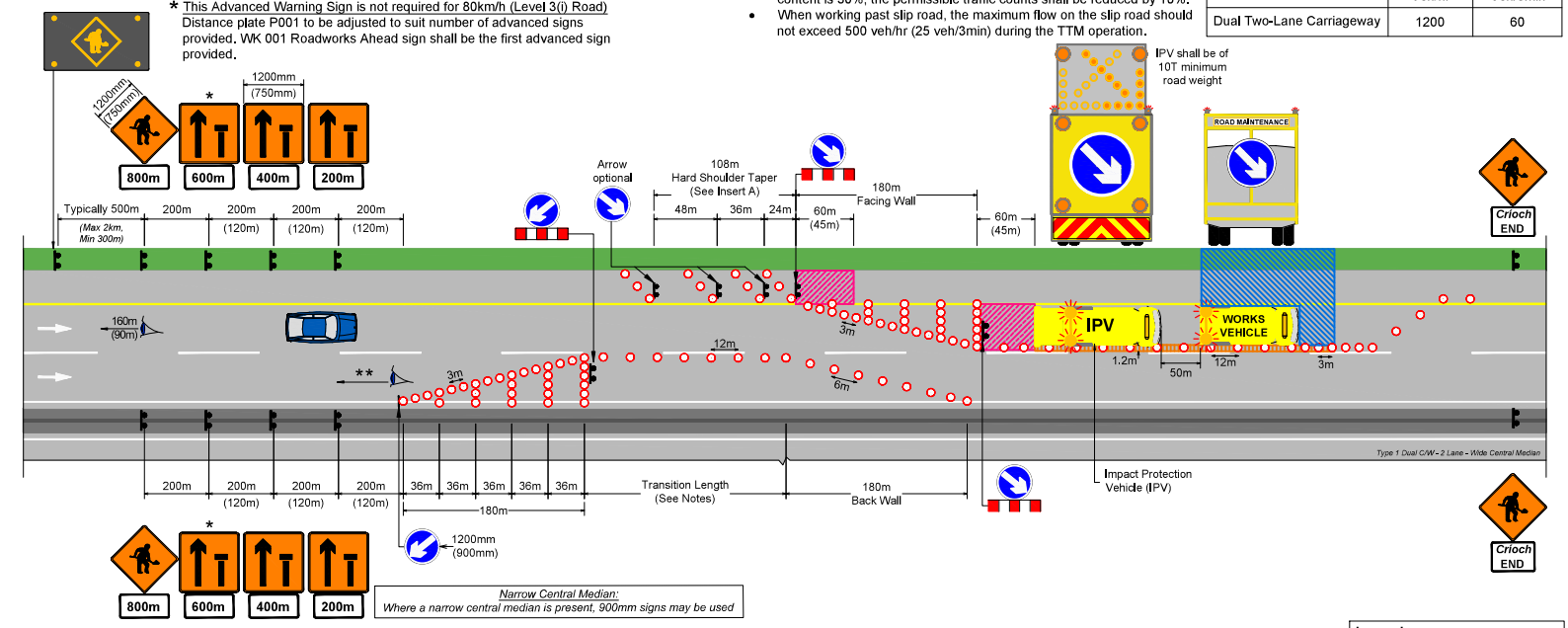
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:

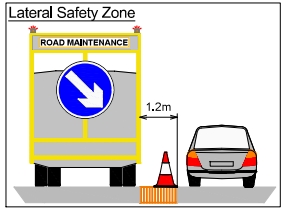
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Where a narrow central median is present, all diamond shaped signs shall be a 900mm sized diamond.
4. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
5. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Tree Clearance

Static

Type B <12 hours

Type 1 Dual Carriageway - 2 Lane

Lane 1 Closure - Verge

120 100 OR 80

TS307

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

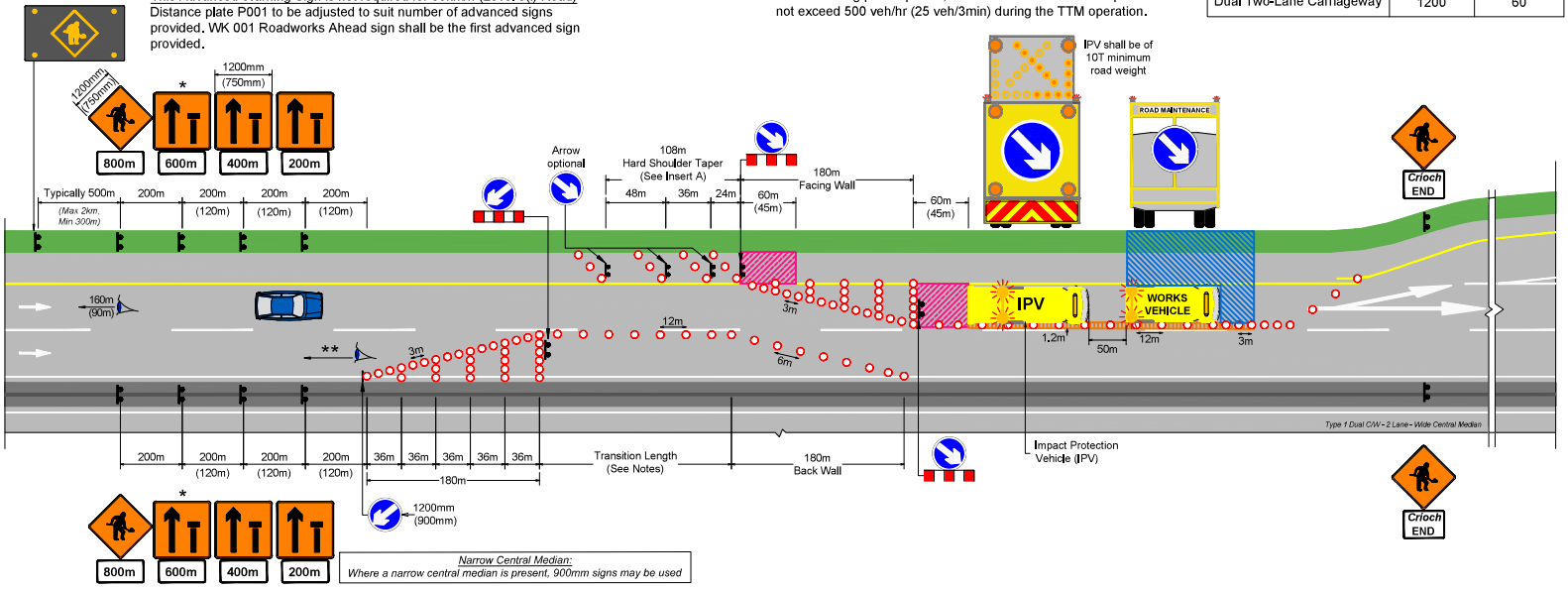
EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

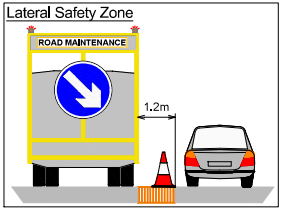
Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Where a narrow central median is present, all diamond shaped signs shall be a 900mm sized diamond.
4. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
5. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone / Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
Lane 1 Closure - Verge - Diverge Taper

120 OR 100 OR 80

TS308

Temporary Traffic Management Guidance Handbook

Traffic Signs

Site Specific Assessment:
Prior to using this layout, the contractor shall consult with a TTM Designer to ensure that the site specific conditions have been accounted for in the operation.

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

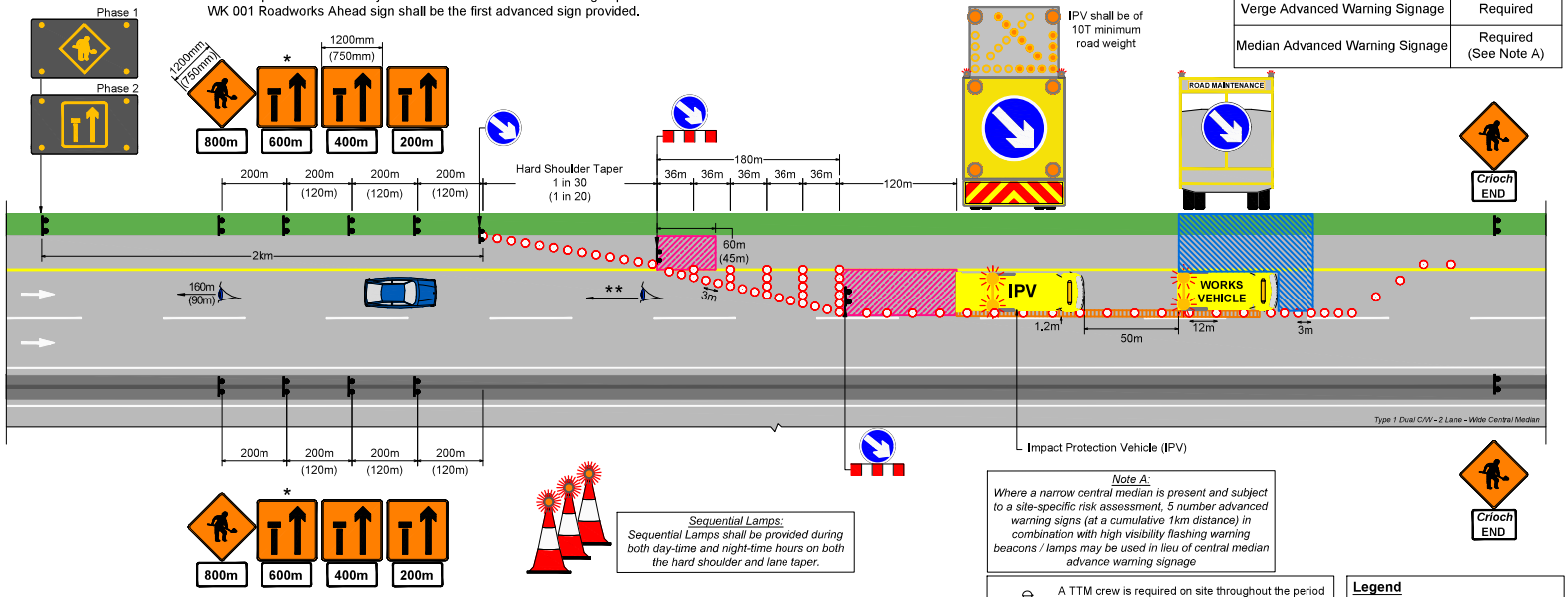
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

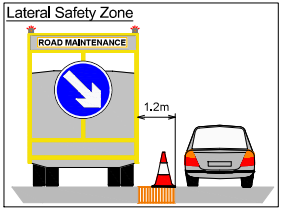
Direct Lane 1 Closure Criteria	
Permitted Traffic Flow	≤ 40 veh/3min
Maximum Duration	8 hours
Sequential Lamps (both day-time & night-time)	Required (H/S & Lane)
Verge Advanced Warning Signage	Required
Median Advanced Warning Signage	Required (See Note A)

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided.
WK 001 Roadworks Ahead sign shall be the first advanced sign provided.



Sequential Lamps:
Sequential Lamps shall be provided during both day-time and night-time hours on both the hard shoulder and lane taper.

Note A:
Where a narrow central median is present and subject to a site-specific risk assessment, 5 number advanced warning signs (at a cumulative 1km distance) in combination with high visibility flashing warning beacons / lamps may be used in lieu of central median advance warning signage



A TTM crew is required on site throughout the period of the lane closure to that it can be removed if:
- 2 successive 3 minute counts are above the required level; or
- traffic flow counts show a rising trend with the last one above the required level

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Legend
- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Notes
1. **Layout is subject to a site-specific TTMP and is therefore provided for guidance only.**
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
4. Where a narrow central median is present, all diamond shaped signs shall be a 900mm sized diamond.

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B

Type 1 Dual Carriageway - 3 Lane
Direct Lane 1 Closure - Verge

120 100 OR 80

TS309

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

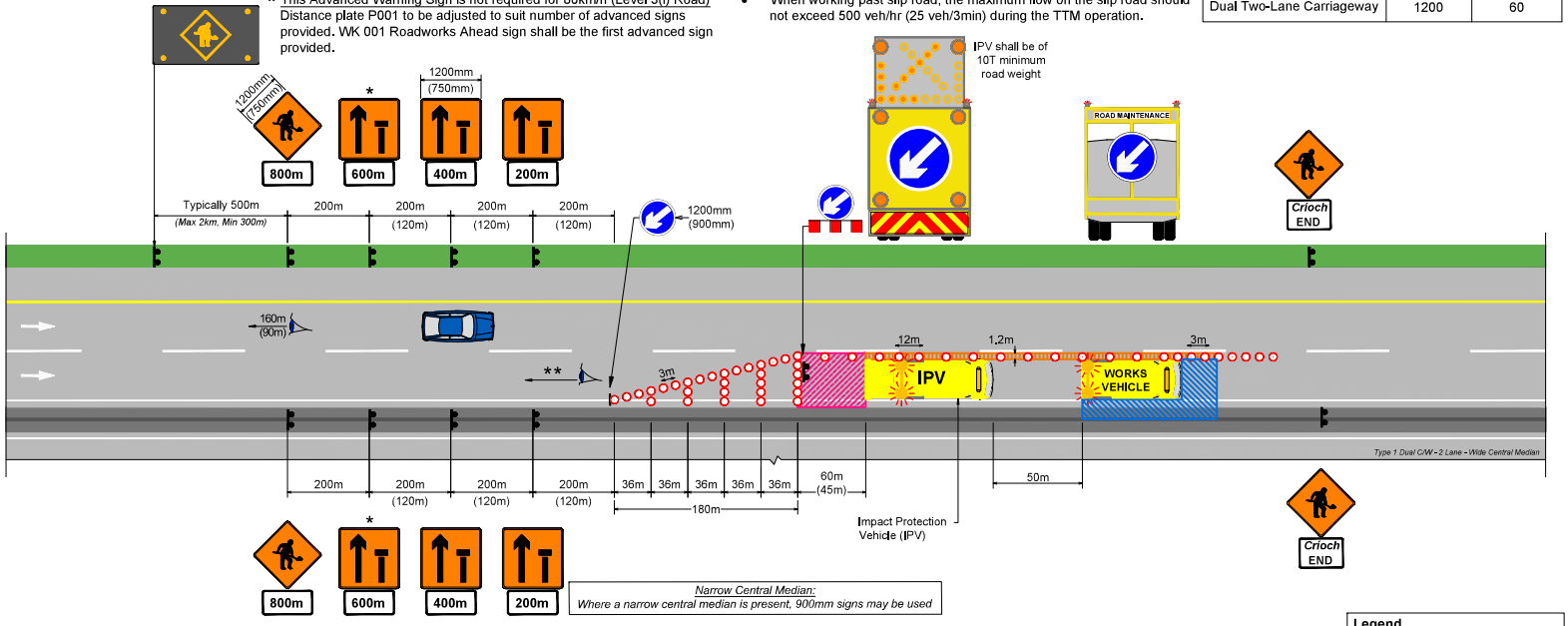
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

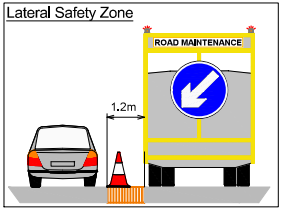
Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 2 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60



SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Where a narrow central median is present, all diamond shaped signs shall be a 900mm sized diamond.
4. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility relates to 120 / 100 km/h relates to 80 km/h
- Distance relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Tree Clearance

Static

Type B <12 hours

Type 1 Dual Carriageway - 2 Lane

Lane 2 Closure - Median

120 100 OR 80

TS310

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

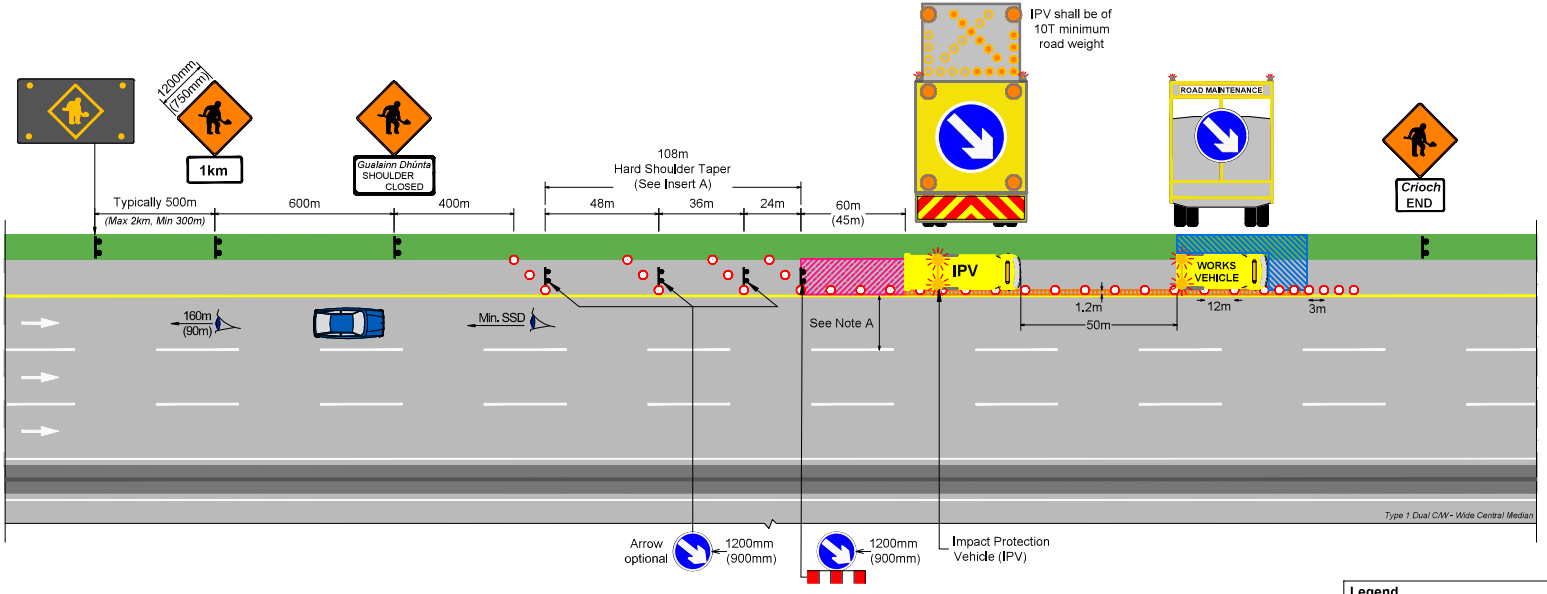
EXAMPLE ONLY NOT TO SCALE

Note A:
This layout assumes that the works area, lateral safety zone and all vehicles are contained to the hard shoulder and do not encroach into Lane 1. Where this is not achievable, the works shall be undertaken using a Lane 1 closure as per TS312.

Traffic Count Notes:

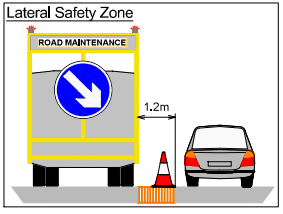
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Hard Shoulder Closure		
Road Type	Maximum Allowable Traffic Flow **per Lane**	
	Veh/hr	Veh/3min
Dual Three Lane Carriageway	1300	65



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 60m (45m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 3 Lane
Hard Shoulder Closure - Verge

120 OR 100 OR 80

TS311

Temporary Traffic Management Guidance Handbook

Traffic Signs

Site Specific Assessment:
Prior to using this layout, the contractor shall consult with a TTM Designer to ensure that the site specific conditions have been accounted for in the operation.

