



RSMA BEST PRACTICE GUIDE

PART 3 **Temporary Traffic** **Management**

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Section 1. Introduction

1.1 The complexity of traffic management (TM) arrangements varies from activity to activity, however, the primary objective must be to maximise the safety of the workforce and the travelling public.

When applying the hierarchy of control the most effective method of controlling the hazards and associated risks of working on the carriageway would be to close the road to traffic each and every time.

1.2 It is often considered restrictive of time, money and trouble and would therefore be commercially limiting to businesses and local authorities to adopt full carriageway closure. The Health and Safety at work Act 1974 requires those responsible for the works to establish and maintain, so far as is reasonably practicable, a safe system of work.

1.3 This chapter aims to provide guidance in accepted best practice in relation to TM provision within the road marking sector and sets out some basic safe systems of work. It's main considerations are to interpret certain guidance contained within the Safety at Streetworks and Road Works: A Code of Practice (the Red Book); and Traffic Signs Manual: Chapter 8 in the following areas:

- a) Who is responsible for full specialist TM provision?
- b) TM adopted within various scenarios of road marking activities
- c) Factors to consider when selecting appropriate TM

Important legal compliance note: The legal status of "Safety at Street Works and Road Works ACOP October 2013 (The Red Book)". Local highways in England and Wales and the road authority in Northern Ireland **MUST** comply with this code for their own works. Road authorities in Scotland should comply with this code for their own works, as recommended by Scottish ministers. All references in the text to "Highway authorities" are to be read as references to "roads authorities" in Scotland and Northern Ireland.

Although the chapter 8 document is an important document it does not have a statutory force.

All personnel that are required to apply TM must have access to a copy of the "Red Book"

Advice and guidance within this chapter will not negate the responsibilities of organisations to conduct correct and effective planning, design and risk assessments. It does not include every circumstance that may be encountered when conducting road marking operations. It is a requirement of the "Red Book" that every project or scheme is suitably planned, designed and risk assessed in order to create the minimum acceptable risk and impact upon road marking crews, carriageway and footway users.

1.4 The standards described within this chapter are considered minimum requirements and should always be achieved. Should a client's on-site hazard analysis highlight a situation that appears to show a level of risk above normal, the responsibility not only for the sector but under law would be to conduct a suitable and specific risk assessment. A safe system of work can then be agreed with the contractor to control the specific risks associated with that situation.

1.5 Those responsible for the determination of TM levels, if full road closure is not an option, should always carefully consider what is reasonably practicable and not 'default' to full TM as a blanket safe system when planning road marking activities. High levels of complex TM applications may actually take longer and be more costly than the marking activity itself. In certain cases it is considered that the installation of TM signage and guarding could be considerably more hazardous and create more of a risk than the road marking activity. In this case it could result in the safe system of work not being adhered to due to economic or time restraints imposed by the project. The flow charts in section two of this document will help guide the responsible person in what level of TM is needed and who is responsible for its provision.

1.6 In order to determine who is responsible for the provision of the various levels of TM. This document takes guidance from The Health and Safety at Work Act and other relevant legislation such as:

- Highways Sector Scheme 12d Traffic Management
- Construction (Design and Management) Regulations 2015 (CDM)

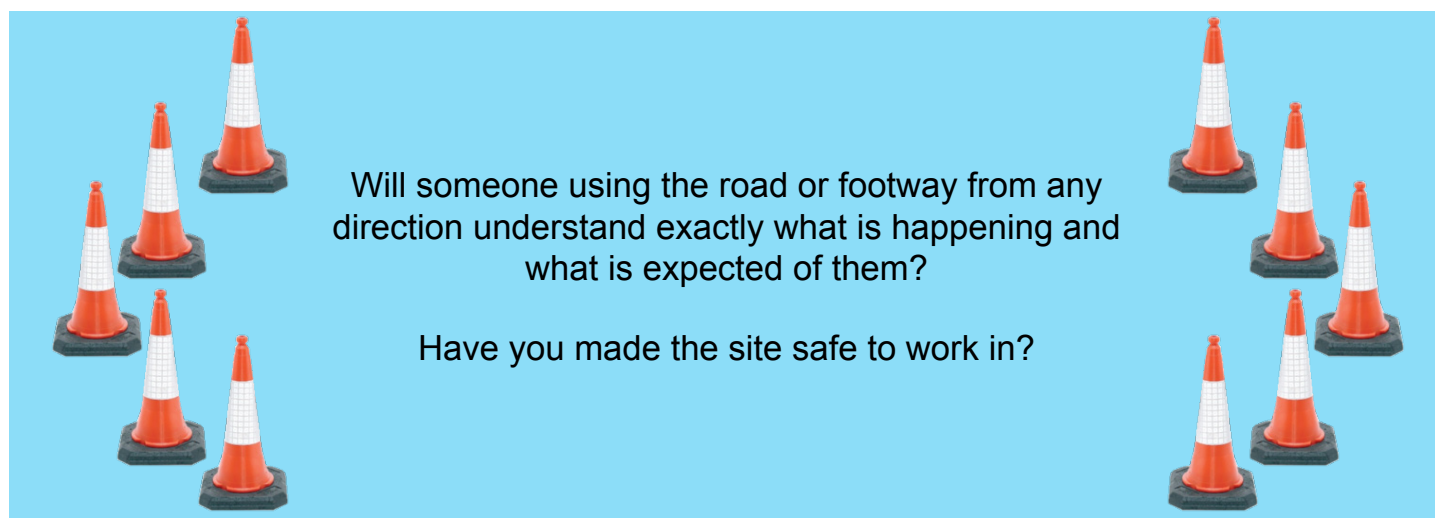
Under these regulations, clients, co-ordinators, designers, and contractors have a legal duty to plan, co-ordinate and manage health and safety throughout all stages of a project. CDM goes hand in hand with the Management of Health and Safety at Work Regulations 1999 (MHSWR) and the Management of Health and Safety at Work Regulations (NI) 2000. Good management of the work is essential to prevent accidents and ill health.

Clients, Principle Designers, and Contractors who engage with road marking contractors should include road marking activity as a major element of the project. Consideration must be given to the road marking contractor when planning the TM for the whole project. The Principle Designers, Clients and the principle contractor must provide effective communications regarding site specific risks and hazards. Briefings, inductions, and other forms of communication should be suitable, relevant, and applicable to road marking activity. It is strongly recommended that those responsible for planning work involving road marking activities, fully familiarise themselves with the nature of, and intrinsic hazards associated with road marking. This will reduce the need for inappropriate safe systems of work.

