



An Roinn Iompair
Turasóireachta agus Spóirt

Department of Transport,
Tourism and Sport

ROADS Services Training Group

LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION - 2017

SAFER ROADS

Radisson Blu Hotel, Rosses Point Road, Sligo, May 2017

LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION – 2017 SAFER ROADS

Temporary Traffic Management Developments Gerry O'Brien



Project Background

- ❑ Current Temporary Traffic Management Guidance Structure
 - Chapter 8 Traffic Signs Manual
 - ❑ First published 1996, updated 2007
 - ❑ Addendum 2010
 - Guidance for the Control and Management of Traffic at Road Works – Design guidance document for temporary traffic management at road works on single carriageway roads.
 - ❑ First Edition 2007
 - ❑ Second Edition 2010
- ❑ Operations Guidance – None

Requirement for Operations Guidance

- Chapter 8 TSM
 - Section of TSM – Ministerial Directive to Road Authorities under Section 95(16) of the Road Traffic Act 1961 in relation to the provision of traffic signs.
 - Sign specifications, works types, road classifications, traffic control methods
- Guidance for the Control and Management of Traffic at Road Works
 - Design Guidance for TTM Plans
 - Single Carriageway Roads only
 - Aimed at TTM Designer - very little operational Guidance
- Need for Operations Guidance Document
 - Aimed at Temporary Traffic Operations Supervisor (TTOS)
 - Focus of guidance on implementation, maintenance, modification and removal of temporary traffic management
 - Initial position paper identified fundamental issues within existing Chapter 8 and Design Guidance

Issues Identified in Existing TTM Documents

□ Current Road Classifications

- Existing Chapter 8 TSM - 6 road classifications
- Classification based mainly on speed
- Little difference between urban and rural roads in classification but significant difference in terms of TTM required
- Urban \leq 60km/hr dual carriageways classified with High Speed Dual Carriageway and Motorways but fundamentally different TTM arrangements required on them
- New design standards introduced via DMURS not provided for under old classification system
 - Potential for reducing sight distance / visibility requirements in Urban areas in line with DMURS

□ New 3 Level Road Classification system for TTM

- Urban / Low Speed
- Rural
- High Speed Dual and Motorway

Issues Identified in Existing TTM Documents

- ❑ Current Roadworks Types
 - Types A,B and C
 - Lack of clarity on durations and carriageway capacity
 - Short Duration Inspections type works still require onerous TTM
 - Differing Interpretations of existing types
- ❑ Proposed New Roadworks Types
 - Retain A B C structure but redefine
 - Works type defined by
 - ❑ Duration
 - ❑ Traffic Flow Condition
 - ❑ Visibility
 - ❑ Road Classification
 - Selection of type to allow flexibility and take cognisance of a Risk Assessment
 - New Type C works for short duration <15mins stops with reduced signage requirement based on visibility requirements

Issues Identified in Existing Chapter 8 and Design Guidance Document

- Lack of detailed guidance on:
 - Operational issues
 - Urban TTM requirements
 - Low speed dual carriageways and multi lane streets
 - Operations on narrow rural roads
 - Semi Static Operations
 - Climbing Lanes, 2+1's 2+2's

Project Scope

- ❑ New Temporary Traffic Management Operations Guidance
 - Operational guidance at TTOS level
 - Layout based on road levels
- ❑ Revision of Guidance for the Control and Management of Traffic at Road Works
 - Update for new works types and road classifications
 - New guidance on Urban TTM Design
 - Enhance existing guidance on rural roads
 - Re structure as “Temporary Traffic Management Design Guidance”
- ❑ Revision of Chapter 8 TSM
 - Update for new works types and road classifications
 - Amend to take account of established best practice and new operation and design guidance

Project Scope

- Produce Suite of Documents covering all Aspects of TTM on Irish Roads
 - Temporary Traffic Management Operations Guidance
 - Temporary Traffic Management Design Guidance
 - Chapter 8 Traffic Signs Manual
- Project Resources
 - Dedicated Project Team – Arup and Cork County Council
 - Technical Working Group – representatives from DTTAS, TII, Local Authorities, Industry Stakeholders
- Timeframe
 - TTM Operational Guidance: Draft Consultation Documents to be issued end of Q2 2017
 - Documents ready for publication Q4 2017
 - TTM Design Guidance and revised Chapter 8 to be issued to DTTAS Q4 2017



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Temporary Traffic Management Operations Guidance Documents

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Operations Guidance Document Structure