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

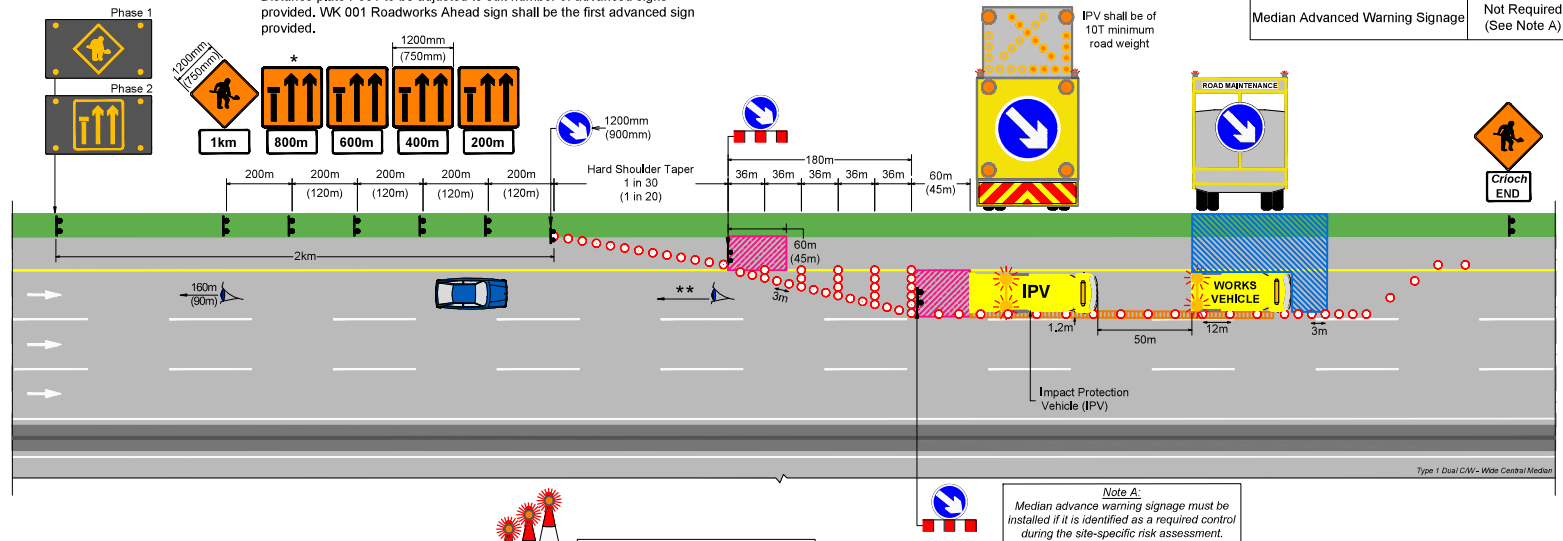
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Direct Lane 1 Closure Criteria	
Permitted Traffic Flow	≤ 100 veh/3min
Maximum Duration	≤ 12 hours
Sequential Lamps (both day-time & night-time)	Required
Verge Advanced Warning Signage	Required
Median Advanced Warning Signage	Not Required (See Note A)

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road) Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.



Note A:
Median advance warning signage must be installed if it is identified as a required control during the site-specific risk assessment.

Sequential Lamps:
Sequential Lamps shall be provided during both day-time and night-time hours on both the hard shoulder and lane taper.

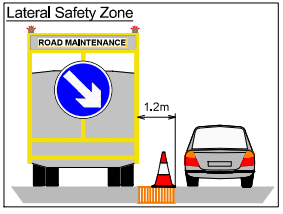
A TTM crew is required on site throughout the period of the lane closure to that it can be removed if:
- 2 successive 3 minute counts are above the required level; or
- traffic flow counts show a rising trend with the last one above the required level

Legend
- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Lateral Safety Zone



Notes
1. **Layout is subject to a site-specific TTMP and is therefore provided for guidance only.**

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 3 Lane
Direct Lane 1 Closure

120 OR 100 OR 80

TS312

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

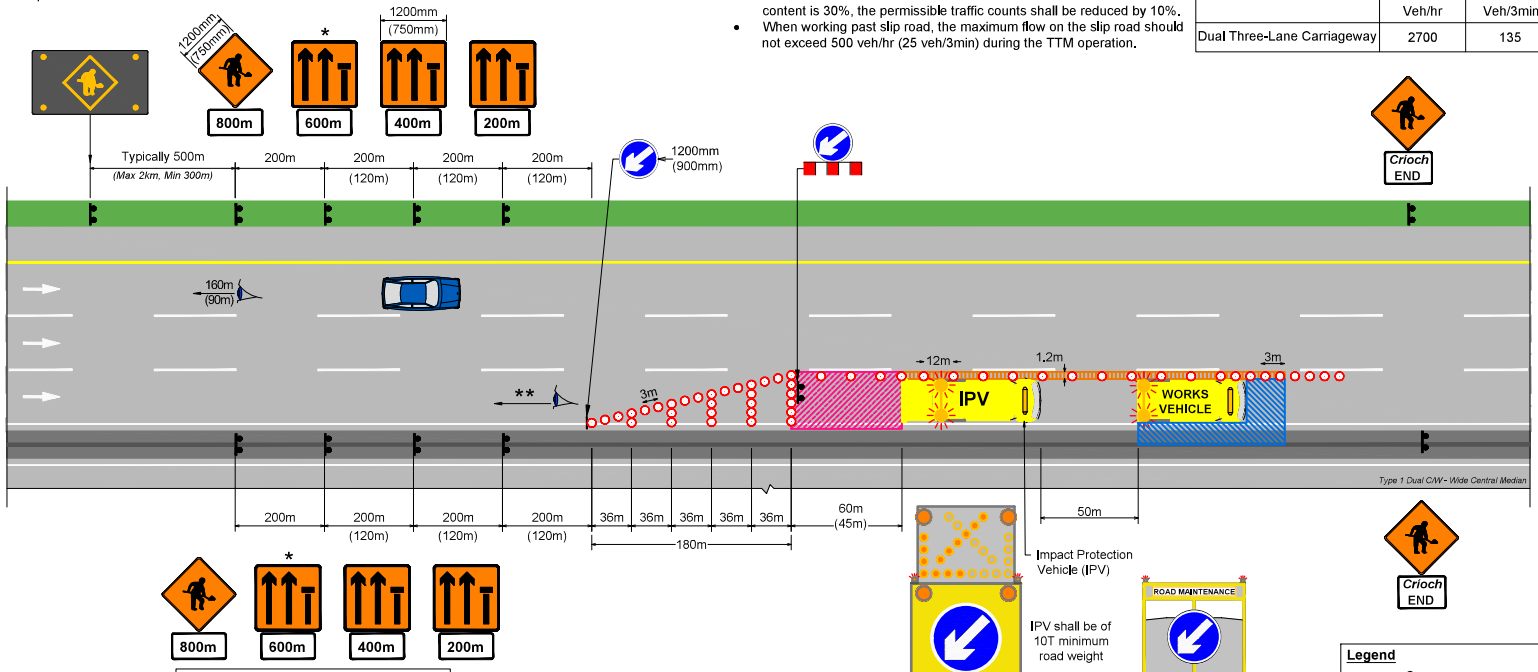
EXAMPLE ONLY NOT TO SCALE

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

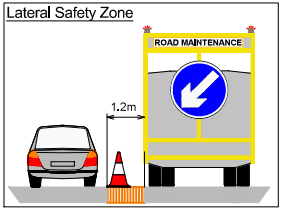
Permissible Traffic Counts for Lane 3 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Three-Lane Carriageway	2700	135



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Lateral Safety Zone



Notes

1. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Where a narrow central median is present, all diamond shaped signs shall be a 900mm sized diamond.
4. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility relates to 120 / 100 km/h relates to 80 km/h (160m / 90m)
- Distance relates to 120 / 100 km/h relates to 80 km/h (200m / 120m)
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 3 Lane
Lane 3 Closure - Median

120 100 OR 80

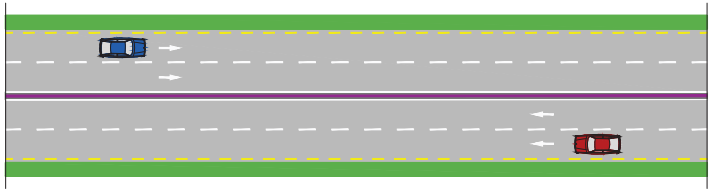
TS313

Part 2

Type 2 Divided Road

A divided all-purpose road with two lanes and hard strip in each direction constructed to the geometic standards of DN-GEO-03031 and CC-SCD-0005.

(definition per DN-GEO-03036 of TII Publications)



Typical Cross Section Parameters:

Verge Width - 3m (min)
Hard Strip Width - 0.5m
Lane Width - 2 No. 3.5m Lanes (each direction)
Offside Hard Strip - 0.5m
Central Reserve Width - 1.5m (min)

Contents

Mobile

Mobile operations have not been presented for Type 2 Divided Roads.

As this type of cross-section does not consist of a hard shoulder and may consist of lengths of safety barrier on each verge, there is limited to no opportunities to safely position the advanced warning vehicles off the carriageway. As a result, mobile advanced warning in line with Chapter 8 cannot be provided to the works.

Therefore in light of this constraint, all works shall be undertaken under Static TTM, unless a site-specific design is developed for the specific scenario by a competent TTM designer.

Static

Operation Type	Road	Layout Ref.
Lane 1 Closure	2 Lane C/W	TS314
Lane 1 Closure - Diverge Taper	2 Lane C/W	TS315
Direct Lane 1 Closure*	2 Lane C/W	TS316
Lane 2 Closure	2 Lane C/W	TS317

**Layout provided for guidance only, site specific design and risk assessment required for this operation*

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

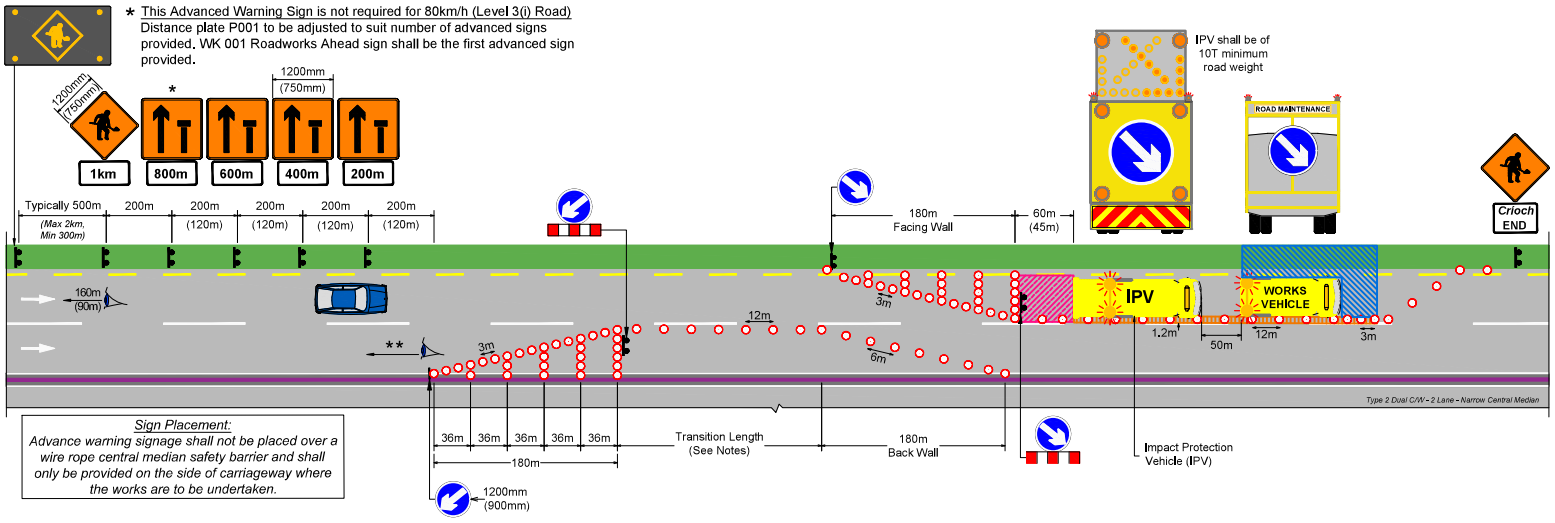
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

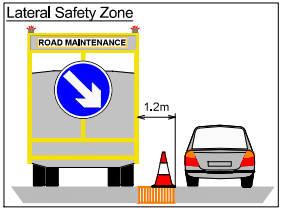
Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60



Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Notes

1. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
2. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
3. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 2 Divided Road - 2 Lane
Lane 1 Closure - Verge

120 100 OR 80

TS314

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

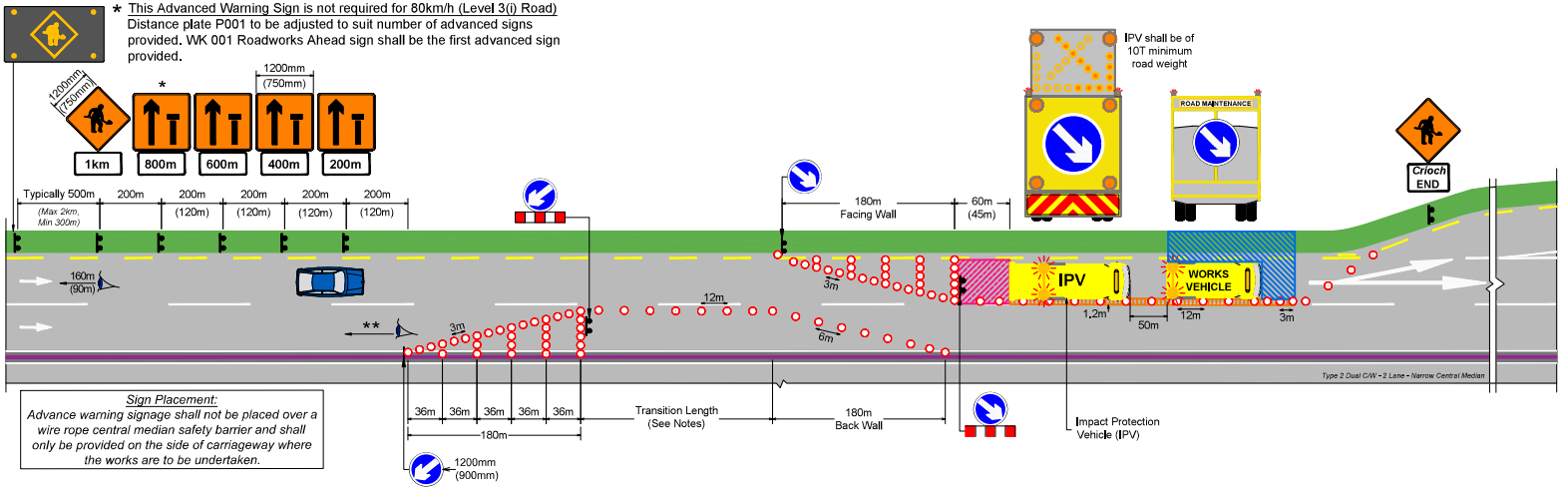
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:

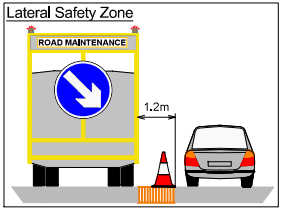
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60



Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.

SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
2. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
3. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility (160m / 90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance (200m / 120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 2 Divided Road - 2 Lane
Lane 1 Closure - Verge - Diverge Taper

120 100 OR 80

TS315

Temporary Traffic Management Guidance Handbook

Traffic Signs

Site Specific Assessment:
Prior to using this layout, the contractor shall consult with a TTM Designer to ensure that the site specific conditions have been accounted for in the operation.

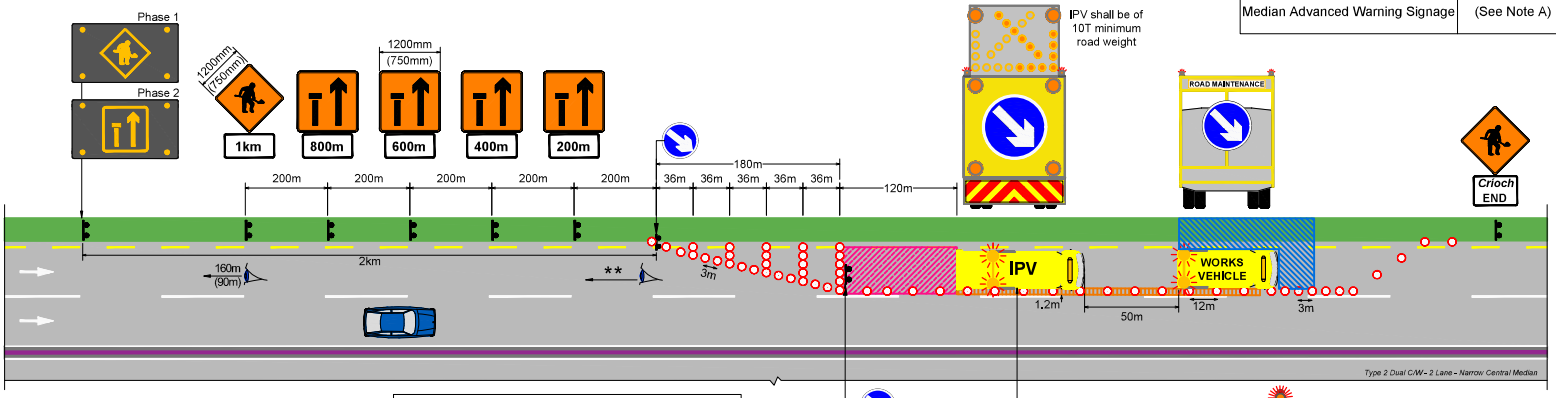
** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Direct Lane 1 Closure Criteria	
Permitted Traffic Flow	≤ 40 veh/3min
Maximum Duration	8 hours
Sequential Lamps (both day-time & night-time)	Required (H/S & Lane)
Verge Advanced Warning Signage	Required
Median Advanced Warning Signage	(See Note A)



Impact Protection Vehicle (IPV)

Note A:
5 number advanced warning signs (at a cumulative 1km distance) shall be provided in combination with high visibility flashing warning beacons / lamps.

A TTM crew is required on site throughout the period of the lane closure to that it can be removed if:
- 2 successive 3 minute counts are above the required level; or
- traffic flow counts show a rising trend with the last one above the required level

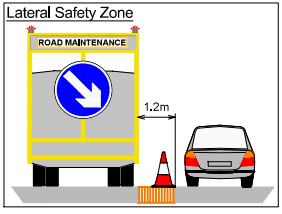
Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.

Sequential Lamps:
Sequential Lamps shall be provided during both day-time and night-time hours on the lane taper.

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Lateral Safety Zone



Notes
1. **Layout is subject to a site-specific TTMP and is therefore provided for guidance only.**
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.