1.7 Section 2 shows the signing and guarding flow charts. These flow charts are designed specifically as a guide, not only for road marking contractors, but for clients, local authorities, and principle contractors alike. The aim of the charts is to assist in the understanding of how to select the appropriate level of TM for any particular road marking scheme. The flow charts must be used in conjunction with the risk assessment process and planning requirements of CDM. Road marking vehicles will only carry a minimum quantity of signing and guarding equipment. Should the need for additional TM equipment be necessary, then the planning and coordination of that particular scheme would require attention to be paid to the selection flow charts.

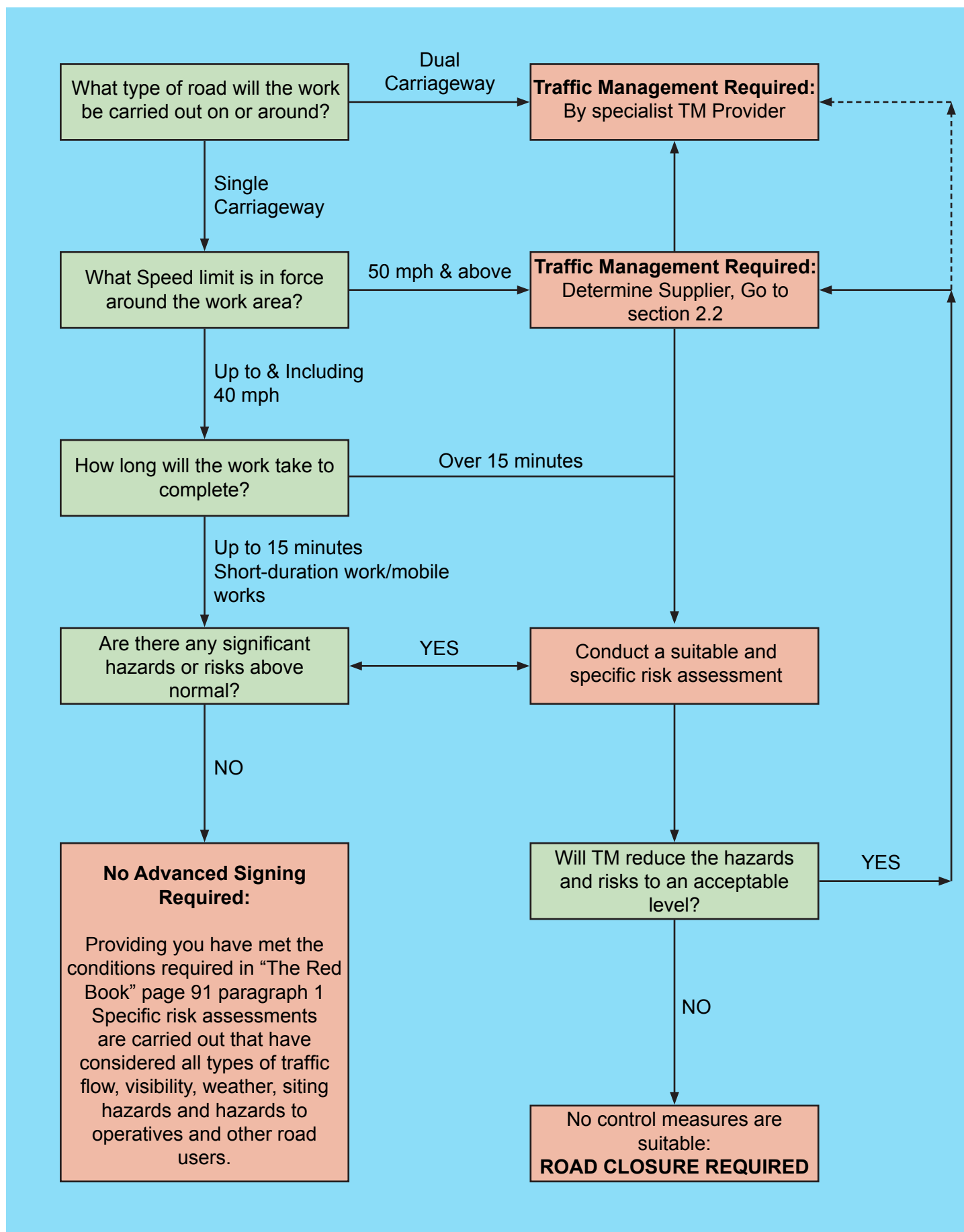
1.8 Section 3 highlights the circumstances where advanced signing may not be required and shows a variety of examples and scenarios where 'vehicle only' signage and protection can be utilised. The inventory of signs, shown in table 5.1 lists the complete stock of signing and guarding equipment that can be found on any 'standard' road marking vehicle. Optional extras are also included in this table. Scheme planners must be aware of this list and coordinate with road marking contractors and specialist TM providers in order to appreciate what is available as a standard under certain contractual obligations.