Introduction and Background



Level 1 Roads

Urban and Low Speed Roads



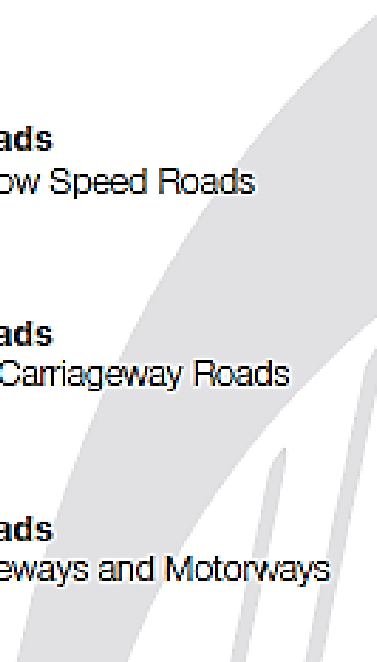
Level 2 Roads

Rural Single Carriageway Roads



Level 3 Roads

Dual Carriageways and Motorways



Part 0 – Introduction and Background Objectives

- ❑ Provide guidance on the planning, implementation, maintenance, modification and removal of TTM
- ❑ Provide a consistent approach for Local Authorities, TII and other stakeholders involved in TTM operations
- ❑ Identify and promote safe methods of working for road workers involved in TTM operations
- ❑ Provide a safe passage for road users through, past or around a roadworks site

Part 0 – Introduction and Background Scope

- ❑ Part of a suite of publications covering all aspects of TTM
- ❑ Provide operational guidance for TTM on all roads
- ❑ Intended for use by the Temporary Traffic Operations Supervisor (TTOS) and others involved in TTM operations
- ❑ May also be used by stakeholders to allow the development of standard operating procedures (SOPs) for their own particular routine operations

Part 0 – Introduction and Background Planning and Design

New Road Classifications

Class		Carriageway Type	Speed / Speed Limit (km/h)
Table No.			
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

Part 0 – Introduction and Background

Planning and Design

New Roadworks Types

TTM Type	Description	Traffic Flow Conditions	Visibility Conditions	Planned Duration
Static Type A	Works requiring full time Temporary Traffic Management (TTM)	All	All	Permitted for any duration but required for durations in excess of 12 hours
Static Type B	Works that normally involve the use of one or two vehicles in the operation. This type of work is typically maintenance and repair type operations, including maintenance of utilities or street furniture.	Unrestricted by either traffic volume or weather conditions	All	Permitted for a duration of up to 12 hours
Static Type C	Works at a discrete location that is of a short duration (excluding signage setup).	Unrestricted by either traffic volume or weather conditions	Good	Permitted for a duration of up to 15 minutes
Semi Static Operation (SSO)	Works where the operations are mobile or making short duration stops (in the region of 15 minutes) continuously along a road where static warning signs are used. SSO is only suitable on Level 1 and 2 roads.	Unrestricted by either traffic volume or weather conditions	Good	Permitted for stop durations of up to 15 minutes
Mobile Lane Closure (MLC)	Works where the operations are mobile or making short duration stops (in the region of 15 minutes) continuously along a road where mobile warning signs and Impact Protection Vehicles (IPV) are used. MLC is only suitable on Level 3 roads.	Unrestricted by either traffic volume or weather conditions	Good	Permitted for stop durations of up to 15 minutes

Part 0 – Introduction and Background Planning and Design

Training and Safety Zones

Level		Carriageway Type	Speed Limit / Speed (km/h)	Works Type					Safety Zones	
Main	Sub			Static			SSO	MLC	Lateral (m)	Longitudinal (m)
				A	B	C				
Level 1	i	Single	≤ 30	SLG	SLG / SRW	SLG	MLC	0.5	0.5	
	ii	Single	40					0.5	0.5	
	iii	Single	50					0.5	5	
	iv	Single	60					0.5	15	
Multi-Lane / Dual		≤ 60								
Level 2	i	Single	80	SLG	SLG / SRW	SLG	MLC	1.2	45	
	ii	Single	100					1.2	60	
Level 3	i	Dual	80	HS	HS	MLC	HS	1.2	45	
	ii	Dual	≥ 100					1.2	60	

Part 0 – Introduction and Background

General Principles

- ❑ TTM Operations
- ❑ Setting-Out and Placing TTM Equipment
- ❑ Post Installation Review
- ❑ What if there are problems with the TTM Plan?
- ❑ TTM Methods



Part 1 – Level 1 Roads

Introduction

Level		Carriageway Type	Speed Limit / Speed (km/h)
Main	Sub		
Level 1	i	Single	≤ 30
	ii	Single	40
	iii	Single	50
	iv	Single	60
		Multi-Lane / Dual	≤ 60