Legend
- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B

Type 2 Divided Road - 2 Lane
Direct Lane 1 Closure - Verge

120 100 OR 80

TS316

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

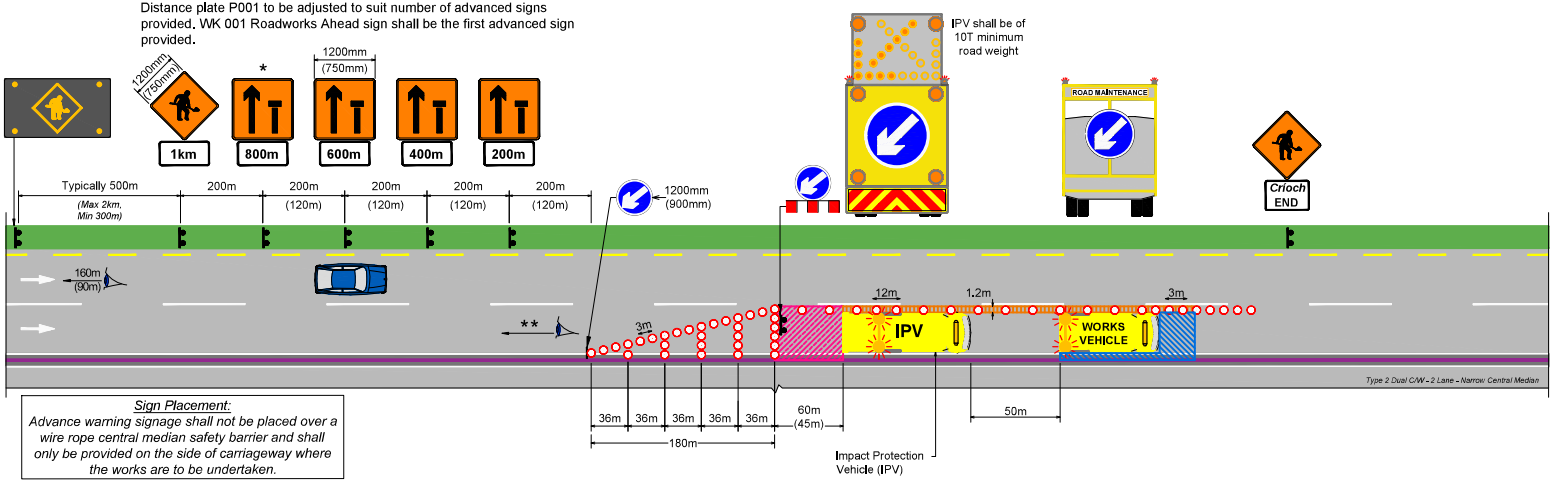
EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

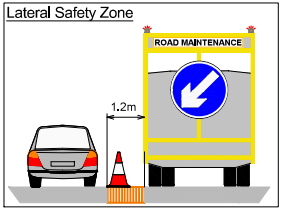
Permissible Traffic Counts for Lane 2 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.



Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.

Lateral Safety Zone



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Notes

1. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
2. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
3. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 2 Divided Road - 2 Lane
Lane 2 Closure - Median

120 100 OR 80

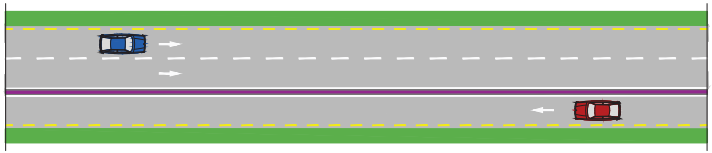
TS317

Part 3

Type 3 Divided Road

A divided all-purpose road with two lanes in one direction of travel and one lane in the other direction, constructed to the geometric standards of DN-GEO-03031 and CC-SCD-0004. The two-lane section alternates with a one-lane section at intervals of 2km approximately.

(definition per DN-GEO-03036 of TII Publications)



Typical Cross Section Parameters:

Verge Width - 3m (min)
Hard Strip Width - 0.5m (min)
Lane Width - 2 No. 3.5m Lanes (one direction) & 1 No. 3.5 Lane (opposing direction)
Offside Hard Strip - 0.5m
Central Reserve Width - 1.5m (min)

Contents

Mobile

Mobile operations have not been presented for Type 3 Divided Roads.

As this type of cross-section does not consist of a hard shoulder and may consist of lengths of safety barrier on each verge, there is limited to no opportunities to safely position the advanced warning vehicles off the carriageway. As a result, mobile advanced warning in line with Chapter 8 cannot be provided to the works.

Therefore in light of this constraint, all works shall be undertaken under Static TTM, unless a site-specific design is developed for the specific scenario by a competent TTM designer.

Static

Operation Type	Road	Layout Ref.
Lane 1 Closure	2 Lane C/W	TS318
Direct Lane 1 Closure*	2 Lane C/W	TS319
Lane 1 Closure - Single C/W Transition	2 Lane C/W	TS320
Lane 2 Closure - Single C/W Transition	2 Lane C/W	TS321
Direct Lane 1 Closure - Start of Passing Lane*	2 Lane C/W	TS322
Lane 2 Closure - Start of Passing Lane*	2 Lane C/W	TS323
Lane 2 Closure	2 Lane C/W	TS324

**Layout provided for guidance only, site specific design and risk assessment required for this operation*

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

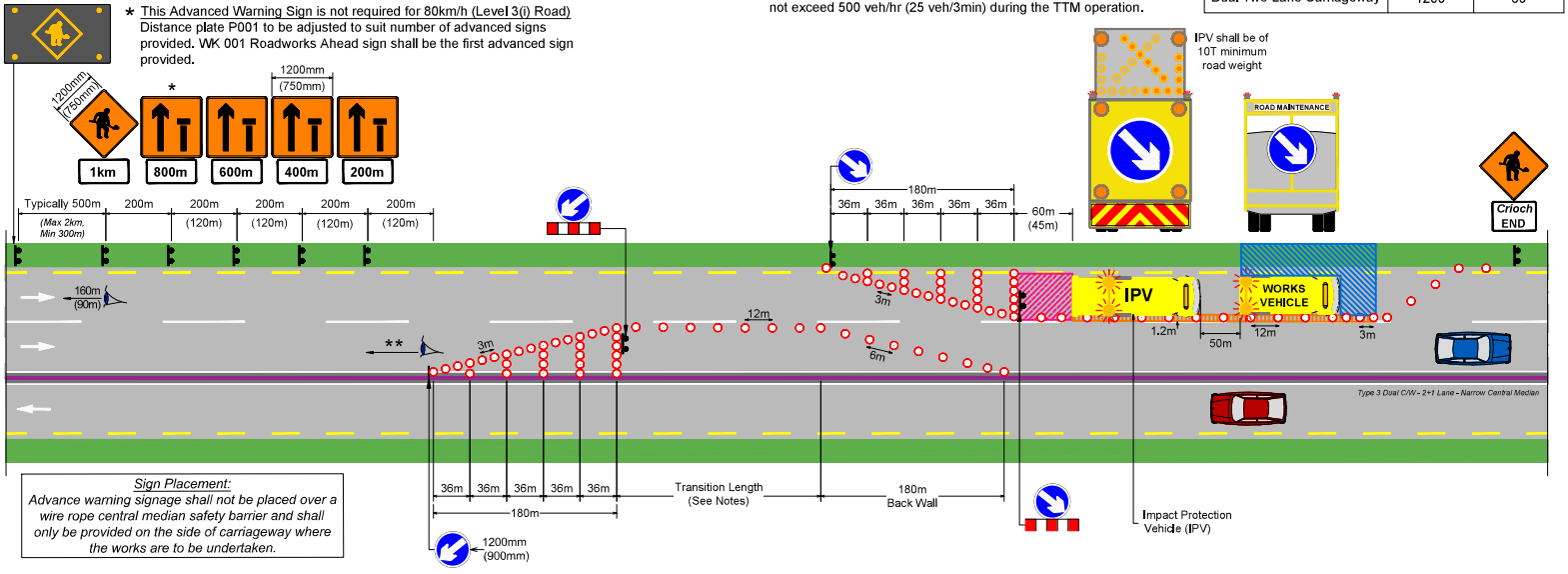
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

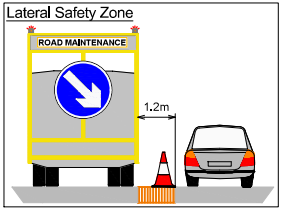
Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60



Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
2. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
4. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 3 Divided Road - 2 Lane
Lane 1 Closure - Verge

120 100 OR 80

TS318

Temporary Traffic Management Guidance Handbook

Traffic Signs

Site Specific Assessment:
Prior to using this layout, the contractor shall consult with a TTM Designer to ensure that the site specific conditions have been accounted for in the operation.

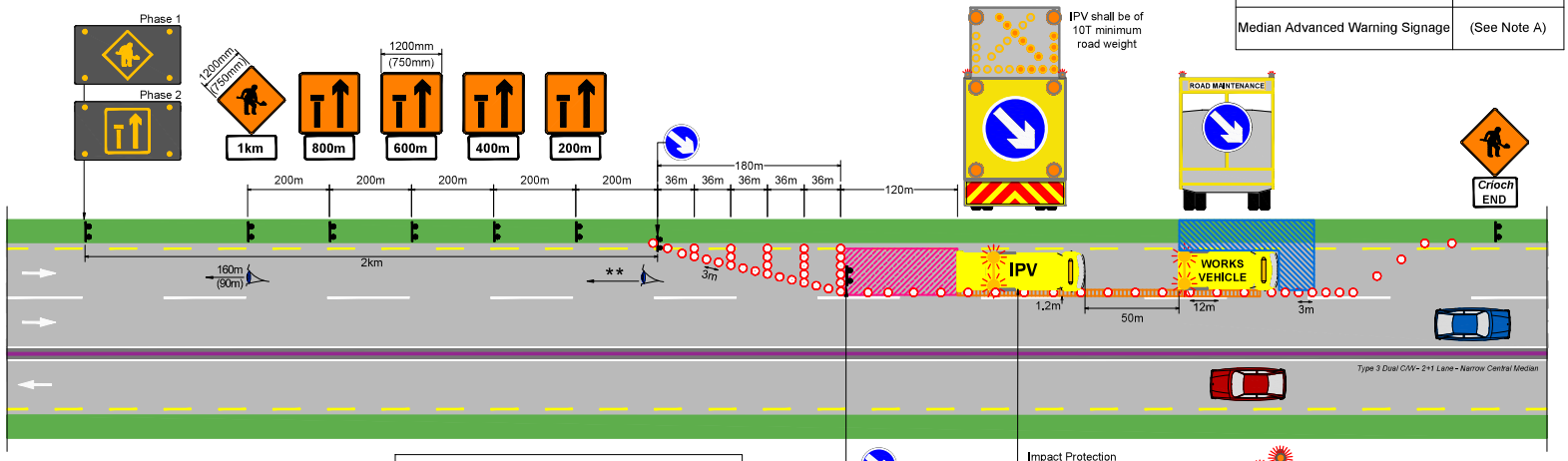
** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Direct Lane 1 Closure Criteria	
Permitted Traffic Flow	≤ 40 veh/3min
Maximum Duration	8 hours
Sequential Lamps (both day-time & night-time)	Required (H/S & Lane)
Verge Advanced Warning Signage	Required
Median Advanced Warning Signage	(See Note A)



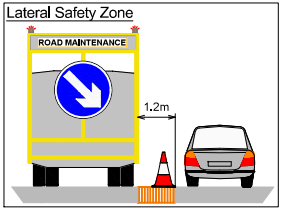
Note A:
5 number advanced warning signs (at a cumulative 1km distance) shall be provided in combination with high visibility flashing warning beacons / lamps.

A TTM crew is required on site throughout the period of the lane closure to that it can be removed if:
- 2 successive 3 minute counts are above the required level; or
- traffic flow counts show a rising trend with the last one above the required level

Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.

Sequential Lamps:
Sequential Lamps shall be provided during both day-time and night-time hours on the lane taper.

Lateral Safety Zone



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Legend
- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Notes
1. **Layout is subject to a site-specific TTMP and is therefore provided for guidance only.**
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B

Type 3 Divided Road - 2 Lane
Direct Lane 1 Closure - Verge

120 OR 100 80

TS319

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

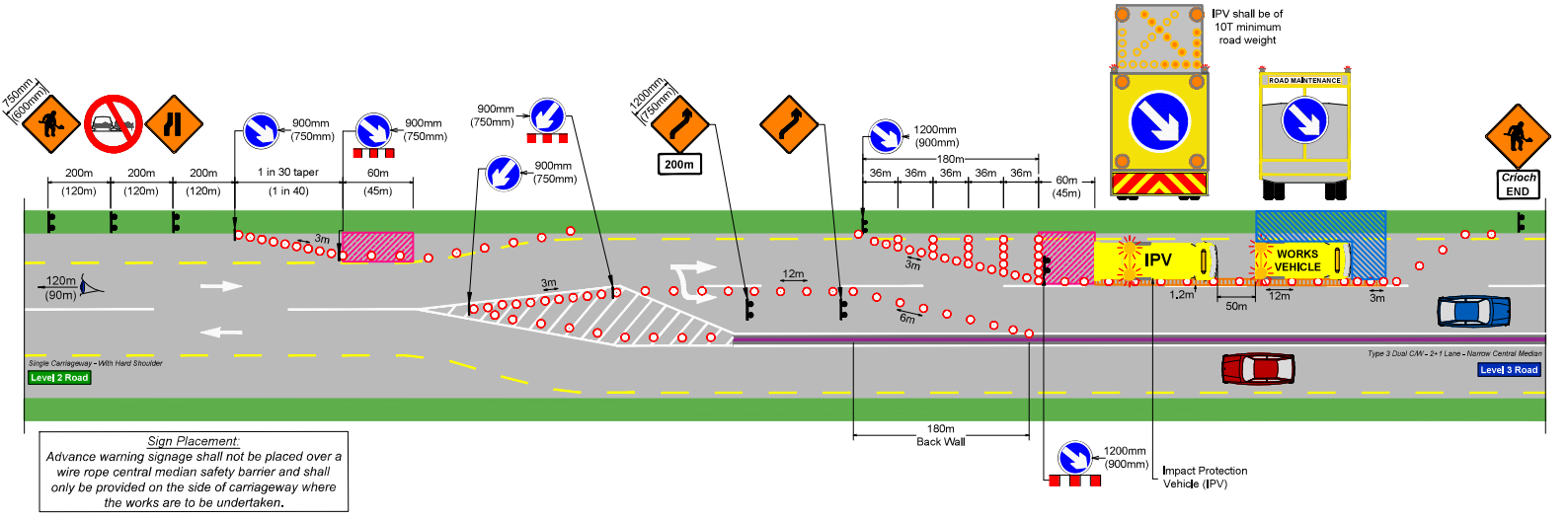
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

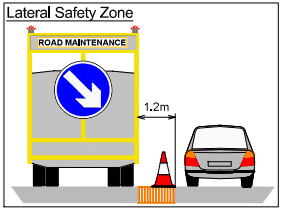
Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60



Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Notes

1. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
2. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 3 Divided Road - 2 Lane
Lane 1 Closure - Single C/W Transition

120 100 OR 80

TS320

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

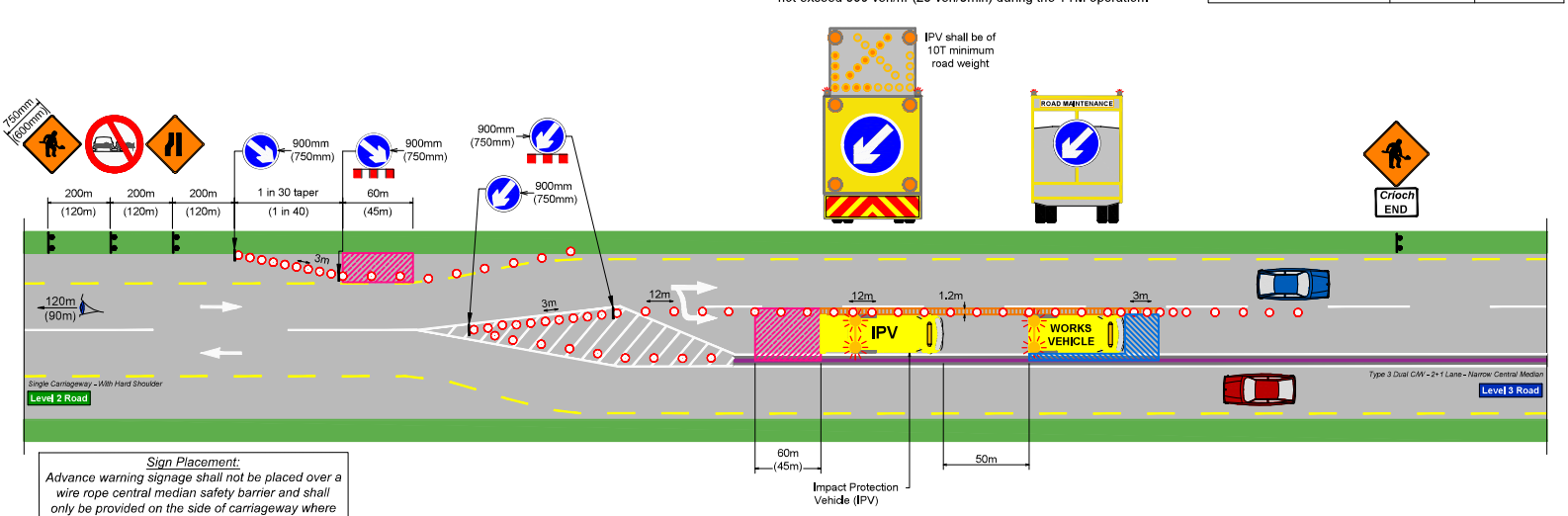
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 2 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60

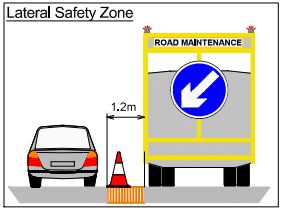


Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Lateral Safety Zone



Notes

1. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
2. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 3 Divided Road - 2 Lane
Lane 2 Closure - Single C/W Transition

120 OR 100 OR 80

TS321

Temporary Traffic Management Guidance Handbook

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

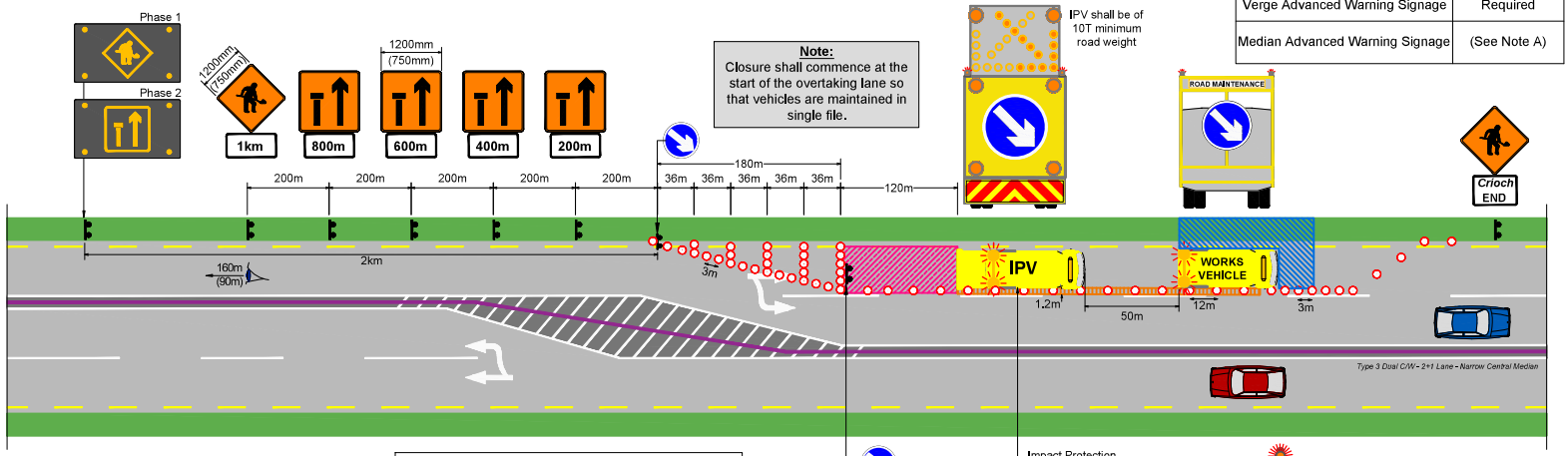
Site Specific Plan & Assessment:
Prior to using this layout, the contractor shall consult with a TTM Designer to ensure that the site specific conditions have been accounted for in the operation.

Existing Traffic Signs:
All existing traffic signs indicating the start of the passing lane should be concealed during the works.