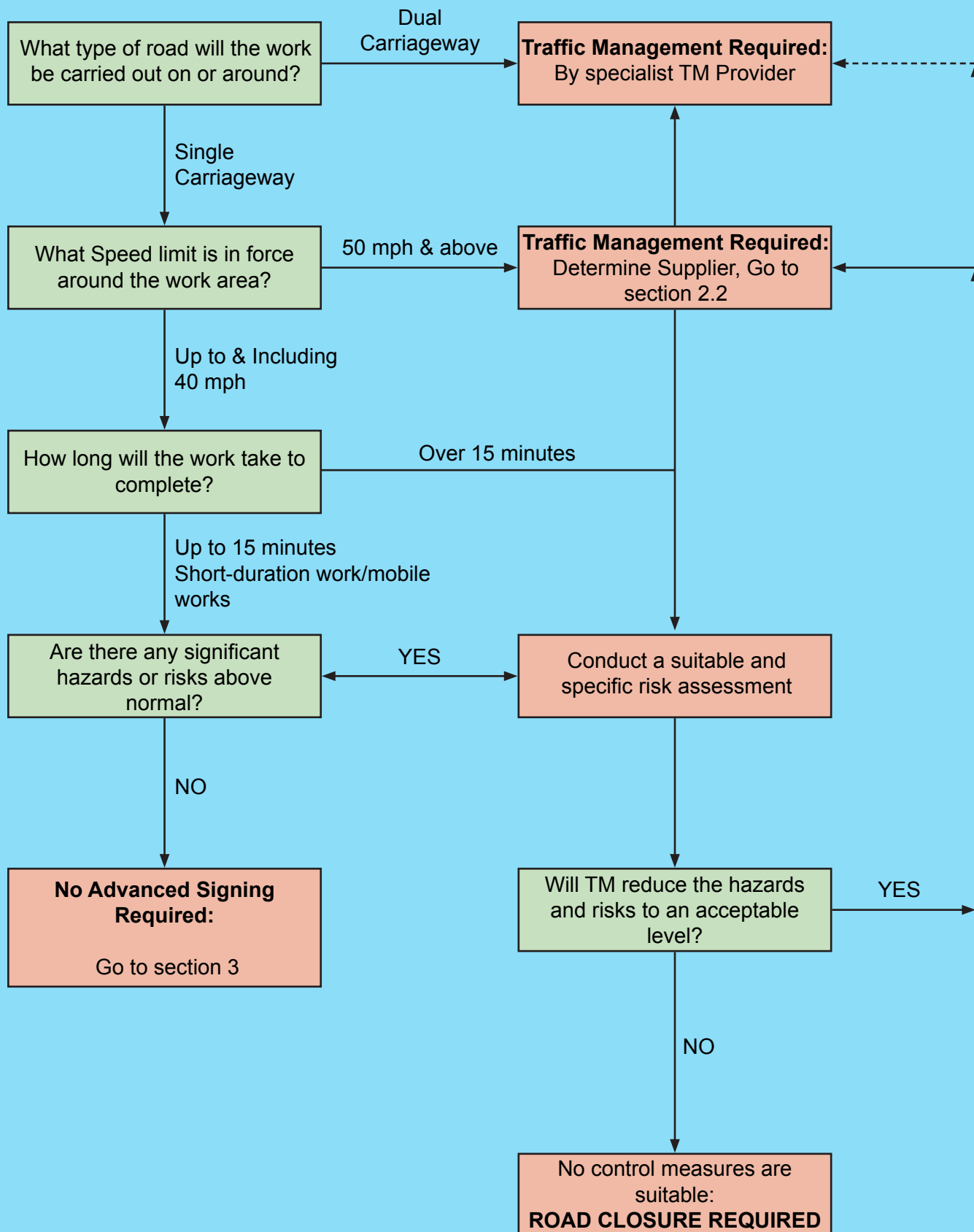
1.9 The RSMA has produced the flow charts as a clear selection process to help with tender responses and contractual aspects of scheme planning. The categories and definitions will assist in understanding what can be expected as part of a standard road marking contract and what would be considered as additional provision. It will also clarify who shall be responsible for that provision:



Section 2 Signing & Guarding Selection

2.1 Signing & Guarding Selection Flow Chart for Hand Applied Operations





2.2 Who is responsible for what level of TM?

The table 3 below is a guide to assist in the design stage of a project when costing TM. When considering the type and level of TM required the selection flow charts (2.1) should be used. When considering who should be responsible for the provision of TM or, indeed the cost of specialist TM should be included or excluded from tenders and contractual obligations, the table below should be used as a guide.

The reason for this example guide is to avoid situations where road marking contractors are engaged with schemes where the provision of TM is not fully considered. This often leads to the road marking contractor being responsible for TM over and above that which is included in the contract. This situation may result in incorrect TM provision, and inappropriate safe systems of work.

Schemes require a joint consideration to the duty of care when planning road marking activities.

TM Responsibility Table			
What level of TM provision is required?	Who has planning phase responsibilities?	Who is responsible for on-site provision?	How will the TM provision be charged?
Vehicle mounted signing and guarding	Planner (Client) Road marking contractor	Road marking contractor and crew	Signing included in road marking contract
Minimum TM competency to 12DT1 (single carriageway only) (Minimum inventory of signage. See table 5.1)	Planner (Client) Road marking contractor	Road marking contractor and crew	Advanced signing included in road marking contract.
Minimum TM competency to 12DT1 (single carriageway only) (Over minimum inventory of signage. See table 5.1) & positive traffic control	Planner (Client) Road marking contractor	Sector Scheme 12 TM contractor only.	Additional signing and positive traffic control NOT included in road marking contract and will be subject to additional charges.
Positive TM on dual carriage ways of up to and above 40mph	Planner (Client) Road marking contractor TM contractor	Sector Scheme 12 TM contractor only.	TM charges will apply in addition to the road marking provision where the road marking contractor is asked to arrange. Or shall be paid for directly by the principle contractor or client respectively.
Positive TM involving traffic control (Stop/Go)	Planner (Client) Road marking contractor TM contractor (where applicable)	Road marking contractor and crew (where competent) Or Sector scheme 12 TM contractor	
Positive TM involving traffic control (Portable traffic signals)	Planner (Client) Road marking contractor TM contractor (where applicable)	Sector Scheme 12 TM contractor only.	
All Motorway Works	Planner (Client) TM contractor Road marking contractor (for information)	Sector Scheme 12 TM contractor only.	TM paid for directly by the principle contractor or client respectively.

Section 3 Short duration activities, up to and including 40 mph

Hand applied, short duration activities are often conducted in areas where it would increase time, effort and risk to fully sign and guard the work area. Where activities can be completed within the window of 'short duration' work and no significant hazards can be foreseen, then maybe reasonably practicable to conduct the task using the vehicle as the guard to the work area and to include vehicle mounted signs as discussed in 3.3.

For further detailed information regarding this system of work, see: Safety at Street Works and Road Works, A code of practice (The RED Book)

3.1 Road marking vehicles used to protect the work area

In certain circumstances it may be necessary to use the vehicle as added physical protection to the working space, or to work from the side or rear of the vehicle. In such cases a site specific risk assessment must be conducted to ensure that this type of operation is safe to use. Safe routes around the vehicle must be maintained and operatives must be aware of other road users and not unconsciously step into their path whilst working or stepping on and off the vehicle.

A safe distance between the front of the vehicle and the work area of:

- 2 metres for speeds of 30 mph and under
- 5 metres for 40 mph

This will help increase the visibility to other road users of operatives within the working space.

In certain cases it may be appropriate to park the vehicle so that operatives can work from the back rather than walking around the vehicle to collect material. A site specific risk assessment must be conducted to ensure that this type of operation is safe before turning the vehicle around in the road. The safety of other road users is paramount in this situation.

3.2 Making an assessment before using the vehicle as the sign and guard for planned work the site should have been assessed by a competent person during the planning stage of the project. If this has not been possible for whatever reason or if the situation has changed significantly since the client provided his site specific risk assessment, an on-site risk assessment must be done. This guide shows the absolute minimum standards. If there are any doubts regarding any TM arrangements, the situation and proposed layouts MUST be discussed with a supervisor, manager or other competent person before work is started.