Part 1 – Level 1 Roads

Scope

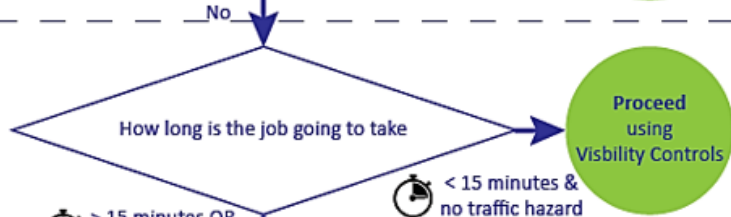
- ❑ Specific characteristics including limited road width, traffic signals, pedestrian crossings, junctions, parked cars and street furniture.
- ❑ The guidance, principles, risk assessment methodology and potential options vary significantly from other roads.
- ❑ Effectively the rationale and decision making is unique to urban areas.

Part 1 – Level 1 Roads Traffic Management Process

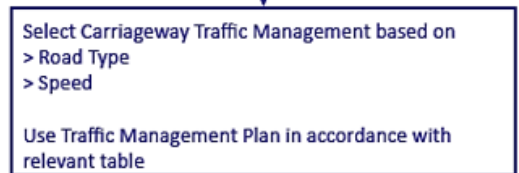
Organisation Procedure



Site Procedure Step 1



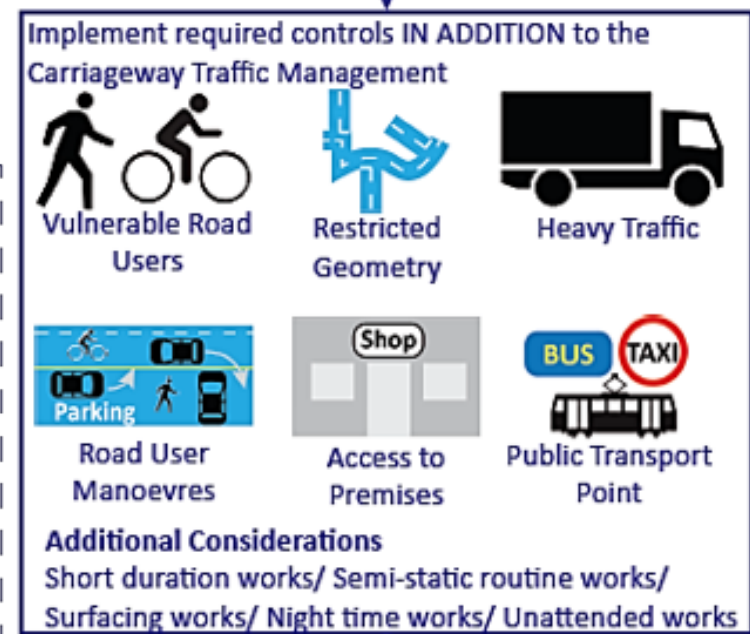
Step 2



Step 3









Step 4



Part 1 – Level 1 Roads Site Assessment

This includes seven headings:

Implement required controls **IN ADDITION** to the Carriageway Traffic Management

 Vulnerable Road Users	 Restricted Geometry	 Heavy Traffic
 Road User Manoeuvres	 Access to Premises	 Public Transport Point

Additional Considerations
Short duration works/ Semi-static routine works/
Surfacing works/ Night time works/ Unattended works

Part 1 – Level 1 Roads

Risk Control Measures Matrix

Severity	Risk		
Major	Medium	High	High
Serious	Low	Medium	High
Minor	Low	Low	Medium
	Unlikely	Likely	Very Likely
	Likelihood		

Part 1 – Level 1 Roads

Risk Control Measures Matrix

at 30 km/h – 1 in 10 will die



at 50 km/h – 5 in 10 will die



at 60 km/h – 9 in 10 will die



Part 1 – Level 1 Roads

Site Assessment Control Selection

Risk	Procedure
Low	Acceptable to install appropriate standard TTM, proceed with work and monitor as required.
Medium	Action required. Install standard TTM layout and additional controls.
High	Site Specific Plan required. Get TTM design input.