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Direct Lane 1 Closure Criteria	
Permitted Traffic Flow	≤ 40 veh/3min
Maximum Duration	8 hours
Sequential Lamps (both day-time & night-time)	Required (H/S & Lane)
Verge Advanced Warning Signage	Required
Median Advanced Warning Signage	(See Note A)



Note:
Closure shall commence at the start of the overtaking lane so that vehicles are maintained in single file.

Note A:
5 number advanced warning signs (at a cumulative 1km distance) shall be provided in combination with high visibility flashing warning beacons / lamps.

A TTM crew is required on site throughout the period of the lane closure to that it can be removed if:

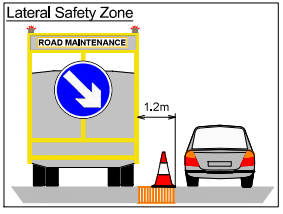
- 2 successive 3 minute counts are above the required level; or
- traffic flow counts show a rising trend with the last one above the required level

Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.

Sequential Lamps:
Sequential Lamps shall be provided during both day-time and night-time hours on the lane taper.

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. **Layout is subject to a site-specific TTMP and is therefore provided for guidance only.**
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B

Type 3 Divided Road - 2 Lane
Direct Lane 1 Closure - Start of Passing Lane

120 100 OR 80

TS322

Temporary Traffic Management Guidance Handbook

Traffic Signs

Site Specific Plan & Assessment:
Prior to using this layout, the contractor shall consult with a TTM Designer to ensure that the site specific conditions have been accounted for in the operation.

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

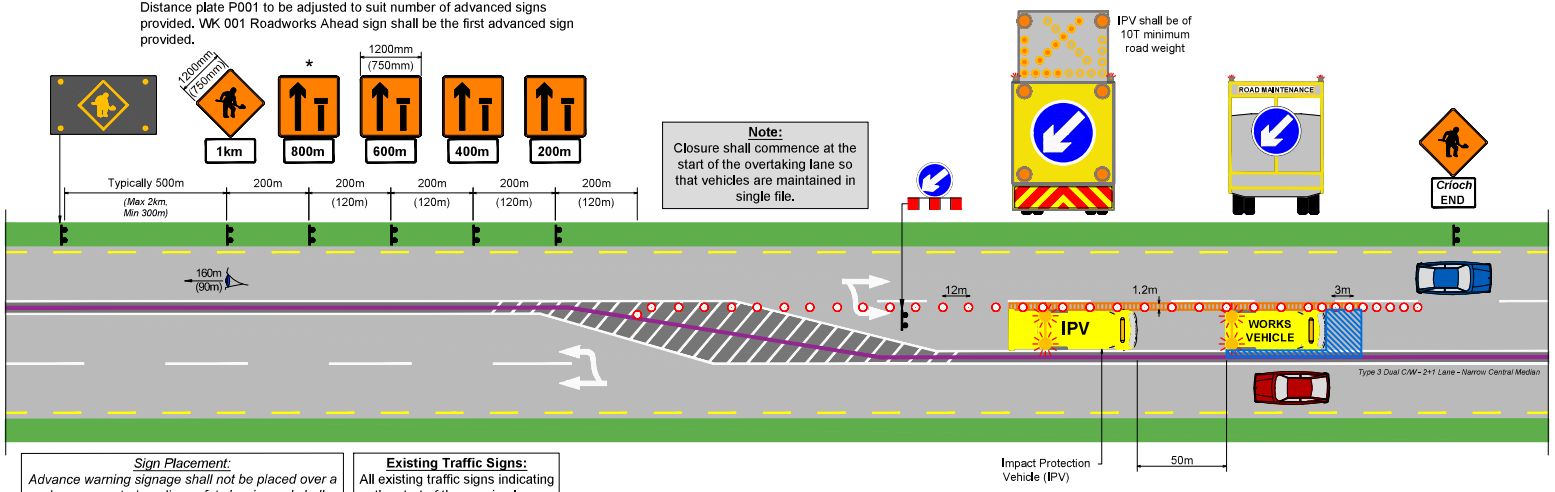
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 2 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.



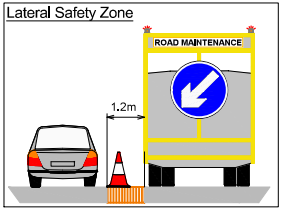
Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.

Existing Traffic Signs:
All existing traffic signs indicating the start of the passing lane should be concealed during the works.

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Lateral Safety Zone



Notes
1. **Layout is subject to a site-specific TTMP and is therefore provided for guidance only.**
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Legend
- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 3 Divided Road - 2 Lane
Lane 2 Closure - Start of Passing Lane

120 100 OR 80

TS323

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

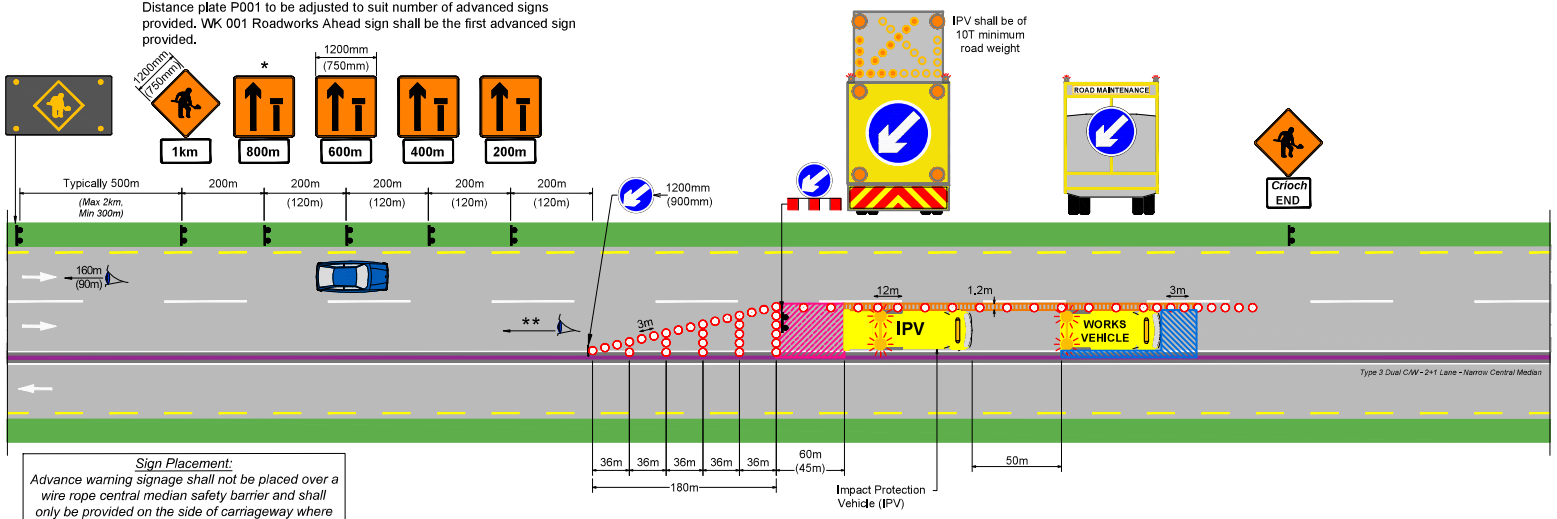
EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 2 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.

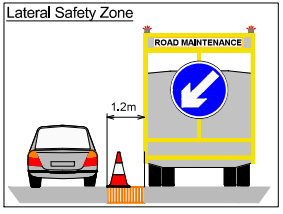


Sign Placement:
Advance warning signage shall not be placed over a wire rope central median safety barrier and shall only be provided on the side of carriageway where the works are to be undertaken.

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Lateral Safety Zone



Notes

1. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
2. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 3 Divided Road - 2 Lane
Lane 2 Closure - Median

120 100 OR 80

TS324

Part 4
Junctions

The following section sets out both Mobile and Static TTM operations at typical grade separated junctions arrangements.

Note: All designs are based on the TTM requirements for a Type 1 Dual Carriageway with a wide central median.

Should the planned works involve a Type 2 or Type 3 Divided Road, a site specific design shall be developed by a competent TTM designer.

Contents

Contents *(continued)*

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Slip Road Vehicle Count: **25 veh/3min**

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 10km in advance of the works.

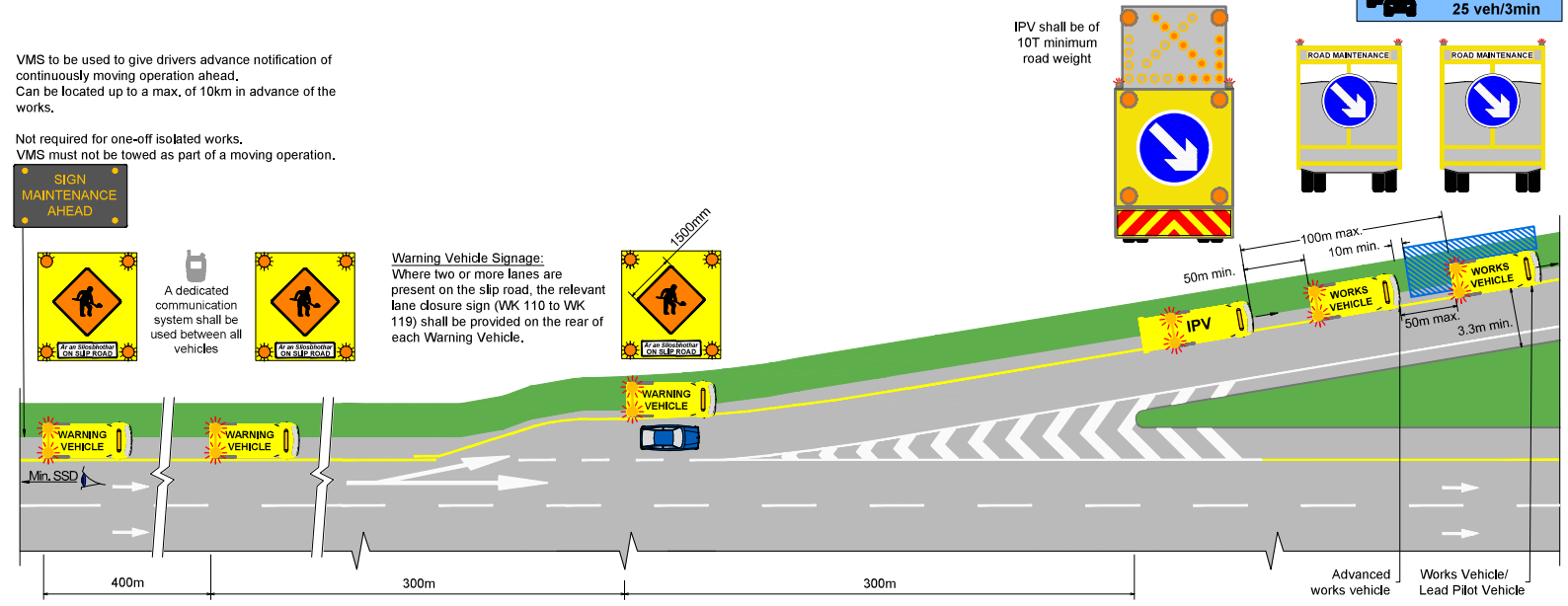
Not required for one-off isolated works.
VMS must not be towed as part of a moving operation.

SIGN MAINTENANCE AHEAD

A dedicated communication system shall be used between all vehicles

Warning Vehicle Signage:
Where two or more lanes are present on the slip road, the relevant lane closure sign (WK 110 to WK 119) shall be provided on the rear of each Warning Vehicle.

IPV shall be of 10T minimum road weight



SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Notes

1. Traffic volumes on off-ramp are restricted to 25veh/3mins (500veh/hr).
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend
Works Area

Minor Maintenance (Continuously Moving)
Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Dual Carriageway
GSJ - Diverge - LHS

120 OR 100 OR 80

TS325

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Slip Road Vehicle Count: **25 veh/3min**

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 10km in advance of the works.

Not required for one-off isolated works.
VMS must not be towed as part of a moving operation.

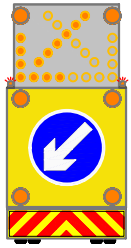
SIGN MAINTENANCE AHEAD

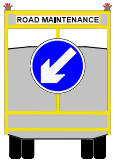
A dedicated communication system shall be used between all vehicles

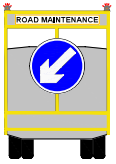
Warning Vehicle Signage:
Where two or more lanes are present on the slip road, the relevant lane closure sign (WK 110 to WK 119) shall be provided on the rear of each Warning Vehicle.

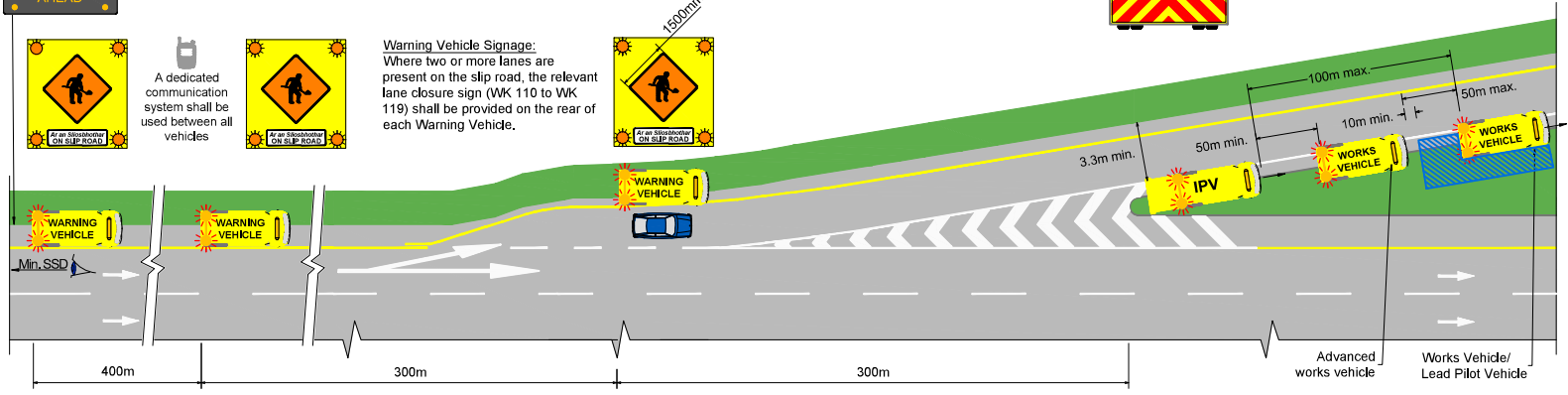
1500mm

IPV shall be of 10T minimum road weight









SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Notes

1. Traffic volumes on off-ramp are restricted to 25veh/3mins (500veh/hr).
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend
Works Area

Minor Maintenance (Continuously Moving)
Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Dual Carriageway
GSJ - Diverge - RHS

120 100 OR 80

TS326

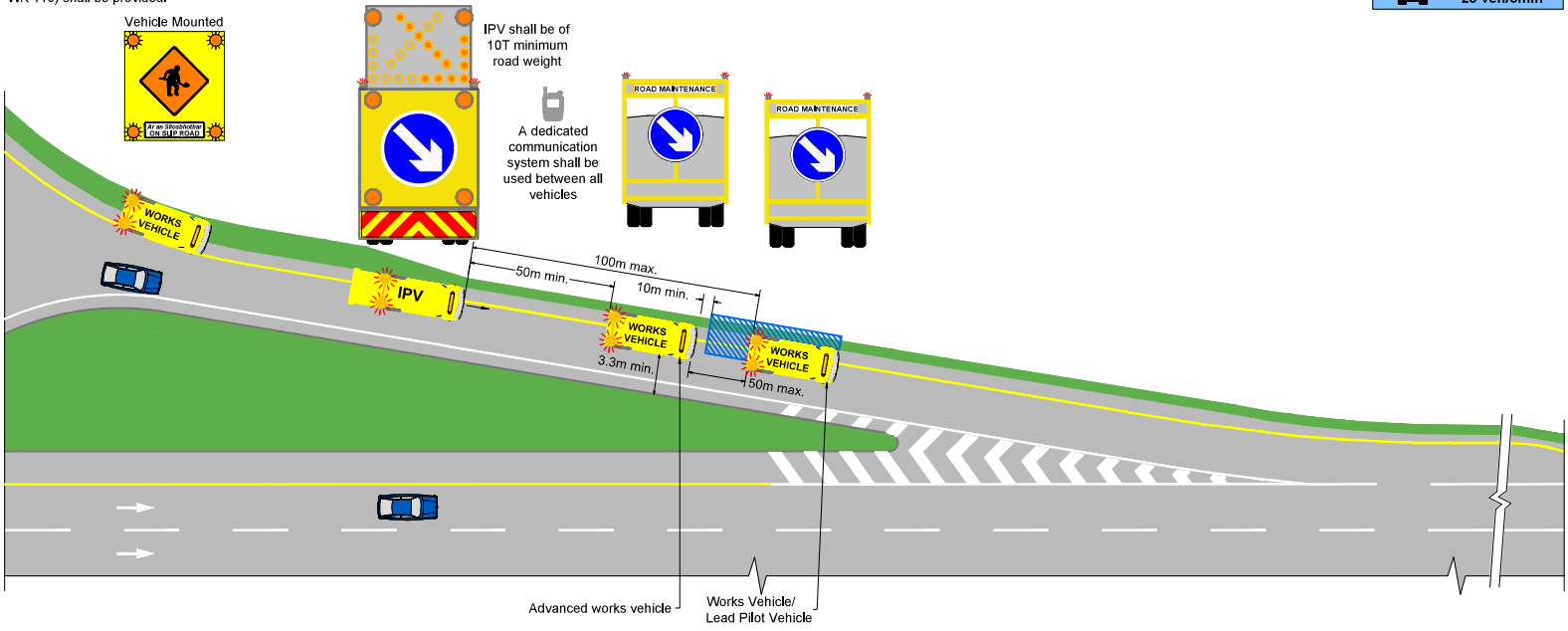
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Slip Road Vehicle Count: **25 veh/3min**

Slip Road Signage:
Where two or more lanes are present on the slip road, the relevant lane closure sign (WK 110 to WK 119) shall be provided.