Some of the things that should be considered when making a simple assessment:

Look at the road

- Is the junction awkward or complicated?
- Are the road or footway widths too narrow to allow the safe use of the layouts described in the "Red Book"
- Is there sufficient visibility for approaching road users? (consider bends, crests, hidden dips, trees & bushes, parked vehicles and weather conditions including sunlight).
- Are there any tramways or railway crossings that need to be considered?

Look at the Traffic

- Is the traffic flow too high for the type of work and planned TM? (Consider the number of heavy goods vehicles or buses that use the route)
- What is the speed limit; and are a significant amount of vehicles appear to be travelling faster than the speed limit?
- What type of traffic use the area around the work site? (Lorries, cars, bicycles, motorcycles, buses)
- Will the work affect bus stops and bus routes?
- Consider the type and volume of pedestrian traffic. Will your activity obscure a drop crossing or pedestrian crossing?

An example of a site specific TM risk assessment is included in this publication.

3.3 Conspicuity

Where road marking activities fall within specific parameters described in the “Red Book”, and where hazards are deemed to be of low risk levels, no advanced signing will be required for short duration work planned for up to 15 minutes. This only applies where the road marking vehicle complies with regulations regarding conspicuity and the road, weather and traffic conditions allow the work to be carried out in conditions of good visibility.

In this instance the following specifications apply:

- Chapter 8 Traffic Signs Manual, Part 2 Operations, O5.2 Conspicuity, O5.3 Roof-Mounted Beacons, Page 61 & 62.
- The “Red Book Page 91 paragraph 1

Fig 3.1 shows examples of how road marking vehicles shall be marked to satisfy the requirements published in the regulations noted above. Please note: diagrams are meant as an example, are open to interpretation and are not considered as drawn to scale.

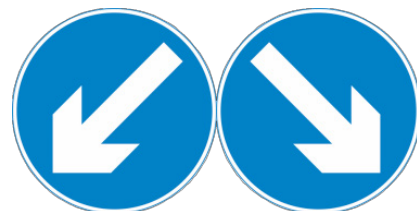
The following points are taken from current legislation covering vehicle conspicuity and **MUST** be considered when using the vehicle as advanced signing and guarding to the work area.

- Any vehicle engaged in works on the highway not in an established works zone should be of a conspicuous colour. (White and/or yellow are recognised conspicuous vehicle ‘main body’ colours)
- Any works vehicles that are used to protect the workforce or form part of the signing of the works should be of conspicuous colour and appropriate marking (see examples below).
- Any vehicle stopping on the highway for works purposes or inspection shall be equipped with either a roof mounted flashing amber warning light bar (comprising at least two independent light sources) or two roof-mounted flashing amber warning beacons, visible through 360°
- A minimum of two additional warning lights / beacons shall be fitted to the front and rear of the vehicle. (Agreed and accepted sector specific safety addition)
- The roof-mounted beacons shall be in use when entering, leaving or moving within the site, when travelling in traffic at less than the general traffic speed, and when stationary on a hard shoulder.
- When stationary within the confines of a fully installed TM arrangement, 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 as required for mobile works.

3.4 Vehicle mounted directional arrows

Vehicles shall be fitted with a directional arrow to the front and rear of the vehicle.

The arrow shall be removed or otherwise masked when travelling to and from the works area. This can be done by either making the sign removable, by fabricating a frame, or mounting the sign allowing it to be folded away or removed completely.



3.5 Chevron markings

Chevron markings comprise of alternate strips of fluorescent orange-red retro-reflective material and fluorescent yellow non-retro-reflective material.

The width of the stripes must be no less than 150mm each. The lines should be pointing upwards at an angle of between 45 and 60°. Alternatively a solid block of fluorescent orange-red material can be used on the rear of the vehicle.

Vehicle markings should cover as much of the rear-facing portion of the vehicle as possible.

Markings **MUST NOT** obscure:

- The driver's vision
- Driving lights and directional indicators
- Any other beacons
- Registration plates



Fig 3.1 Any other legally required markings



Rear markings (feeder/supply vehicle)

Vehicle markings cover as much of the rear-facing portion of the vehicle as possible.

'HIGHWAY MAINTENANCE' signs as required

Additional rear beacons added to increase conspicuity (front beacon obscured)



Rear markings (Screed vehicle)

Vehicle markings cover as much of the rear-facing portion of the vehicle as possible.

'HIGHWAY MAINTENANCE' signs as required

Additional rear beacons added to increase conspicuity

Large directional arrow, hinged or masked for travelling

The rear of the vehicle **MUST** be kept as clean as possible. This will help maintain its retro-reflective properties. Scheduled and planned housekeeping practices will ensure clean, tidy and professional looking vehicles



Front markings (All vehicles)

Vehicle painted in a conspicuous colour (White and yellow 'main body' colours)

'LINE PAINTING' signs optional

Front beacon

Large directional arrow, frame mounted and removable for safety when travelling

Optional conspicuity markings may be added to the front of the vehicle



Vehicle mounted beacons

Vehicles must carry at least two independently lit beacons. The light sources are independent to guarantee at least one lamp works should a bulb blow. This will maintain conspicuity

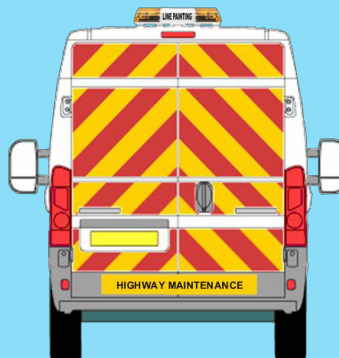
Beacons **MUST** be inspected as part of the normal vehicle inspection routines

Beacons **MUST** be included in vehicle preventative maintenance schedules

Other vehicles

Road marking businesses that operate other types of vehicles such as cars and vans for supply and support purposes may require those vehicles to be conspicuously marked in the same manner as the main vehicles noted above.

Vehicles used for surveying, testing and other such monitoring will also require conspicuity markings. Examples of such markings are shown below. In all cases, careful consultation of 'Chapter 8 Traffic Signs Manual, Part 2 Operations, O5.2 Conspicuity, O5.3 Roof-Mounted Beacons, Page 61 & 62, as in 3.3 above must be taken when conducting such activities.