Notes

1. Traffic volumes on off-ramp are restricted to 25veh/3mins (500veh/hr).
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend
Works Area

Minor Maintenance (Continuously Moving)
Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Dual Carriageway
Dumbbell GSJ - Merge - LHS

120 100 OR 80

TS327

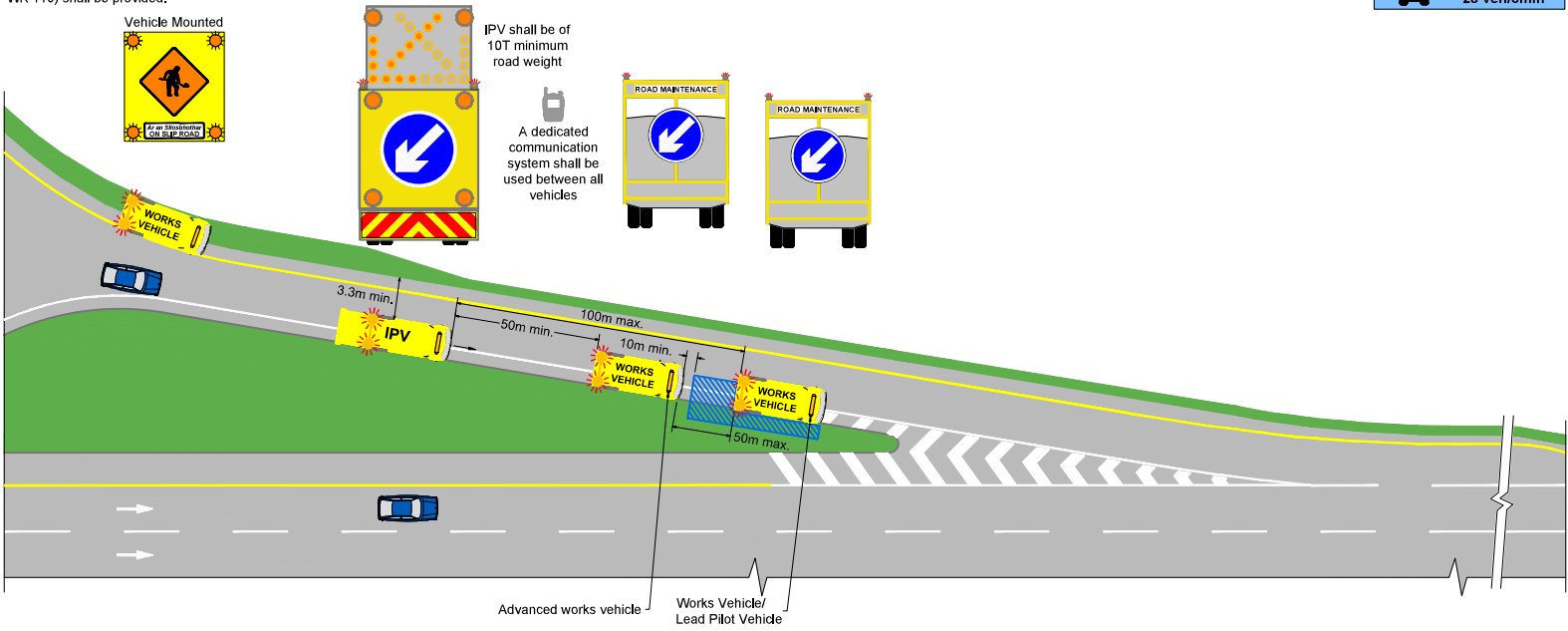
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Slip Road Vehicle Count: **25 veh/3min**

Slip Road Signage:
Where two or more lanes are present on the slip road, the relevant lane closure sign (WK 110 to WK 119) shall be provided.



Notes

1. Traffic volumes on off-ramp are restricted to 25veh/3mins (500veh/hr).
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend
Works Area

Minor Maintenance (Continuously Moving)
Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Dual Carriageway
Dumbbell GSJ - Merge - RHS

120 100 OR 80

TS328

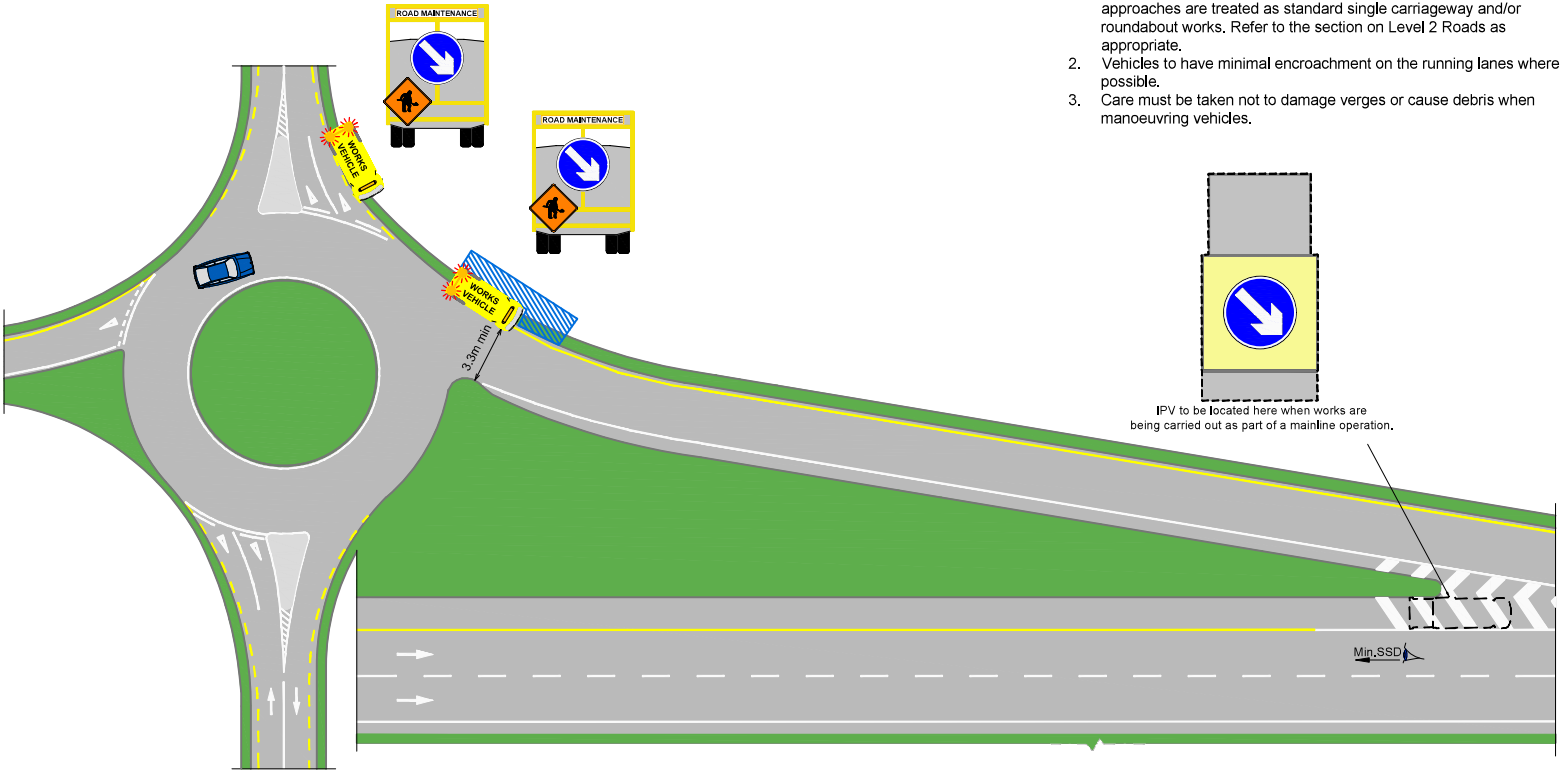
Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Notes

1. Works relating to signs at the tops of interchanges and associated approaches are treated as standard single carriageway and/or roundabout works. Refer to the section on Level 2 Roads as appropriate.
2. Vehicles to have minimal encroachment on the running lanes where possible.
3. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.



Legend

Works Area

Minor Maintenance (Continuously Moving)

Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile

<15mins

Dual Carriageway

Dumbbell GSJ - Start of Merge

120 100 OR 80

TS329

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

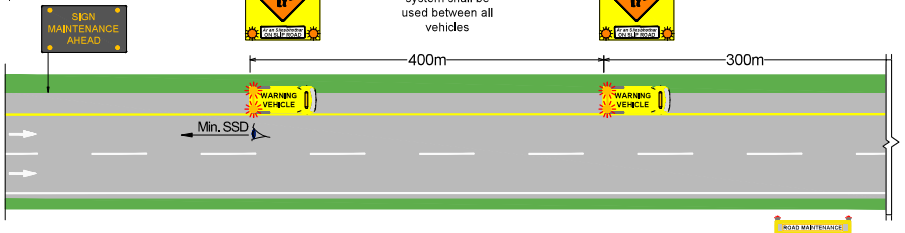
EXAMPLE ONLY NOT TO SCALE

Maximum Slip Road Vehicle Count: **25 veh/3min**

VMS to be used to give drivers advance notification of continuously moving operation ahead.
Can be located up to a max. of 10km in advance of the works.

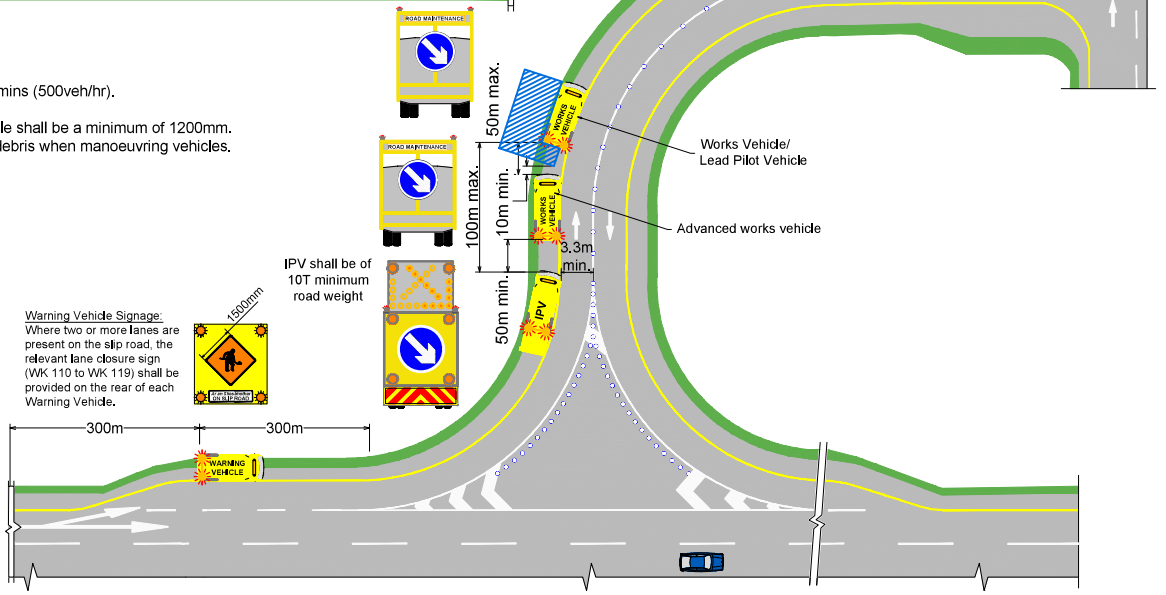
Not required for one-off isolated works.
VMS must not be towed as part of a moving operation.

A dedicated communication system shall be used between all vehicles



Notes

1. Traffic volumes on off-ramp are restricted to 25veh/3mins (500veh/hr).
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Legend

Works Area

Minor Maintenance (Continuously Moving)

Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Dual C/W & Motorway - 2/3 Lane
Compact GSJ - Diverge

120 OR 100 OR 80

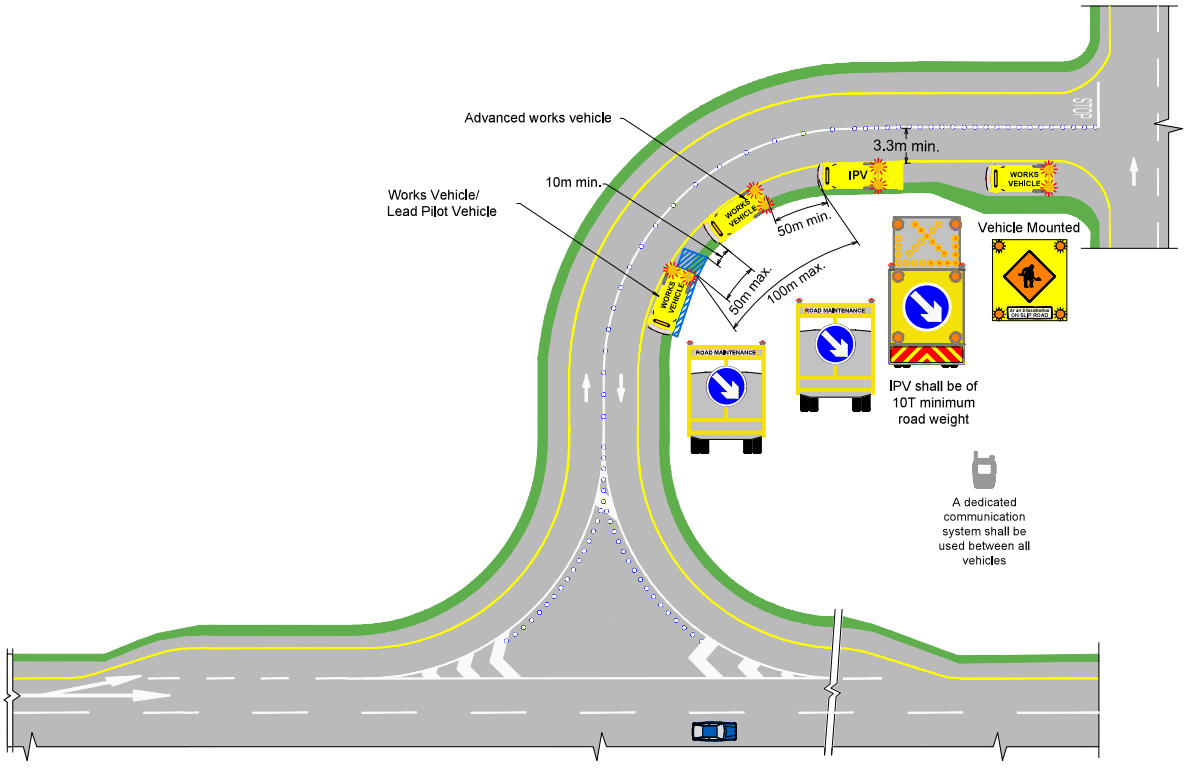
TS330

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Maximum Slip Road Vehicle Count: **25 veh/3min**



Notes

1. Traffic volumes on off-ramp are restricted to 25veh/3mins (500veh/hr).
2. Maximum stop permitted is 15 minutes.
3. Keep Left / Keep Right Arrow on the Lead Pilot Vehicle shall be a minimum of 1200mm.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend

Works Area

Minor Maintenance (Continuously Moving)

Pole Caps / Patching / Sign Washing / Hedge Maintenance

Mobile
<15mins

Dual C/W & Motorway - 2/3 Lane

Compact GSJ - Merge

120 100 OR 80

TS331

Temporary Traffic Management Guidance Handbook

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

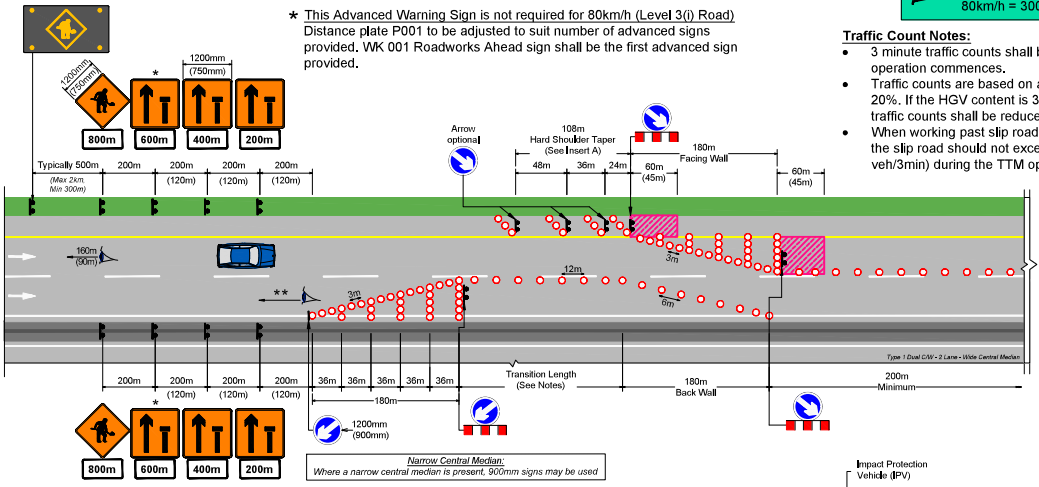
EXAMPLE ONLY NOT TO SCALE

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.

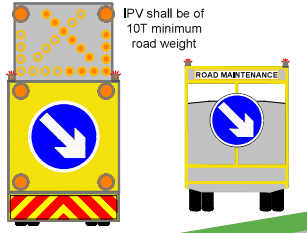
Traffic Count Notes:

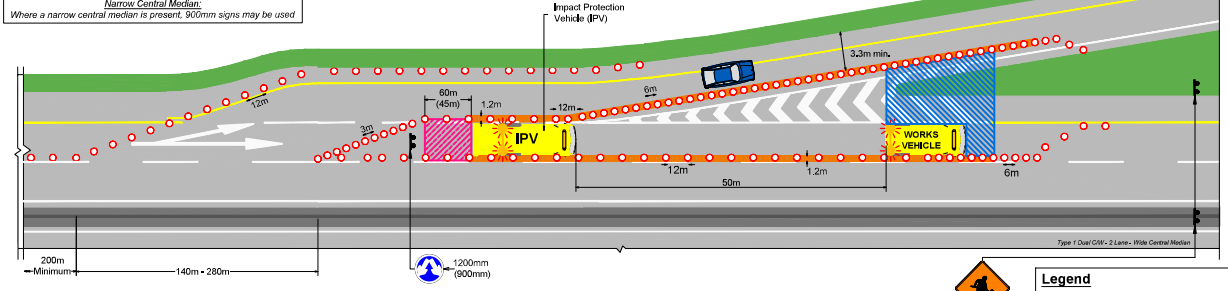
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60



Narrow Central Median:
Where a narrow central median is present, 900mm signs may be used

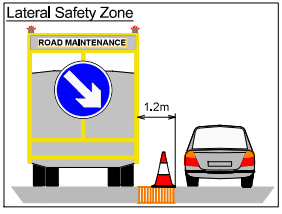




SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Lateral Safety Zone



Notes

1. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Where a narrow central median is present, all diamond shaped signs shall be a 900mm sized diamond.
4. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
5. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.
6. Vehicles to have minimal encroachment on the running lanes where possible.
7. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility: 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance: 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
Lane 1 Closure - GSJ - Exit Nose

120 100 OR 80

TS332

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

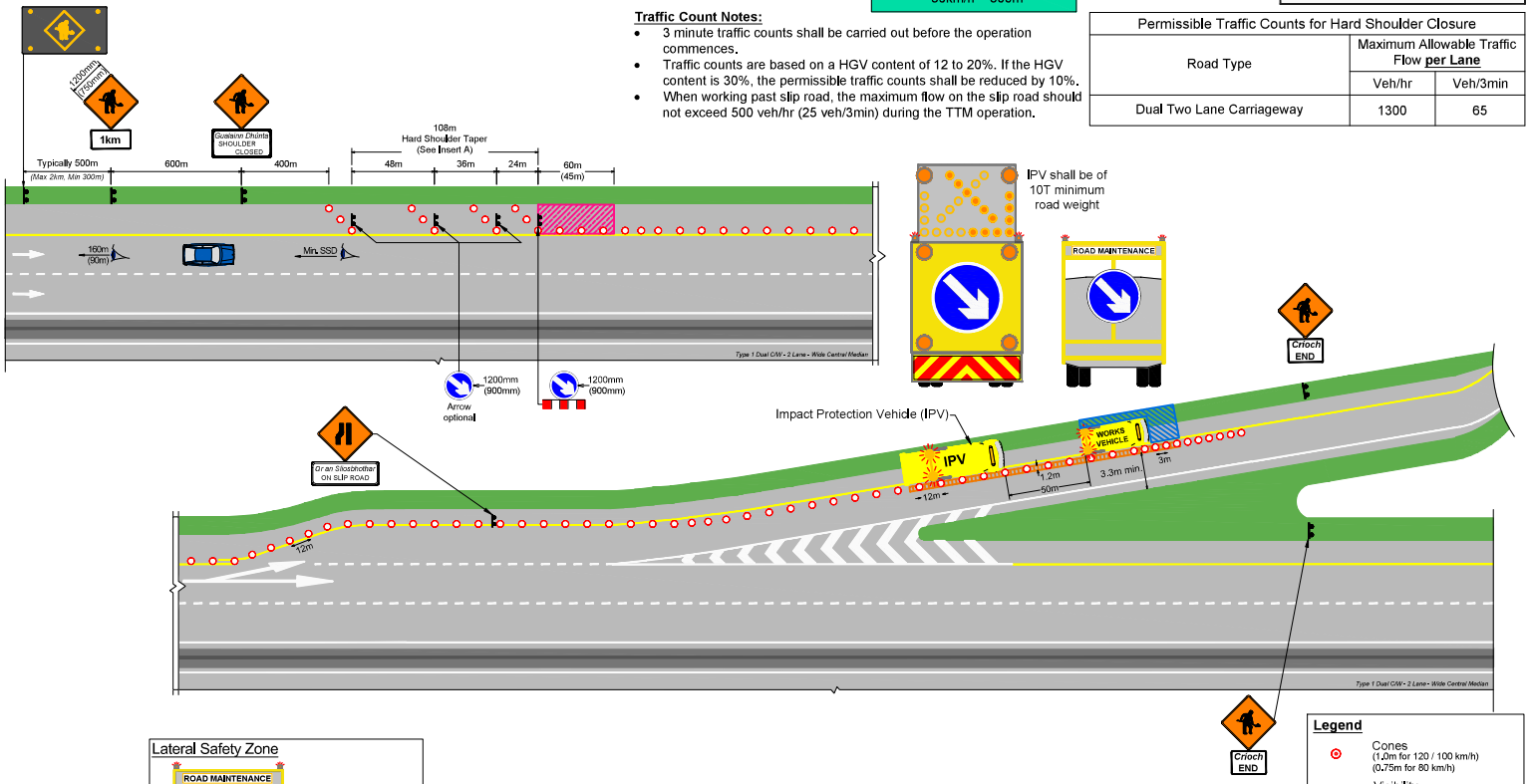
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:

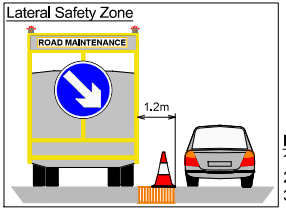
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Hard Shoulder Closure		
Road Type	Maximum Allowable Traffic Flow **per Lane**	
	Veh/hr	Veh/3min
Dual Two Lane Carriageway	1300	65



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295



Notes

1. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
2. Vehicles to have minimal encroachment on the running lanes where possible.
3. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility relates to 120 / 100 km/h, relates to 80 km/h (160m (90m))
- Distance relates to 120 / 100 km/h, relates to 80 km/h (200m (120m))
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
GSJ - Diverge - LHS

120 100 OR 80

TS333

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

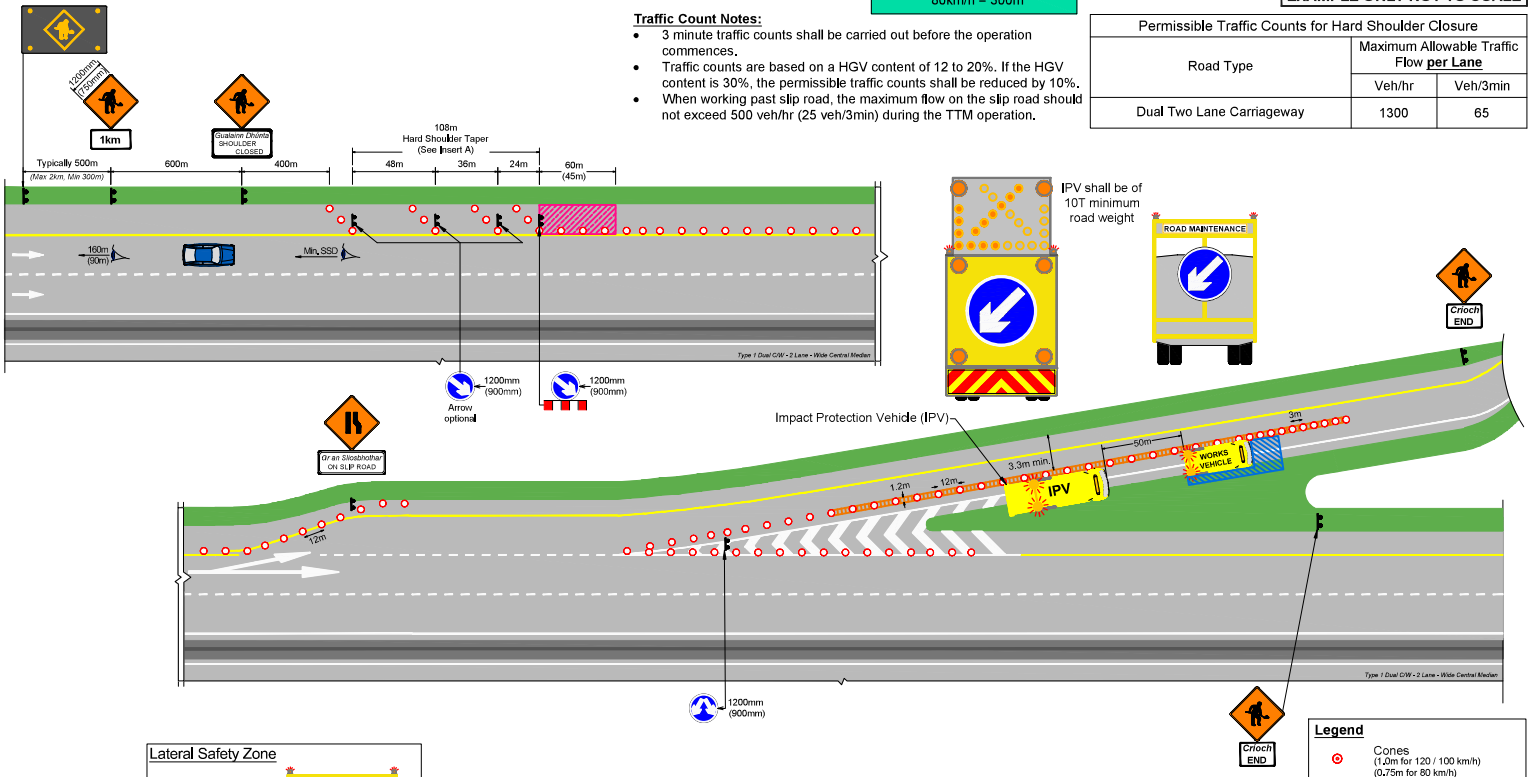
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

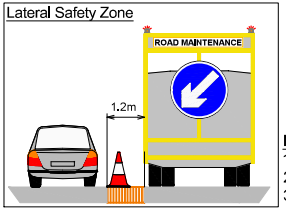
EXAMPLE ONLY NOT TO SCALE

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Hard Shoulder Closure		
Road Type	Maximum Allowable Traffic Flow **per Lane**	
	Veh/hr	Veh/3min
Dual Two Lane Carriageway	1300	65





SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Notes

1. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
2. Vehicles to have minimal encroachment on the running lanes where possible.
3. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility relates to 120 / 100 km/h relates to 80 km/h
- Distance relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
GSJ - Diverge - RHS

120 OR 100 80

TS334

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

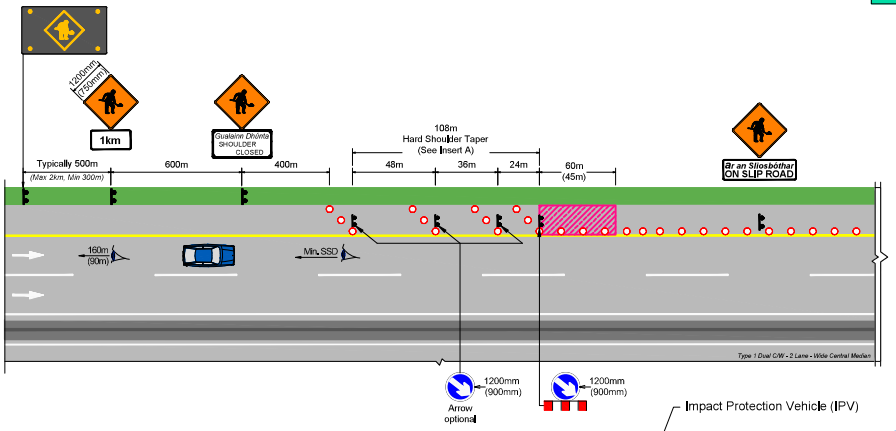
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

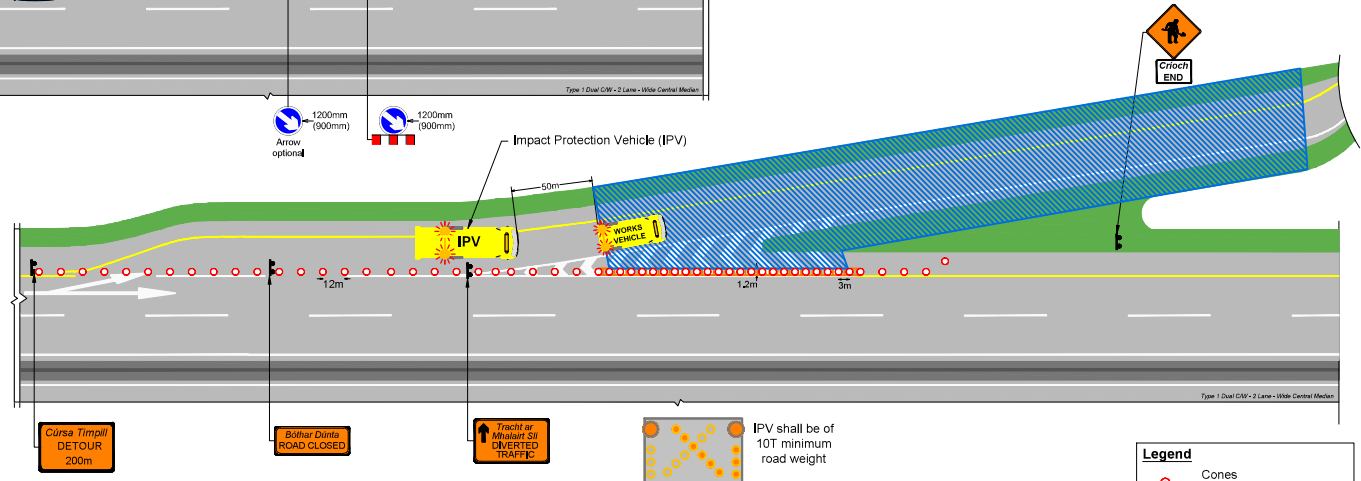
EXAMPLE ONLY NOT TO SCALE

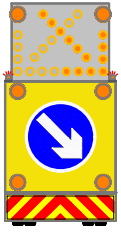
Permissible Traffic Counts for Hard Shoulder Closure		
Road Type	Maximum Allowable Traffic Flow **per Lane**	
	Veh/hr	Veh/3min
Dual Two Lane Carriageway	1300	65

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.







IPV shall be of 10T minimum road weight

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone / Lateral Safety Zone
- Works Area

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL CW	80	160
	100	215
	120	295

Notes

1. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
2. Vehicles to have minimal encroachment on the running lanes where possible.
3. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
GSJ - Diverge Closure

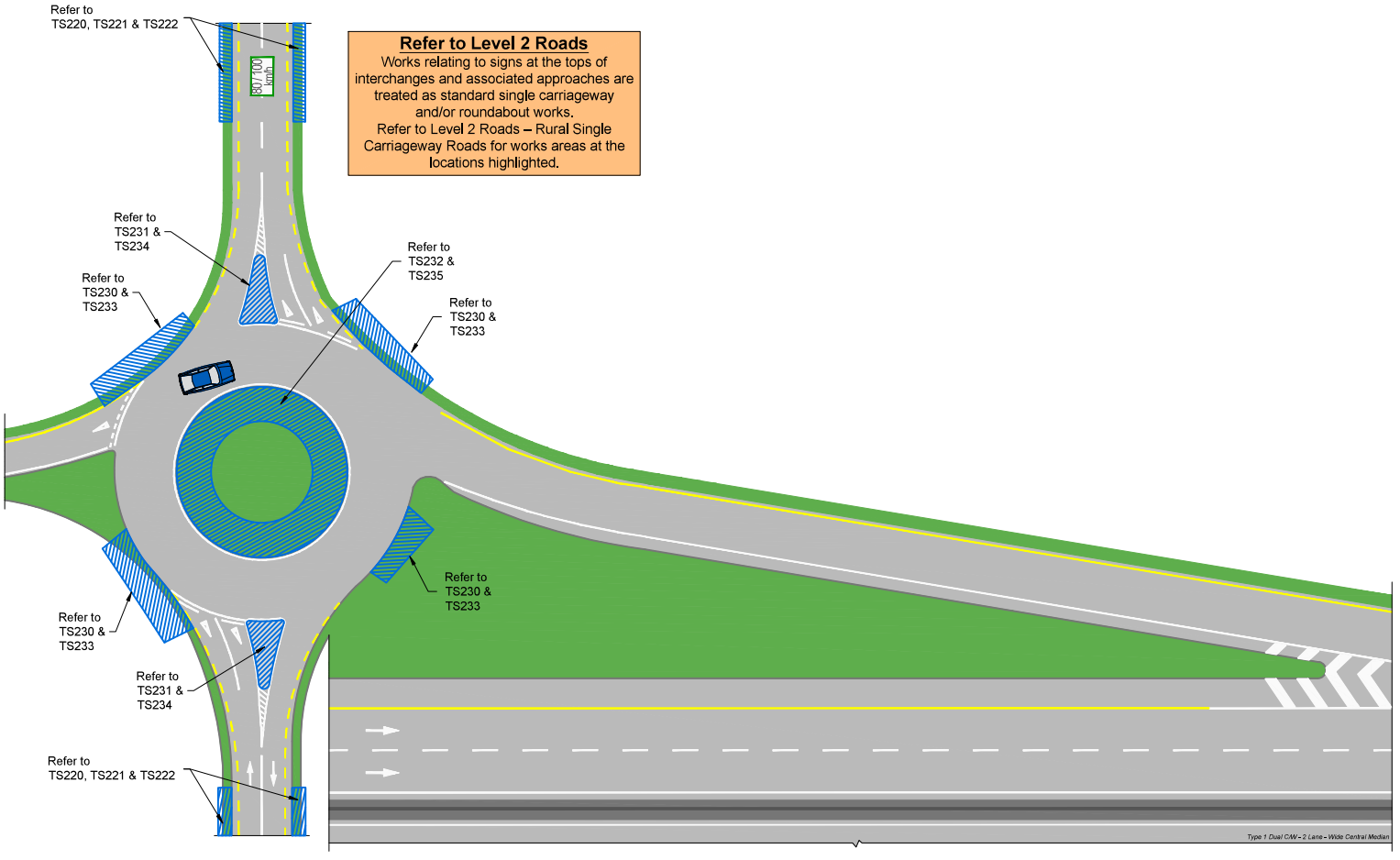
120 100 OR 80

TS335

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Standard Works

Sign Installations / Sign Removals / Tree Clearance

Static

Type B <12 hours

Type 1 Dual Carriageway - 2 Lane

Full GSJ - Start of Merge

120 100 OR 80

TS336

Traffic Signs

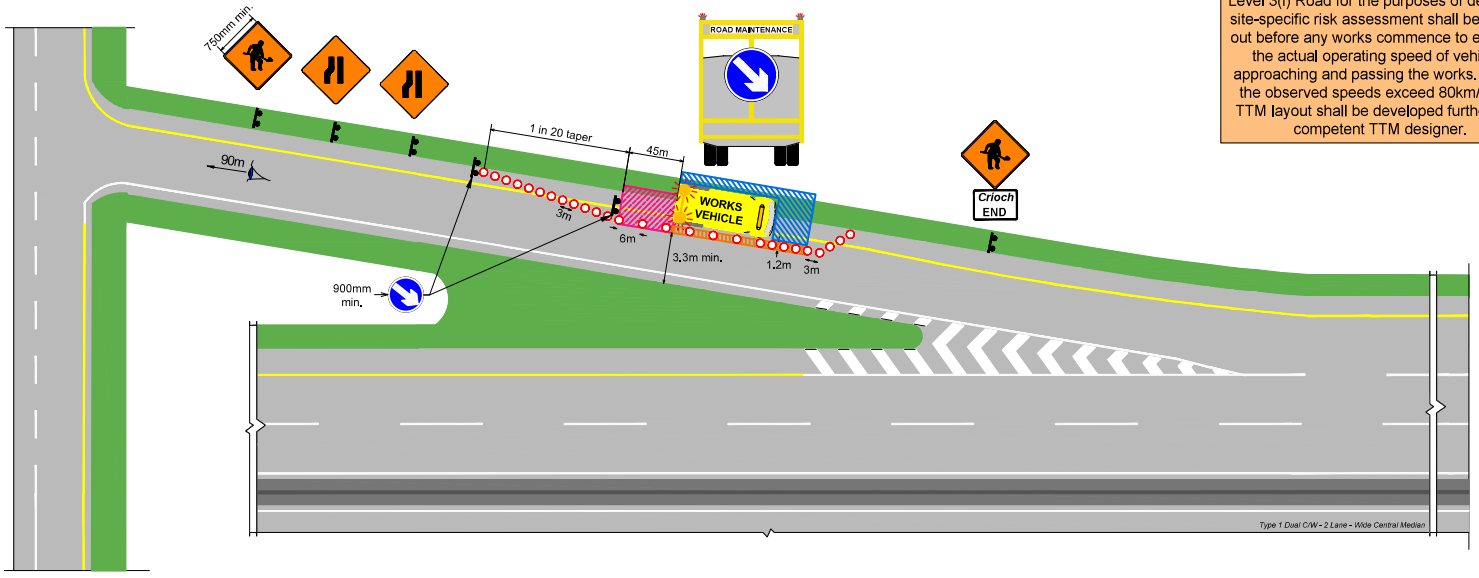
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

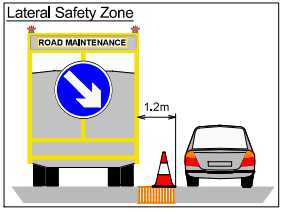
EXAMPLE ONLY NOT TO SCALE

Maximum Slip Road Vehicle Count: **25 veh/3min**

Merge

The merge lane has been assumed to be a Level 3(i) Road for the purposes of design. A site-specific risk assessment shall be carried out before any works commence to examine the actual operating speed of vehicles approaching and passing the works. Where the observed speeds exceed 80km/h, this TTM layout shall be developed further by a competent TTM designer.