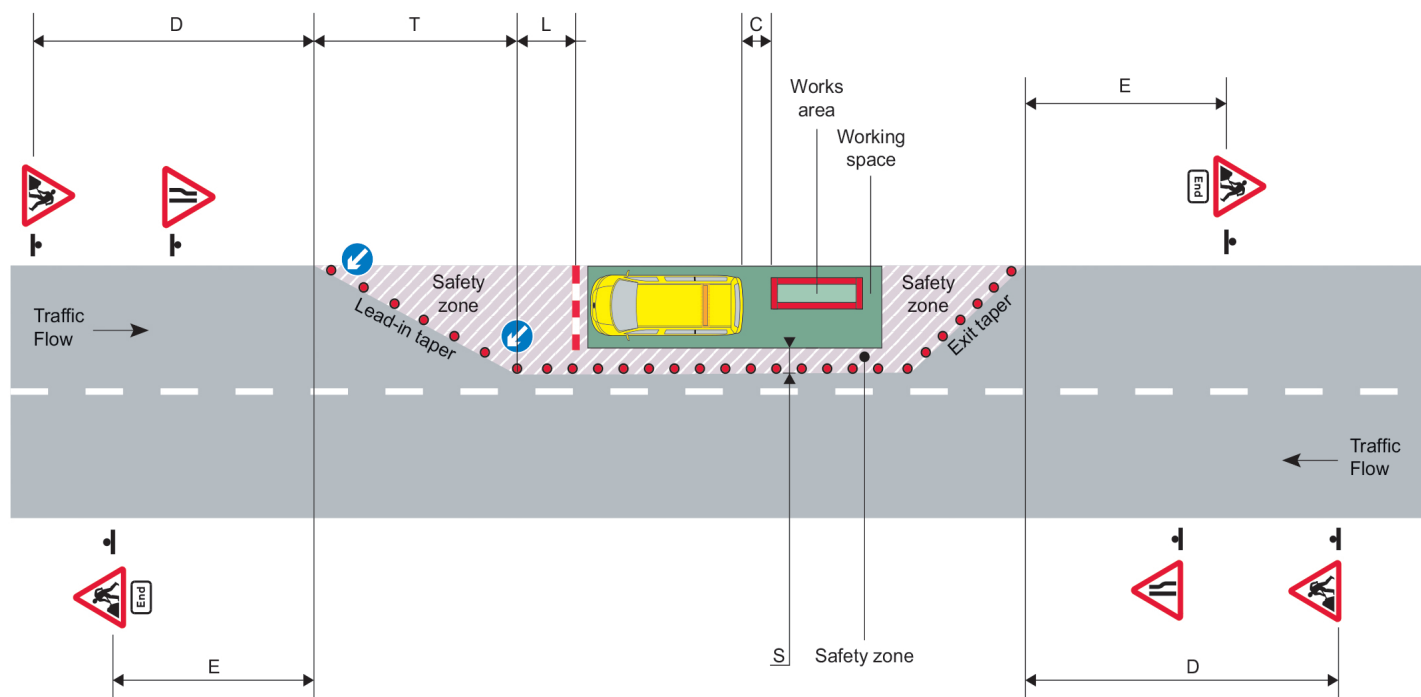
NOTE: Diagrams and drawings are NOT to scale and are meant as an example only. Regulations MUST be consulted as sign and conspicuity marking dimensions are subject to regulations. Drawings are as accurate as possible.

DO NOT COPY DIAGRAM LAYOUTS WITHOUT FIRST CONSULTING THE REGULATIONS

3.6 Example layouts

The vehicle will become the advanced sign and form a guard to the work area where the activities are carried out 'down-stream' of the traffic flow. The use of traffic cones should be considered dependent on the length of work area. Fig 3.2 shows a typical layout recommended for this type of activity. This situation will be subject to good visibility on the piece of road considered as the work site. Alternatives must be considered if the work area is to be 'upstream' to the traffic flow.

Fig 3.2 Basic layout with a works vehicle



Where possible, operatives and other road marking personnel should follow safe routes around the site. Hazard awareness should be written into safe systems of work and remain a key factor in training and supervision. This must include details on how important it is to enter and exit the vehicle in a safe manner.

3.7 Unforeseen situations

The methods of work shown, is for planned works. Should the task encounter an unforeseen situation where the short duration time allowance will be exceeded, non planned activity can be conducted until the task is completed and/or the work site rendered safe. This additional time **MUST NOT** be planned in normal scheme planning as it is strictly for unforeseen situations e.g. vehicle or plant breakdowns, suspended works due to increased traffic flows or client / contractor job control holdups.

Refer to 3.8 below if the maximum time is exceeded.

3.8 Works durations longer than 15 minutes

Where tasks are planned to take longer than the short duration works limit or unforeseen situation result in the task exceeding the limit, additional TM will be required. Examples of such road lay-outs and TM are available in the "Red Book".

In all cases risk assessments MUST be conducted to help select the appropriate action.

3.9 Road junctions

Road junctions are more complicated when compared to the layout in Fig 3.2 above. Figs 3.3, 3.3a & 3.3b give examples of how the work area **COULD** be laid out to offer protection from risks and hazards where activities are becoming more complex.

In all cases, the road marking scheme must be risk assessed to a suitable and specific level in order to confirm the level of risk prior to selecting the limited signage option. Advanced signing in normal circumstances will only be applied to the primary route. Should extra TM be deemed necessary by the client or principle contractor, E.g. side roads leading in to the primary route would not be classed as 'normal circumstances'