Notes

1. Layout may not be suitable for use during peak hours. Queues to be monitored and queue lengths kept to a minimum.
2. Vehicles to have minimal encroachment on the running lanes where possible.
3. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend

- Cones
- Visibility
- Distance
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Tree Clearance

Static

Type B <12 hours

Type 1 Dual Carriageway - 2 Lane

GSJ - Merge - LHS

120 OR 100 OR 80

TS337

Traffic Signs

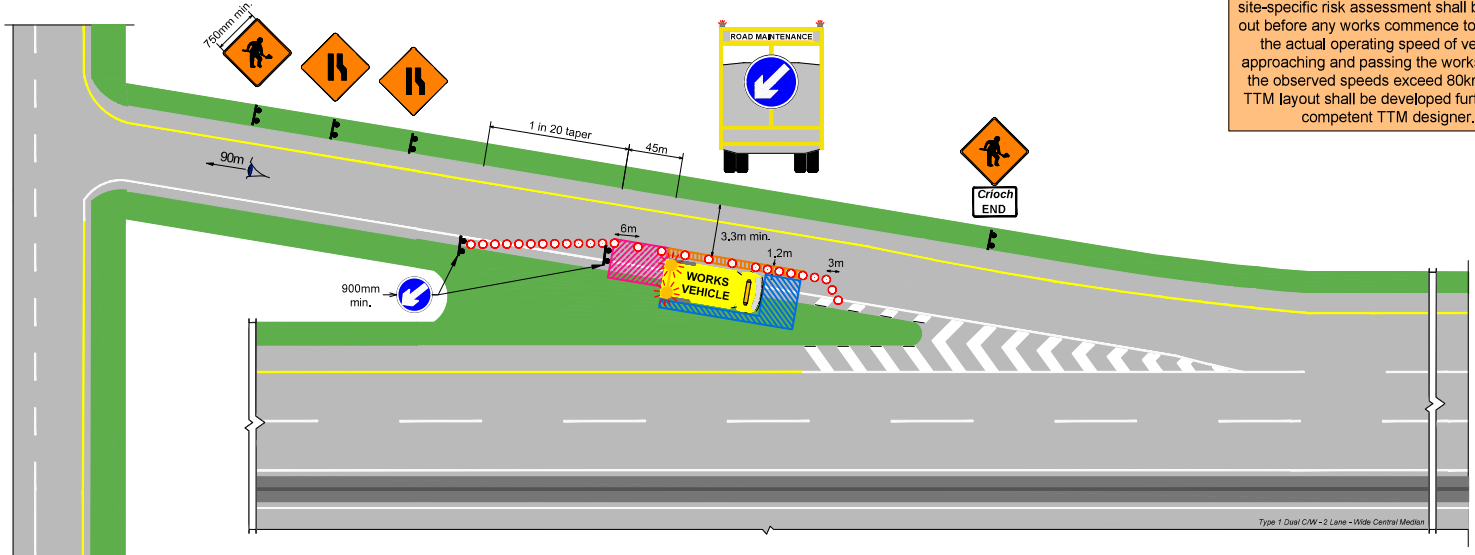
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

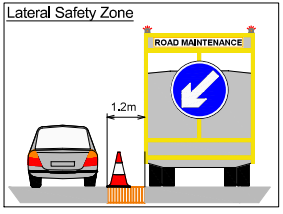
EXAMPLE ONLY NOT TO SCALE

Maximum Slip Road Vehicle Count: **25 veh/3min**

Merge

The merge lane has been assumed to be a Level 3(i) Road for the purposes of design. A site-specific risk assessment shall be carried out before any works commence to examine the actual operating speed of vehicles approaching and passing the works. Where the observed speeds exceed 80km/h, this TTM layout shall be developed further by a competent TTM designer.





Notes

1. Layout may not be suitable for use during peak hours. Queues to be monitored and queue lengths kept to a minimum.
2. Vehicles to have minimal encroachment on the running lanes where possible.
3. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

Legend

- Cones
- Visibility
- Distance
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Tree Clearance

Static

Type B <12 hours

Type 1 Dual Carriageway - 2 Lane

GSJ - Merge - LHS

120 OR 100 OR 80

TS338

Temporary Traffic Management Guidance Handbook

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

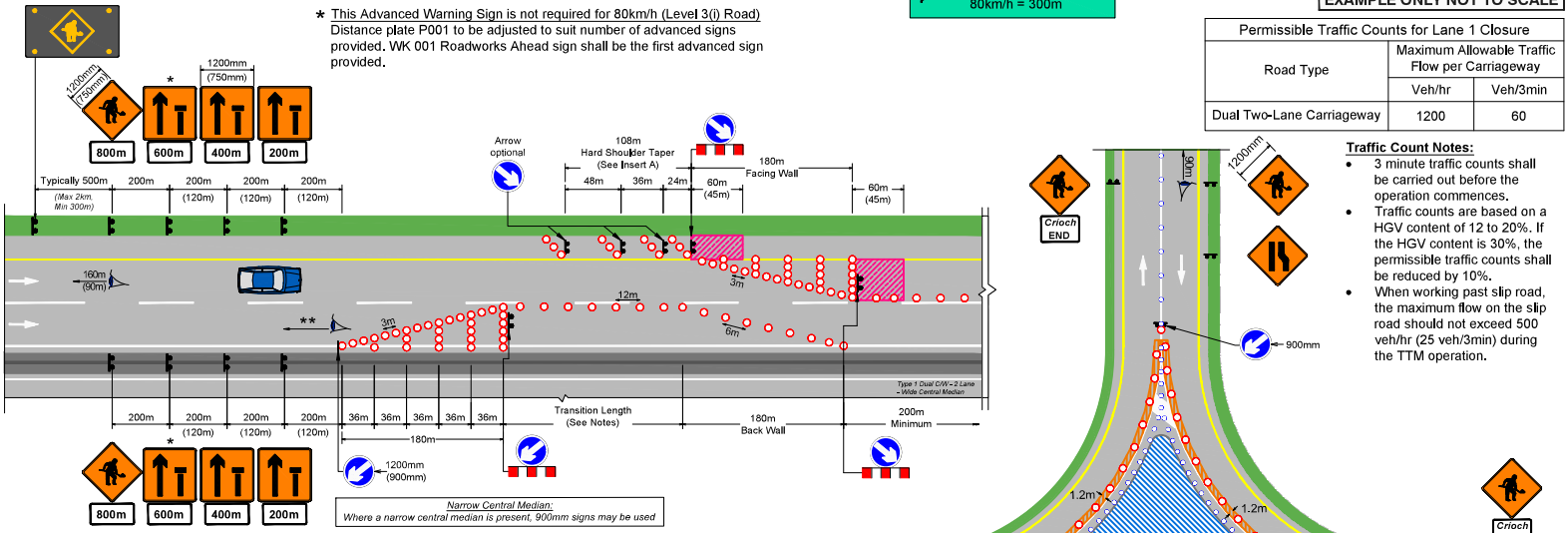
EXAMPLE ONLY NOT TO SCALE

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.

Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.



Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility (160m (90m)) relates to 120 / 100 km/h relates to 80 km/h
- Distance (200m (120m)) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Notes

1. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Where a narrow central median is present, all diamond shaped signs shall be a 900mm sized diamond.
4. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
5. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
Compact GSJ - Exit Nose & Traffic Island

120 100 OR 80

TS339

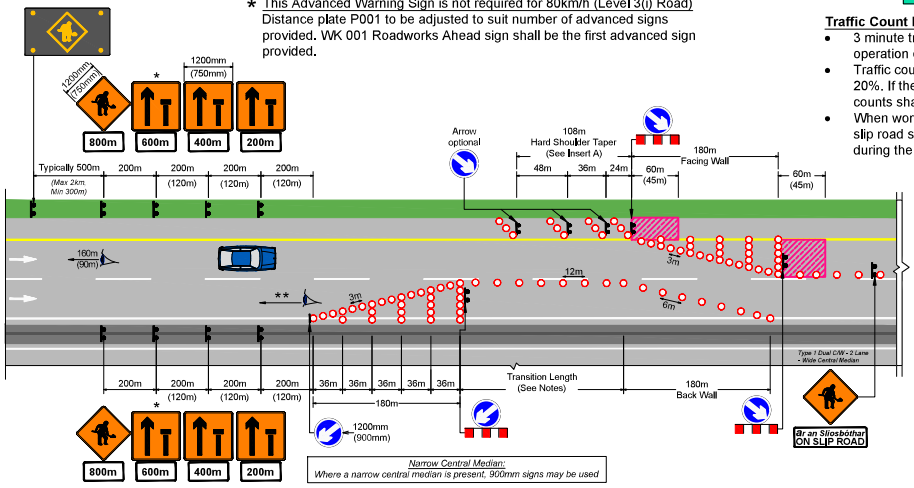
Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.

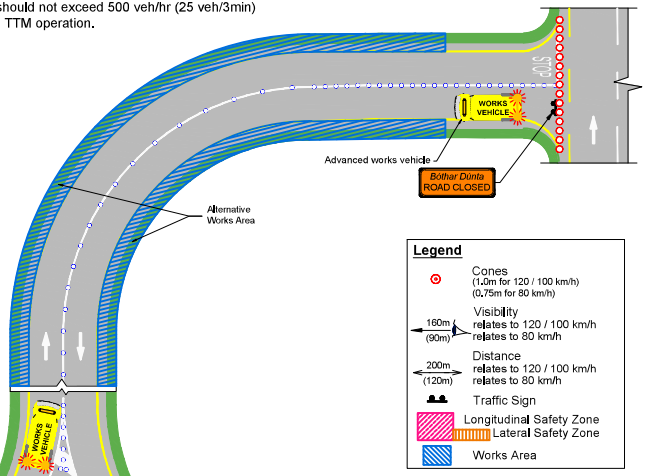


Narrow Central Median:
Where a narrow central median is present, 900mm signs may be used

Traffic Count Notes:

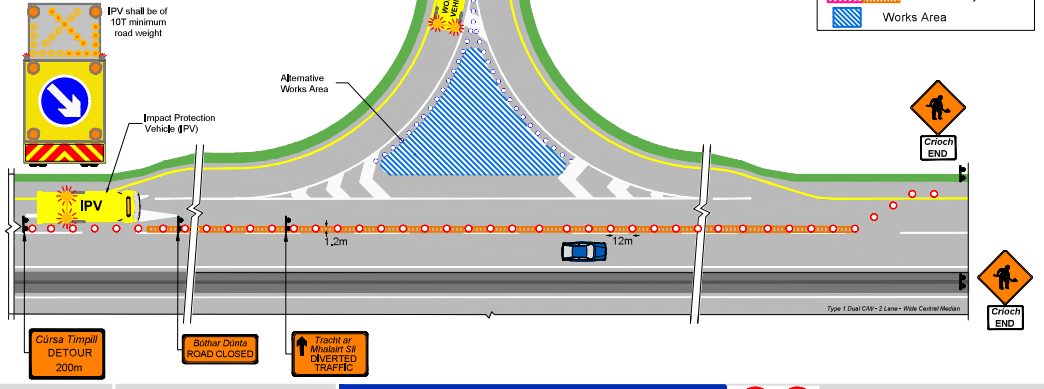
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60



Notes

1. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Where a narrow central median is present, the first WK 0001 Roadworks Ahead sign shall be a 900mm sized diamond.
4. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
5. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.



SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL CW	80	160
	100	215
	120	295

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
Compact GSJ - Slip Road Closure

120 100 OR 80

TS340

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

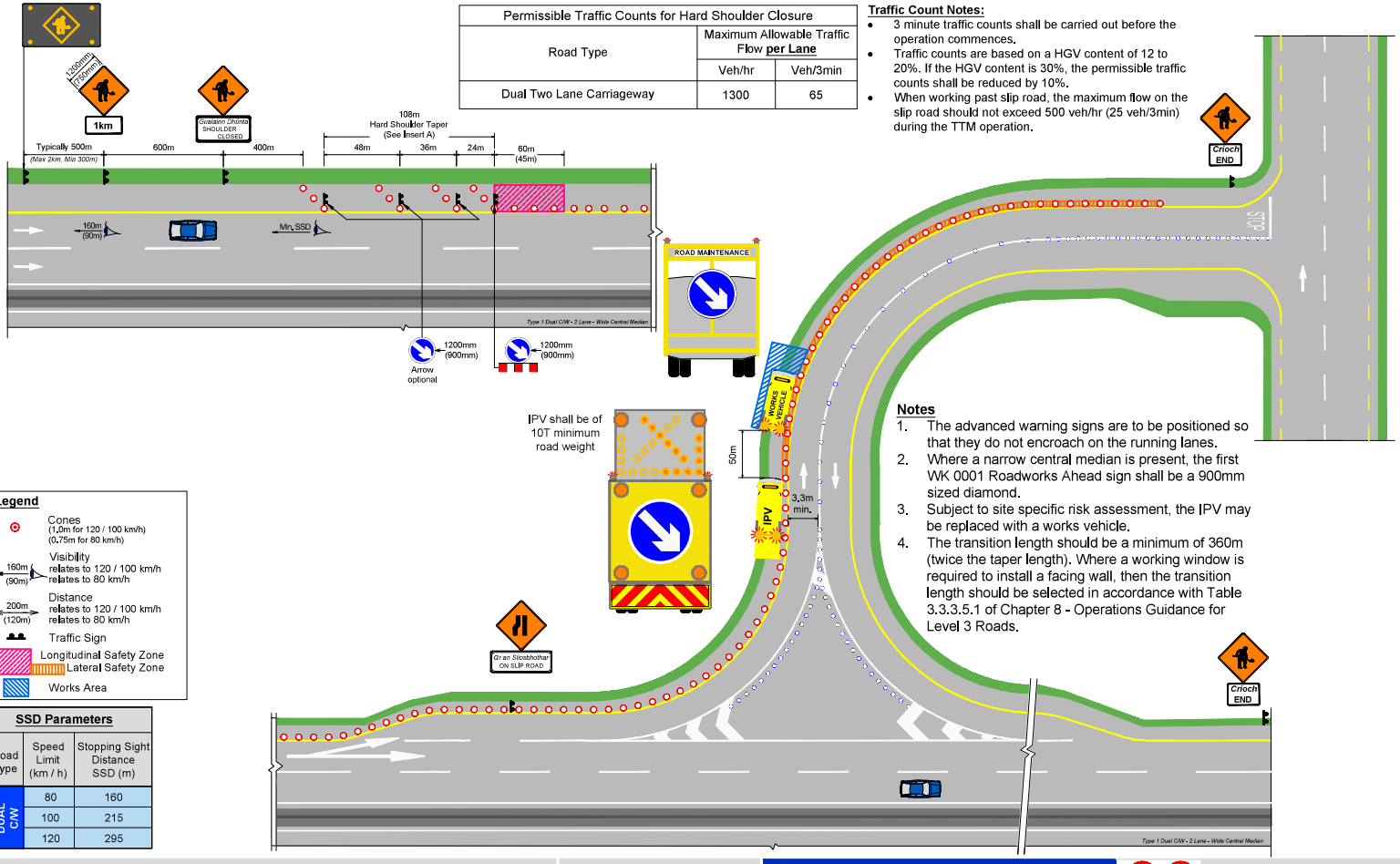
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

Permissible Traffic Counts for Hard Shoulder Closure		
Road Type	Maximum Allowable Traffic Flow per Lane	
	Veh/hr	Veh/3min
Dual Two Lane Carriageway	1300	65

Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.



Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- 160m (90m) Visibility relates to 120 / 100 km/h relates to 80 km/h
- 200m (120m) Distance relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
Compact GSJ - Diverge

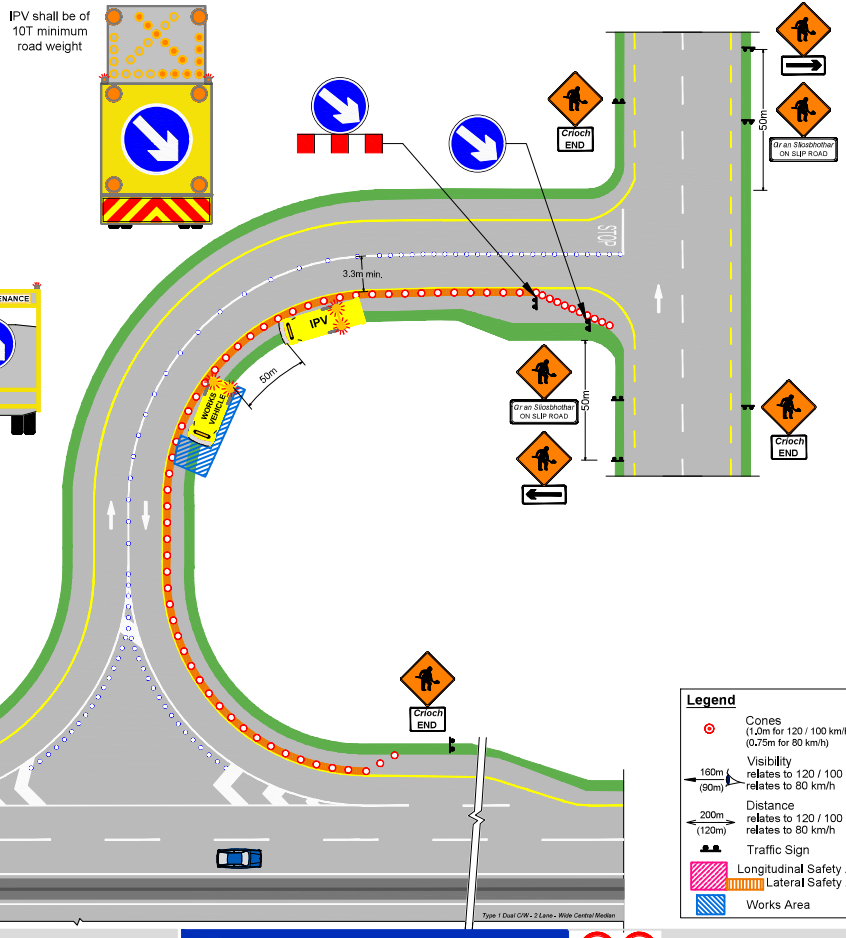
120 100 OR 80

TS341

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
2. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
3. Vehicles to have minimal encroachment on the running lanes where possible.
4. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.

SSD Parameters

Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL C/W	80	160
	100	215
	120	295

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Tree Clearance

Static

Type B <12 hours

Type 1 Dual Carriageway - 2 Lane

Compact GSJ - Merge

120 100 OR 80

TS342

Traffic Signs

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

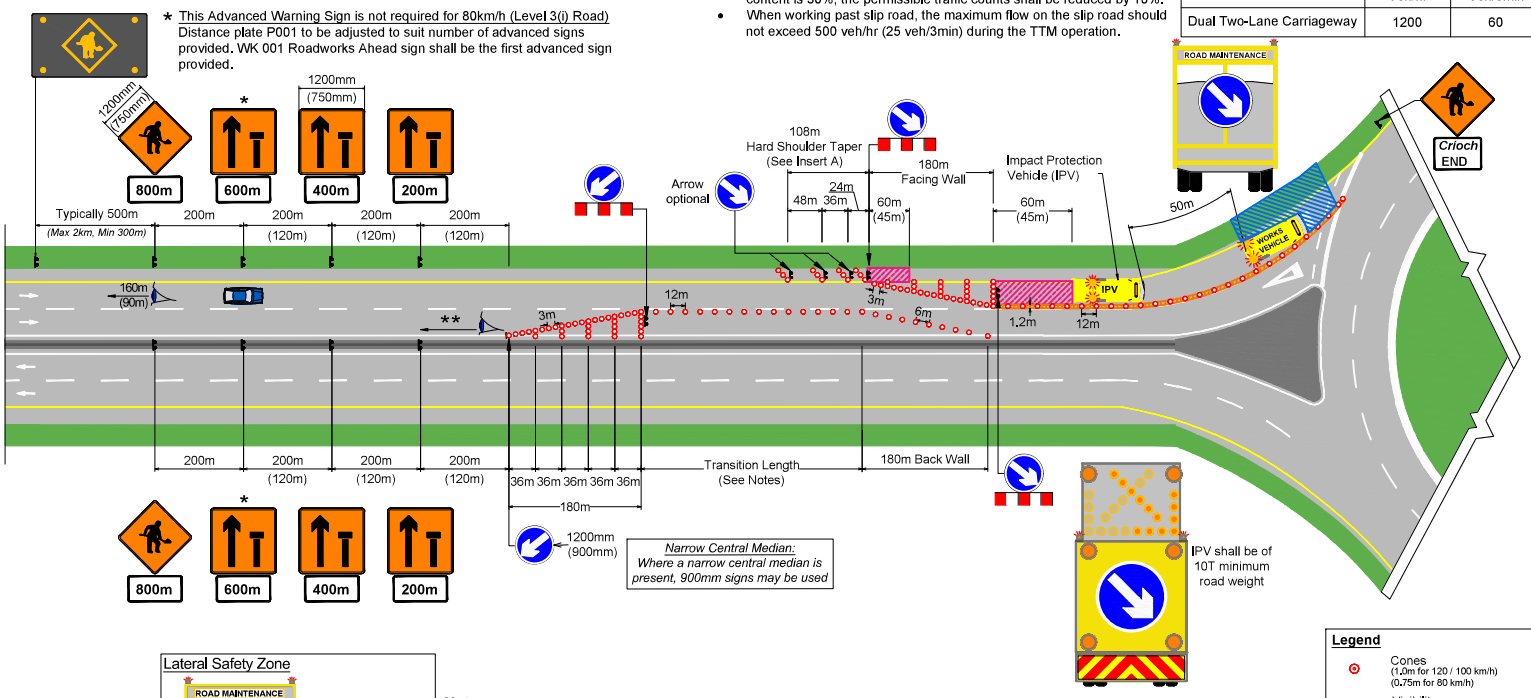
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

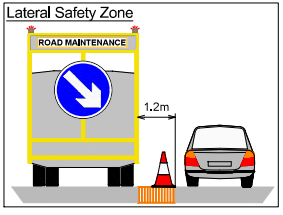
Traffic Count Notes:

- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Permissible Traffic Counts for Lane 1 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60



SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL CW	80	160
	100	215
	120	295



Notes

1. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Where a narrow central median is present, all diamond shaped signs shall be a 900mm sized diamond.
4. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.
5. The transition length should be a minimum of 360m (twice the taper length). Where a working window is required to install a facing wall, then the transition length should be selected in accordance with Table 3.3.3.5.1 of Chapter 8 - Operations Guidance for Level 3 Roads.