Fig 3.3 Works in a side road at a T-junction

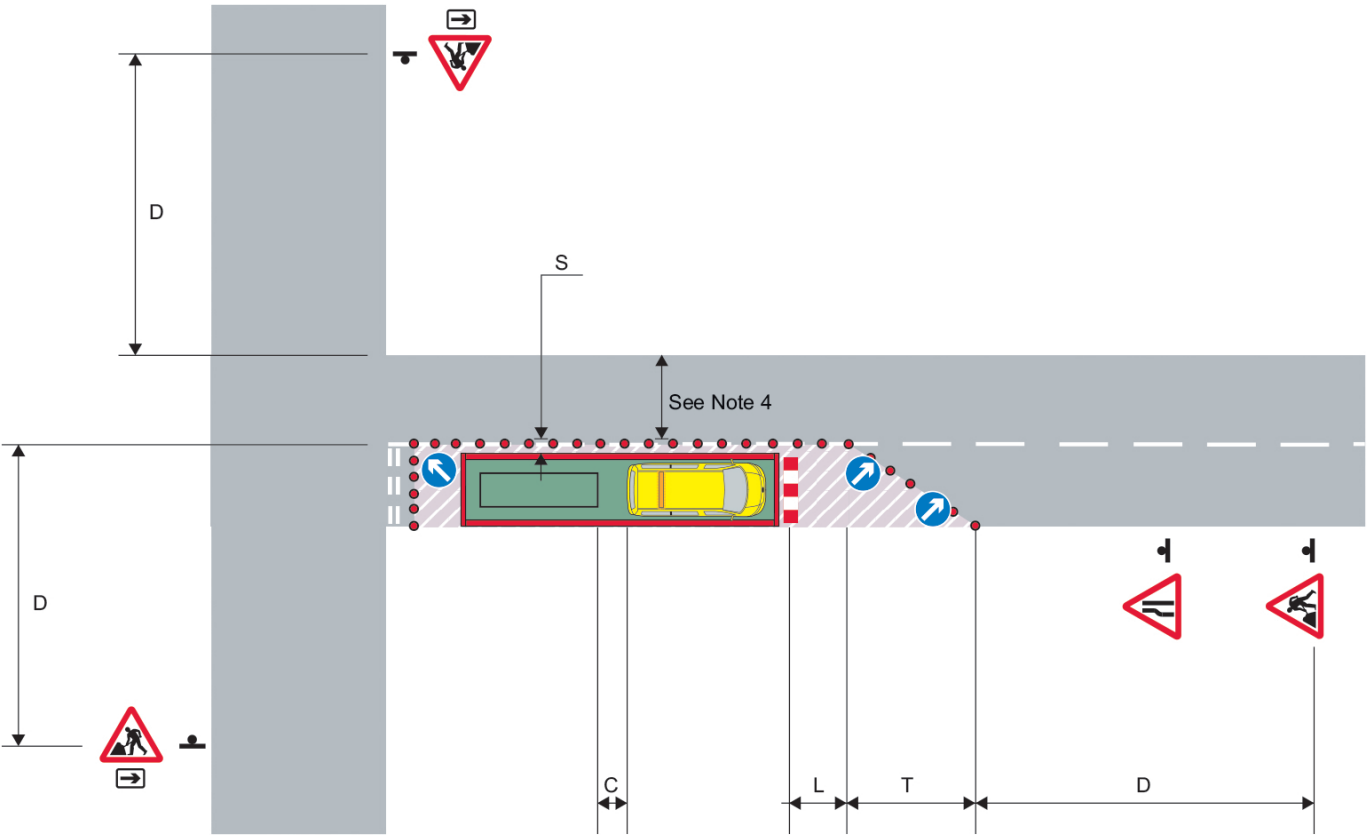
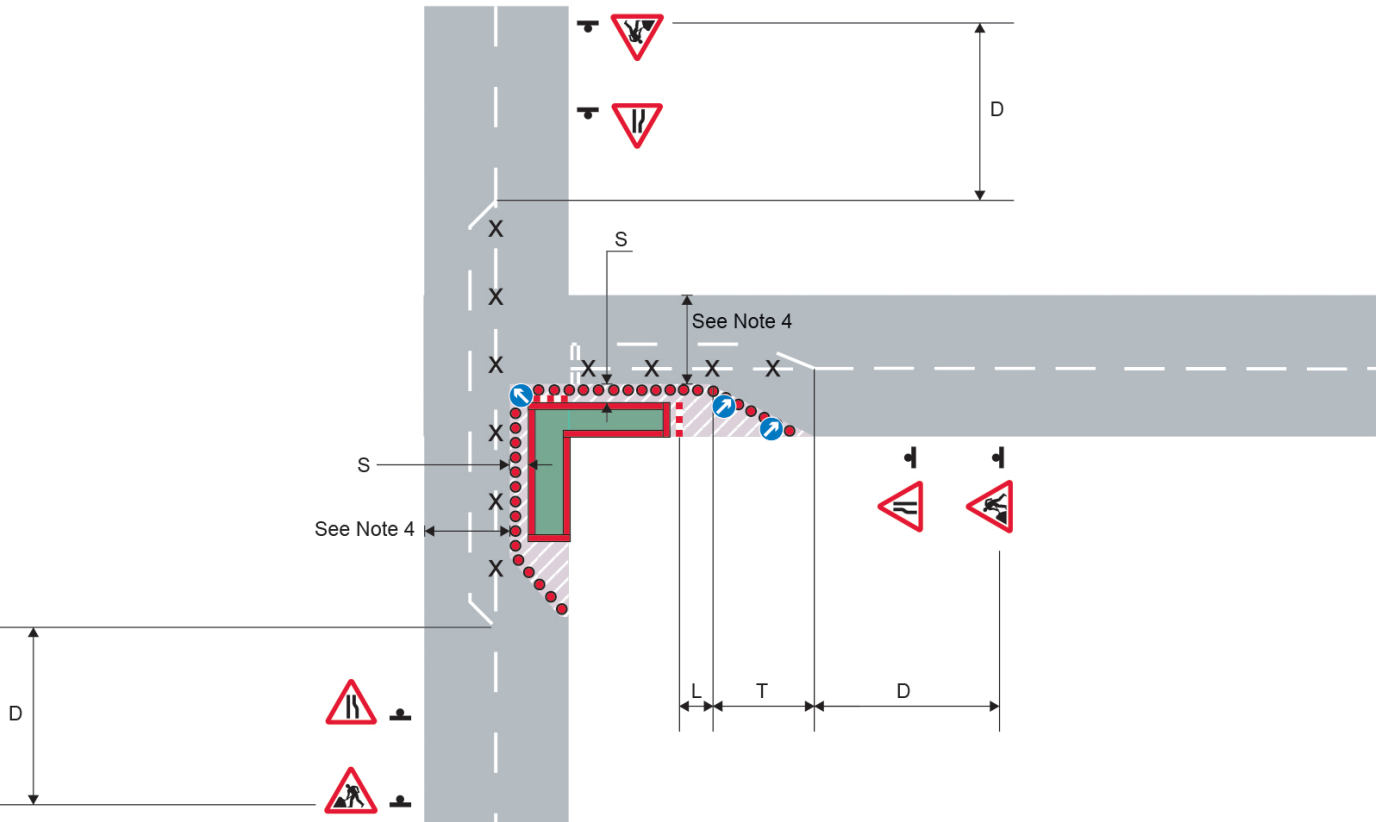


Fig 3.3a Works in both roads at a T-junction



As a general rule it is not recommended by the RSMA to engage in any hand applied centre line work as centre line work (including pedestrian applicator) is not considered as presenting 'normal risk', without the use of minimum TM. It is however fully dependent upon the findings of a suitable and specific site risk assessment as to what level of TM would be required; an example of what should be considered is listed below:

- How long will the work take?
- Is the site subject to good visibility?
- What level of traffic flow can be measured through the proposed site?
- What types of vehicles move through the work area?
- Has a specific site risk assessment been carried out that shows it is safe to conduct the work?
- Will parked/static traffic compromise visibility and sight lines?