Legend

- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone
- Lateral Safety Zone
- Works Area

Standard Works

Sign Installations / Sign Removals / Tree Clearance

Static

Type B <12 hours

Type 1 Dual Carriageway - 2 Lane

Roundabout - Entry Lane - Lane 1 Closure

120 OR 100 OR 80

TS343

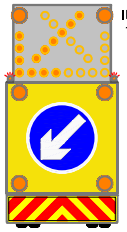
Traffic Signs

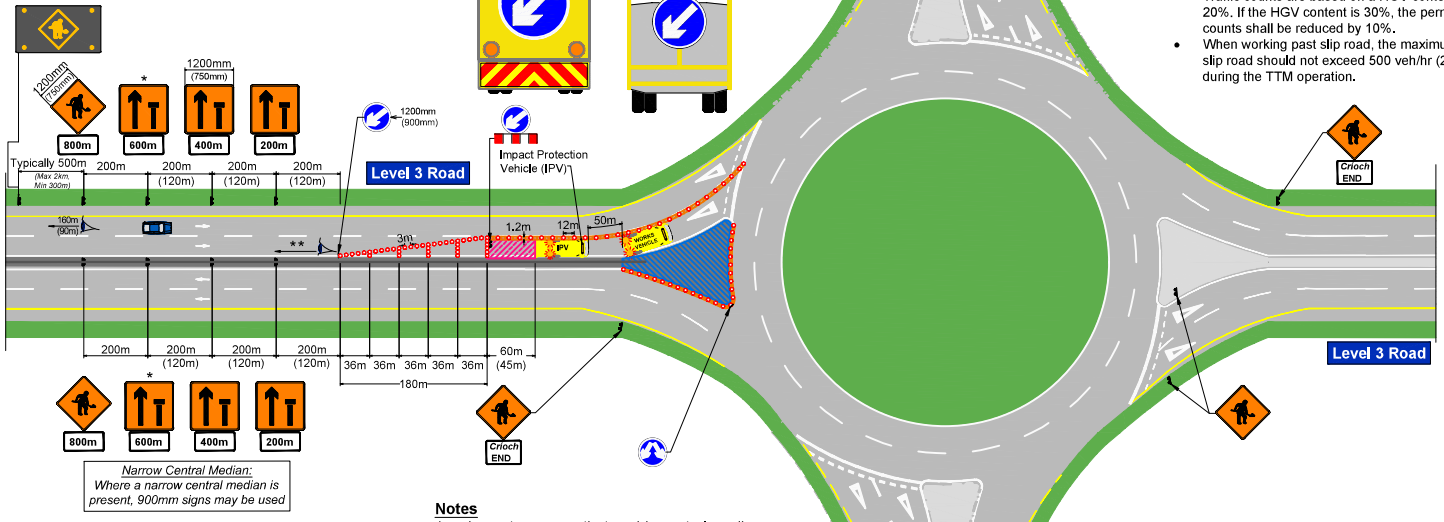
RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE

** Minimum Lead in Taper Visibility
120km/h = 500m
100km/h = 400m
80km/h = 300m

* This Advanced Warning Sign is not required for 80km/h (Level 3(i) Road)
Distance plate P001 to be adjusted to suit number of advanced signs provided. WK 001 Roadworks Ahead sign shall be the first advanced sign provided.





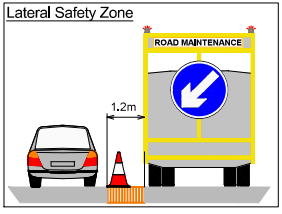
Narrow Central Median:
Where a narrow central median is present, 900mm signs may be used

Permissible Traffic Counts for Lane 2 Closure		
Road Type	Maximum Allowable Traffic Flow per Carriageway	
	Veh/hr	Veh/3min
Dual Two-Lane Carriageway	1200	60

Traffic Count Notes:
- 3 minute traffic counts shall be carried out before the operation commences.
- Traffic counts are based on a HGV content of 12 to 20%. If the HGV content is 30%, the permissible traffic counts shall be reduced by 10%.
- When working past slip road, the maximum flow on the slip road should not exceed 500 veh/hr (25 veh/3min) during the TTM operation.

Notes
1. Layout assumes that a wide central median is present. Where there is a narrow central median, the number and positioning of the advanced warning signs shall be adjusted appropriately in accordance with Chapter 8.
2. The advanced warning signs are to be positioned so that they do not encroach on the running lanes.
3. Where a narrow central median is present, all diamond shaped signs shall be a 900mm sized diamond.
4. Subject to site specific risk assessment, the IPV may be replaced with a works vehicle.

Lateral Safety Zone



SSD Parameters		
Road Type	Speed Limit (km / h)	Stopping Sight Distance SSD (m)
DUAL CW	80	160
	100	215
	120	295

Legend
- Cones (1.0m for 120 / 100 km/h) (0.75m for 80 km/h)
- Visibility 160m (90m) relates to 120 / 100 km/h; relates to 80 km/h
- Distance 200m (120m) relates to 120 / 100 km/h; relates to 80 km/h
- Traffic Sign
- Longitudinal Safety Zone / Lateral Safety Zone
- Works Area

Standard Works
Sign Installations / Sign Removals / Tree Clearance

Static
Type B <12 hours

Type 1 Dual Carriageway - 2 Lane
Roundabout - Entry Lane - Lane 2 Closure

120 OR 100 OR 80

TS344

Part 5
Verge Works

Verge works are classified as work which are taking place greater than 3m from the edge of the live lane.

Verge works and the controls for same are dependent on the duration of the works.

The following section sets out a verge works operation for works <15 minutes and >15 minutes

All designs are based on a Type 1 Dual Carriageway.

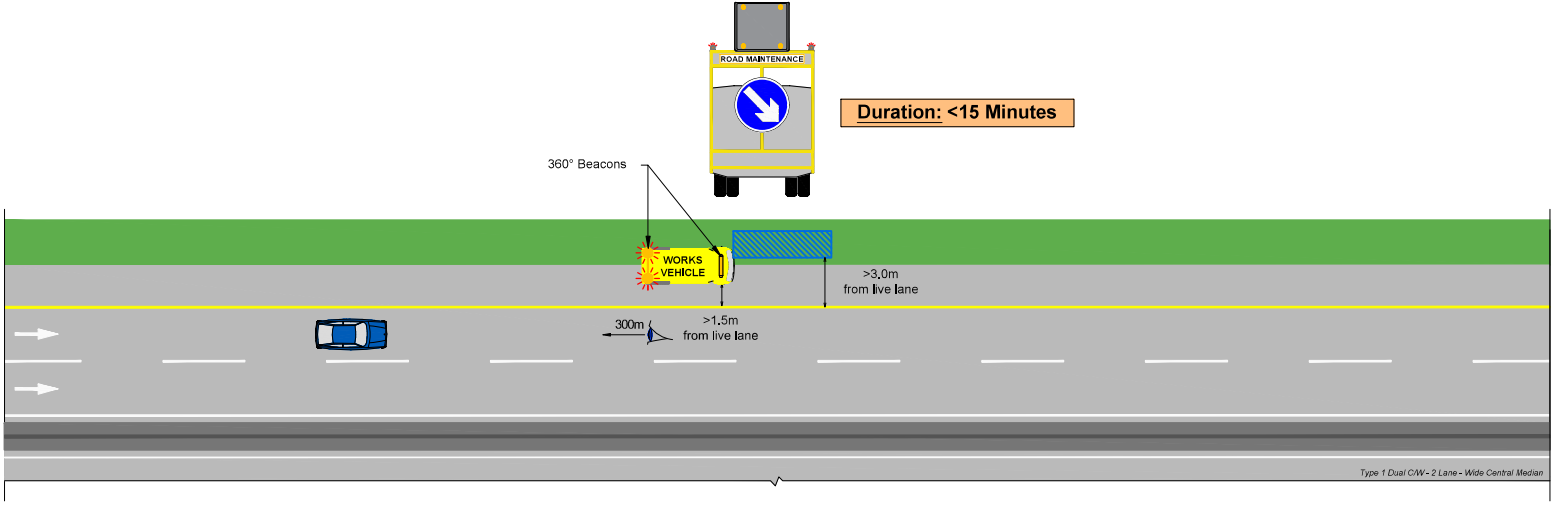
Where the works are less than 3m from the live lane and the duration will be longer than 15 minutes, then a static hard shoulder closure shall be provided (Refer to Part 1)

Contents

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
2. Should not be used in poor visibility conditions.
3. For Level 3 roads advance warning signage may not be required on the roadway where works vehicles can be parked such that they are no closer than 1.5m from the edge of live lane.
4. Works area shall be >3m from the edge of live lane.
5. If practical, the driver should exit on the safe side of the vehicle and stand in a safe location away from the carrigeway.

Legend

300m Visibility

Works Area

Standard Works

Sign Installations / Sign Removals / Tree Clearance

Verge Works <15 mins

Type 1 Dual Carriageway - 2 Lane

Off the Carriageway < 15minute Duration

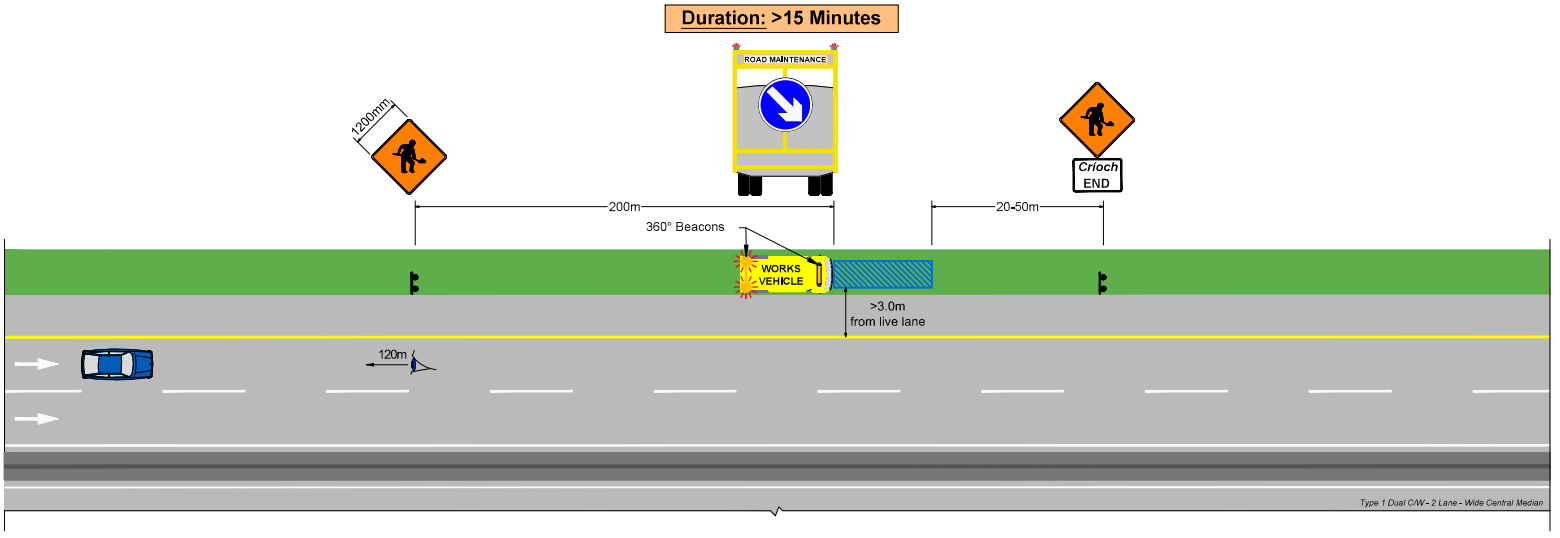
120 100 OR 80

TS345

Traffic Signs

RISK ASSESSMENT AND FURTHER DEVELOPMENT OF LAYOUTS WILL BE REQUIRED TO SUIT SITE CONDITIONS

EXAMPLE ONLY NOT TO SCALE



Notes

1. Care must be taken not to damage verges or cause debris when manoeuvring vehicles.
2. Should not be used in poor visibility conditions.
3. Works area shall be >3m from the edge of live lane. If works area is <3m from the edge of the live lane and duration >15 mins, hard shoulder closure is recommended as per TS305.
4. No works vehicles shall be parked in the hard shoulder, works vehicle must be located >3m from the edge of the live lane, shall be liveried and shall have a functioning flashing beacon.

Legend

120m Visibility

Works Area

Standard Works

Sign Installations / Sign Removals / Tree Clearance

Verge Works >15 mins

Type 1 Dual Carriageway - 2 Lane

Off the Carriageway > 15minute Duration

120 100 OR 80

TS346

7 IN THE EVENT OF AN EMERGENCY

CALL EMERGENCY SERVICES (999 or 112)

KNOW YOUR EXACT LOCATION

In the case of a Serious Incident

- Call Emergency Services.
- Stop work, making sure that all vehicles and site equipment are safe.
- Stop traffic if necessary – do not move injured person.
- Assist injured person with First Aid, if appropriate, at the instruction of emergency services phone operator.
- Call Site Supervisor by phone/radio - do not leave injured person alone.
- Arrange for easy access and egress for Emergency Services.
- Wait for Emergency Services and provide access through the works where required.
- Assist Gardaí with Traffic Control if required.
- Maintain safe traffic flow around injured person if applicable.

In the case of a Minor Accident

- Assist injured person with First Aid.
- Stop work if necessary.
- Report injury to the Site Supervisor.
- Log accident.

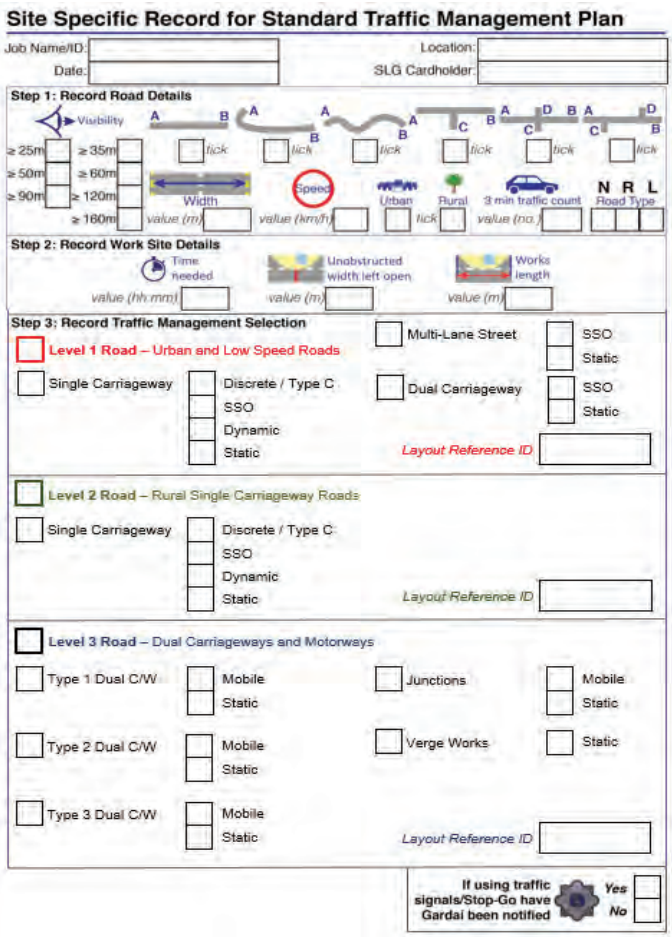
Reporting Accidents and Incidents

- All site accidents and incidents must be immediately reported to the Site Supervisor who in turn will report to the appointed Safety Officer.
- All personnel must fully assist in any investigation resulting from an accident.
- Contact the Employer's Representative if any of the following take place:
  - A fatality
  - Any injury to the public requiring medical attention.
  - All notifiable accidents to employees.
  - Road traffic accidents due to or near the works where no injury has been sustained.
  - Any dangerous occurrence or incident.
- Contact the Health and Safety Authority (HSA) for all notifiable accidents.

8 TEMPORARY TRAFFIC MANAGEMENT FORMS

The Temporary Traffic Management Design Guidance Document, Appendix A to Appendix E contains sample forms for Temporary Traffic Management. Some of these forms are listed and provided below:

- Site Specific Record for Standard Traffic Management Plan.
- Temporary Traffic Management Plan – Risk Assessment Pro Forma.



Temporary Traffic Management Plan - Risk Assessment Pro Forma

Reference No.	

General Information

Client:	
PSDP:	
PSCS:	
TTM Installer:	
General Location: (e.g. Route, Town/Village/Townland)	
Time of Day:	

Works Description

Activity/Operation:	
Planned Duration: (at Particular Site Location)	
Layout Used as Basis for TTM:	TS
Alternative TTM Layout: (If Applicable - Reference and Attach)	

Traffic Counts (3 mins)

Count No.	Time	Count

Site Conditions

Surrounding Land Use: (e.g. Urban, Rural, Sub-Urban, etc.)	
Speed Limit:	
Carriageway Type: (e.g. Single, Dual, Motorway, etc.)	
Carriageway Width:	
Hard Shoulder Width: (If Present)	
Pedestrian Facilities: (List any Facilities in Place)	
Other Conditions/Hazards: (e.g. Schools, Hospitals, Special Care Facilities, etc.)	

Site Specific Risks

Is Minimum Stopping Sight Distance (SSD) Maintained to the Works?	
Are Pedestrian Facilities Provided? (Describe Where Applicable)	
Weather Conditions: (List as Appropriate)	
Other Risk Items: (List as Appropriate)	

Modifications to Layout (List/Sketch as Appropriate)

Signed:_____

Date:_____

Notes: Risk Assessment of the TTM plan must be carried out by the TTM installer prior to the installation of the TTM.
This pro forma is available from the NRA in stand alone PDF format upon request.

9 REFERENCES AND ACKNOWLEDGEMENTS

These guidelines are based on the standards and guidance published in the following documents:

- Chapter 8 of the Traffic Signs Manual 2019 (DTTAS).
- Temporary Traffic Management Design Guidance 2019 (DTTAS).
- Temporary Traffic Management Operations Guidance 2019 (DTTAS).
- Roads Acts 1993 (and all amendments)
- Road Traffic Acts 1961 (and all amendments)
- Road Traffic and Roads Act 2023
- Safety, Health and Welfare at Work Act 2005.
- Safety, Health and Welfare at Work (Construction) Regulations 2013.
- Safety, Health and Welfare at Work (General Application) Regulations 2007 to 2020.
- Guidelines for Working on Roads - Guide to the Safety, Health and Welfare at Work (Construction) Regulations 2008 (HSA).
- Guidelines on the Procurement, Design and Management Requirements of the Safety Health and Welfare at Work (Construction) Regulations 2013 (HSA).
- Road Safety Markings Association (RSMA) Best Practice Guide, UK.
- Guidelines for the use of Variable Message Signs on National Roads (TII Publications).
- EN 12966 Vertical Road Signs: Variable Message Signs.

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