It is clear from the requirements above that conducting centre line application work by hand is considered a high risk activity. Far more scenarios exist than can be illustrated in this publication. Safe systems of work shall be identified by conducting suitable and specific risk assessments on the work areas and effective communication with the client or local authority as illustrated in the TM responsibility table before commencing work.

3.11 Good visibility

The meaning of the term 'good visibility' is referred to in the "Red Book" however, it is important to expand on that meaning in order to highlight the importance of the term.

Traffic Signs Manual: Chapter 8 describes good visibility as "visibility extending the full length of the stopping sight distance." The stopping sight distance is the distance that would be required for a vehicle to come to a safe stop taking into account the time the driver has to:

- Perceive the hazard ahead
- React to the hazard ahead
- Apply the vehicle brakes
- Stop safely before the hazard

Examples of where good visibility would be restricted and further risk assessments would be required are listed below:

- Blind bends
- Brows of hills and blind summits
- Dips in the road
- Bends with trees and other obstructions
- Junctions and intersections (Including work on primary routes where complex junctions and layout exist)
- Routes with high volumes of parked and/or stationary vehicles
- Routes with high volumes of traffic (buses and lorries block drivers lines of sight)
- Sight lines blocked by buildings and structures

Weather conditions may also reduce visibility. The assessment process must take into account any likely variations in environmental conditions. It is extremely easy to risk assess in fair weather and not even consider what would happen should it rain. Examples of environmental conditions that may restrict good visibility are:

- Fog
- Heavy rain, sleet or snow
- Reduced daylight
- Low level sunshine (Autumn or spring sunrise and sun sets)
- Vehicle spray during rain and wet weather

Section 4 Machine applied road markings and short duration activities.

4.1 Machine applied road markings

Road marking materials are often applied to the carriageway by slow moving vehicles. In most cases it would not be considered as reasonably practicable to fully sign and guard the work area; however the results of a site specific risk assessment will determine how the work area should be signed and guarded.

Short duration work may only require the road marking vehicle and other support vehicles to move in convoy together. This situation would require the vehicles to be marked and signed as in fig 3.1.

In all cases it is recommended that specific co-ordination and communication between the road marking contractor, the client, local authority and the principle contractor takes place prior to the work commencing to ensure the safest method is used to protect the workforce and other road users.

Road markings are applied by a variety of different machines and plant equipment. Some plant equipment may be derived from larger vehicles in excess of 7.5t. Others may be purpose built application buggies.

Application methods may differ as would the scenarios faced in live situations. It is therefore recommended that every situation be evaluated on an individual basis. Suitable and specific risk assessments conducted with the involvement of the client, principal contractor or local authority will help to highlight any potential hazards regarding the selected application method and TM requirements.

4.2 Mobile and short duration works

Mobile works are activities carried out from a continuously moving vehicle. Machine applied markings belong in this category as they are generally continuously moving and move more slowly than the normal traffic flow.

Mobile works include continuous road marking operations.

NB: Stud installation activities will involve short duration periodic stops.

Short duration works

This will involve a single vehicle or a small number of vehicles undertaking intermittent short duration stops of up to 15 minutes for line painting, line removal or stud works.

Medium duration stops of up to 60 minutes may also be undertaken. Works that are expected to last more than 60 minutes must have additional TM as required. See the selection flow chart and the TM responsibility table for details regarding how to select the appropriate TM.

Specific risk assessments for mobile or short duration works

A specific risk assessment and associated method statements must be done for mobile or short duration works before the work begins. The risk assessment must always involve the client or principle contractor, who must advise on site specific hazards, requirements and guidance covered under CDM regulations and will help with the risk assessment process. The assessment must take into account the road layout and traffic speed, an estimate of the time taken to complete the marking activity and any additional allowances for work not going smoothly. The TM selection flow charts will assist in the selection of appropriate TM controls.

Section 5 Basic TM applications.

Where situations require basic TM to be applied to the work site. E.g. when a task is expected to take longer than the short duration maximum, or the site specific risk assessments show that a minimum level of TM is required; the road marking crew may be called upon to apply TM to the site.

5.1 Application levels and time

Table 5.1 shows the absolute minimum stock of TM signage to be carried on a standard road marking vehicle. Clients and contractors should make themselves aware of this minimum inventory of signage. Any additional signage required for a particular site will require specific co-ordination and communication between the road marking contractor, the client and the principle contractor. This is a key factor in the planning stage of a scheme. Road marking contractors who are expected to provide TM over and above that listed in table 5.1 may require the input from a specialist TM supplier. Extra TM often increases the time taken to apply the markings and therefore increases the costs. The use of the signing and guarding flow charts will provide a guide as to what level of TM is required; this must be done at the planning stage of a scheme. Road marking contractors may need to apply charges for TM as an extra to the standard price and this must be done early in the project. This will avoid 'corner cutting' and the premature removal of TM that may increase the risk of accidents and incidents.

Table 5.1				
Sign example	Number	Size (mm)	Quantity	Description and use
	7001	750	2	7001 road works sign Red triangle warning sign. Used as an advanced warning sign to the work area.
	7001.1	750	2	7001.1 is a variant of the 7001 described above and can be carried in place or in addition to the standard 7001. This variant carries a 'sub plate' informing the approaching driver of what type of work is going on ahead.
	610	750	2 (1 keep right, 1 keep left)	610 direction arrows indicate 'keep right' or 'keep left' instructions to vehicular traffic only. Pedestrians must not be instructed using a 610 arrow. Where vehicles are fitted with a 610 directional arrow, the arrow shall be removed or otherwise masked when travelling to and from the works area. This can be done by making the sign removable, fabricating a frame or mounting so it can allow the sign to be folded away.
	517	750	1	Road narrows on the left ahead. This sign is placed after the advanced warning sign (7001) and serves as an information sign to inform drivers of the approaching hazard on the same side as the works.
	517	750	1	Road narrows on the right ahead. This sign is placed after the advanced warning sign (7001) and serves as an information sign to inform drivers of the approaching hazard on the opposite side to the works

Table 5.1 Continued

Sign example	Number	Size (mm)	Quantity	Description and use
	7101.1 7102	450 Min 750 1000	6-12	Authorised cones are classed as a safety sign, informing drivers of, not only the hazard but the safe direction to drive in. The absolute minimum number of cones carried on a standard line marking vehicle must be six. It is however important to plan and coordinate more complex schemes to ensure that the number of cones will satisfy any significant findings on the site risk assessment. Cone size, position and number can be checked against example layouts in Safety at Street Works and Road Works, A code of practice (The RED Book)
Additional signs (optional)				
	7010.1	750	2	A permitted variant of the 7010.1 showing the "WORK IN CENTRE OF ROAD" wording may be a suitable addition when conducting centre line marking activity. This sign variant provides an additional warning to vehicular traffic to proceed slowly owing to a temporary hazard resulting from centre line painting. Used in conjunction with 7001.1 the drivers are better informed of such centre line activity.
	7001	750	2	You must place an End sign beyond works that are 50 metres or more in length and beyond two or more adjacent sites. But an End sign is not necessary on a road where ALL of the following conditions are met : • There are no temporary speed limits or other traffic restrictions • The speed limit is 30 mph or under • there is a total two-way traffic flow of less than 20 vehicles counted over 3 minutes (400 veh/hr) • Less than 20 heavy goods vehicles pass the works site per hour.
 <i>Warning:</i> This measure should only be used after consultation with your supervisor, manager or other competent person and a full on site risk assessment has been undertaken. It is an offence under section 137 Highways Act 1980 to obstruct the highway without lawful excuse.				The use of this sign together with the 'delays possible' sign in advance of the works may be permitted if ALL the following apply:- • No alternative method of operation is practical • Other forms of TM are not practical • The street authority is notified in advance of the expected use of this measure • Traffic is not delayed for longer than 15 minutes at any one time and there is at least one hour between delays • The sign is placed in a suitable position to enable road users to find an alternative route

5.2 Sign standards and quality

The national annex to BS EN 12899-1 covers the size and shape of all signs. TM signs MUST be of the correct class for the speed of road on which it is to be used. This guide concentrates on single carriageway roads up to and including 40 mph and therefore only recommends signing and guarding that is acceptable in that category.

Those responsible for TM should seek advice from supervisors or managers if they are in any doubt about what signs are acceptable to use.

Clean & Visible

All TM equipment MUST be kept clean in order that they remain clearly visible. Damaged signs and cones SHALL be replaced when required. It is highly recommended that signs and cones are checked and audited on a regular basis to ensure legal compliance. This should be done as part of normal equipment checks and planned preventative maintenance schedules. Signs in a similar state to those shown below MUST be taken out of service and replaced:

Fig 5.1



Dirty, damaged cones MUST be removed from service and replaced. All retro-reflective sleeves must be presented in good condition. Cones must be cleaned and maintained on a regular basis.



Temporary traffic signs that are in a similar or worse state as this 610 arrow MUST NOT be used. Signs must be cleaned and maintained on a regular basis.



5.3 Basic TM competency

Where road marking contractors are required to apply basic signage to a work site using the inventory of signs detailed in table 5.1, (Also see Signing & Guarding Flow Chart Page 3) it is important that those operatives responsible for setting out such work sites are competent to do so.

Operatives must be trained to at least Sector Scheme 12 D-M1 level. This level of understanding will ensure each operative is familiar with, and aware of the requirements set out in the code of practice known as 'SAFETY AT STREET WORKS AND ROAD WORKS, A CODE OF PRACTICE', commonly referred to as 'The Red Book'. This publication is a code of practice written as a guide to cover all highways and roads except motorways and dual carriageways with hard shoulders. Every road marking vehicle carrying signage as listed in table 5.1 must carry a copy of the 'red book' in the cab. This is to allow easy access to basic safety information and layout requirements. Operatives trained to 12DT1 are not qualified to perform positive traffic control such as stop/go.

Setting out signs safely

The safety of the road marking crew, other road users and anyone else that may be affected by road marking activities MUST be considered when setting out signs. On road marking schemes where signs are required it is important to take reasonable care when setting out the site. It is often considered that setting out and removal of TM can be more hazardous than completing the road marking activity. In order to keep road marking crews as safe as possible it is important to follow the sequence of setting out as discussed in the red book. The following factors may help to increase site safety for all:

Parking

Road marking vehicles must be parked safely before unloading or setting out signs. If the vehicle cannot be parked safely off the road without obstructing footways or cycle tracks, then the vehicle must be clearly seen by other road users. Roof-mounted amber beacons must be switched on during this activity.

Precautionary measures

If possible, place signs so that they do not obstruct vehicles, cyclists, pedestrians or other road users.

Where road marking activity occurs at night or during periods of low light, or where there is no street lighting road danger lamps must be used as recommended in the Red Book.

Advanced signing

It is important that signing distances and dimensions are determined before setting out the signs. Site surveys and risk assessments will be required to determine the level of TM needed. This can be done in conjunction with the signing & guarding flow charts. Should circumstances require extra signs, e.g. when working on bends or dips in the road (see 3.11 good visibility) then extra advanced warning signs may be needed. In such cases prior planning must have been done to determine how this extra signage will be supplied. Road marking crews MUST be encouraged by good management and supervision to avoid the 'Just get on with the job' scenarios, when they do not have sufficient signage to satisfy legal requirements.

Basic checklist

This basic check list can be used as a reminder and as part of the Risk Assessment process before, during and after a road marking scheme is conducted:

Before you start: general

- Is high visibility clothing being worn by everyone on site?
- Are all signs and cones correctly placed?
- Are signs obscured by bends, hills or dips in the road? (good visibility)
- Are advanced signs needed?
- Are the signs and cones clearly seen by other road users?
- Is there enough road width remaining for two-way traffic?
- Are there any site specific risks requiring special attention?

Before you start: traffic

- Is the type of traffic control right for the work, traffic and speed?
- Have misleading permanent road markings and signs been covered?
- Is there safe access to adjacent premises?
- Has consideration been given to cyclists, horse riders and other pedestrians?

Before you start: Pedestrians

- Are pedestrians protected from the work activity?
- Will noise and debris directly affect pedestrians?
- Can the site area be kept clean & tidy?
- Will on-lookers and spectators to the work be exposed to any hazards?
- Do barriers need to be erected?

When work is in progress:

- Does the signage meet any changing conditions?
- Are signs and cones clean and up to standard?
- Can signage be improved to reduce traffic delays as conditions change?
- Is the carriageway and footway being kept clear of debris and surplus equipment?
- Are materials and equipment being stored on site in a safe manner?

When work is finished:

- Have all signs and cones been removed correctly?
- Have any covered permanent signs been restored?
- Have the authorities been told the work is complete?