Selection Process

1. How long is the job going to take?
2. Select TTM required for carriageway
3. Risk assess for additional controls
4. Select appropriate additional controls

Part 2 – Level 2 Roads

Introduction

Level		Carriageway Type	Speed Limit / Speed (km/h)
Main	Sub		
Level 2	i	Single	80
	ii	Single	100

Part 2 – Level 2 Roads

Methodologies

- ❑ Pinch Points – ensure signs are staggered by min. 50m
- ❑ Sign Visibility



- ❑ Vehicle and Operative Visibility

Part 2 – Level 2 Roads

Static Operations

- ❑ Operations at Junctions and Roundabouts
- ❑ Operations on Narrow Roads
 - Where works cannot be suspended
 - Where works can be suspended
- ❑ Switching between Phases
- ❑ Single Vehicle Works, Short Duration Works and Inspection Stops
- ❑ Railway Crossings

Part 2 – Level 2 Roads

Semi-static Operations

- SSO with Unobstructed Road Width > 2.5m

Speed (km/h)	Advance Signage Visibility (m)	Hard Shoulder Works	Stop / Go ¹			Give / Take ²	
		Max 3 min Count	Max 3 min Count	Stop/Go Operator Distance from Works (m)	Advance Visibility to Stop / Go (m)	Max 3 min Count	Advance Visibility to Works (m)
80	90	130	50	45	90	20	160
100	120			60	120		215

- SSO with Unobstructed Road Width < 2.5m

Part 2 – Level 2 Roads

Wide Single Carriageways, Climbing Lanes and Overtaking Lanes

- Wide Single Carriageways (Lane widths $> 3.65\text{m}$)



Part 2 – Level 2 Roads

Specific Operations

- Some operations may be carried by using either a static or semi-static layout depending on the type of works to be undertaken.

These include:

- Surface Dressing;
- Road Marking Works; and
- Traffic Sign Works.

Part 3 – Level 3 Roads

Introduction

Level		Carriageway Type	Speed Limit / Speed (km/h)
Main	Sub		
Level 3	i	Dual	80
	ii	Dual	≥ 100

Part 3 – Level 3 Roads

Vehicles and Equipment

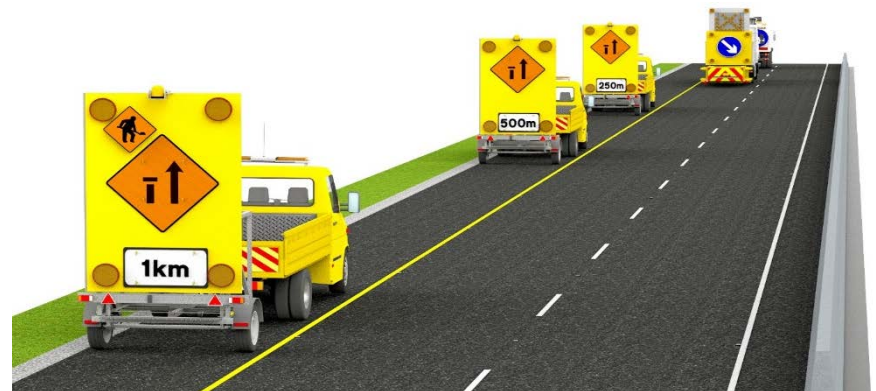
- IPV



- Static Signage

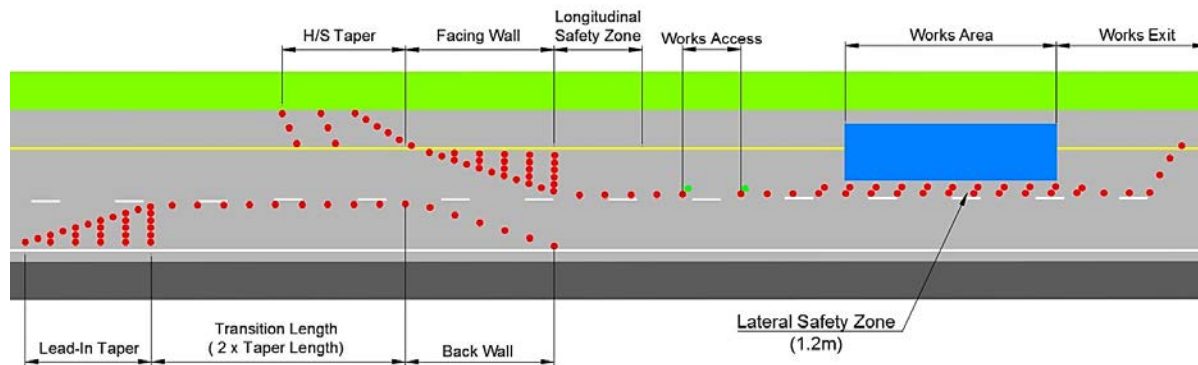
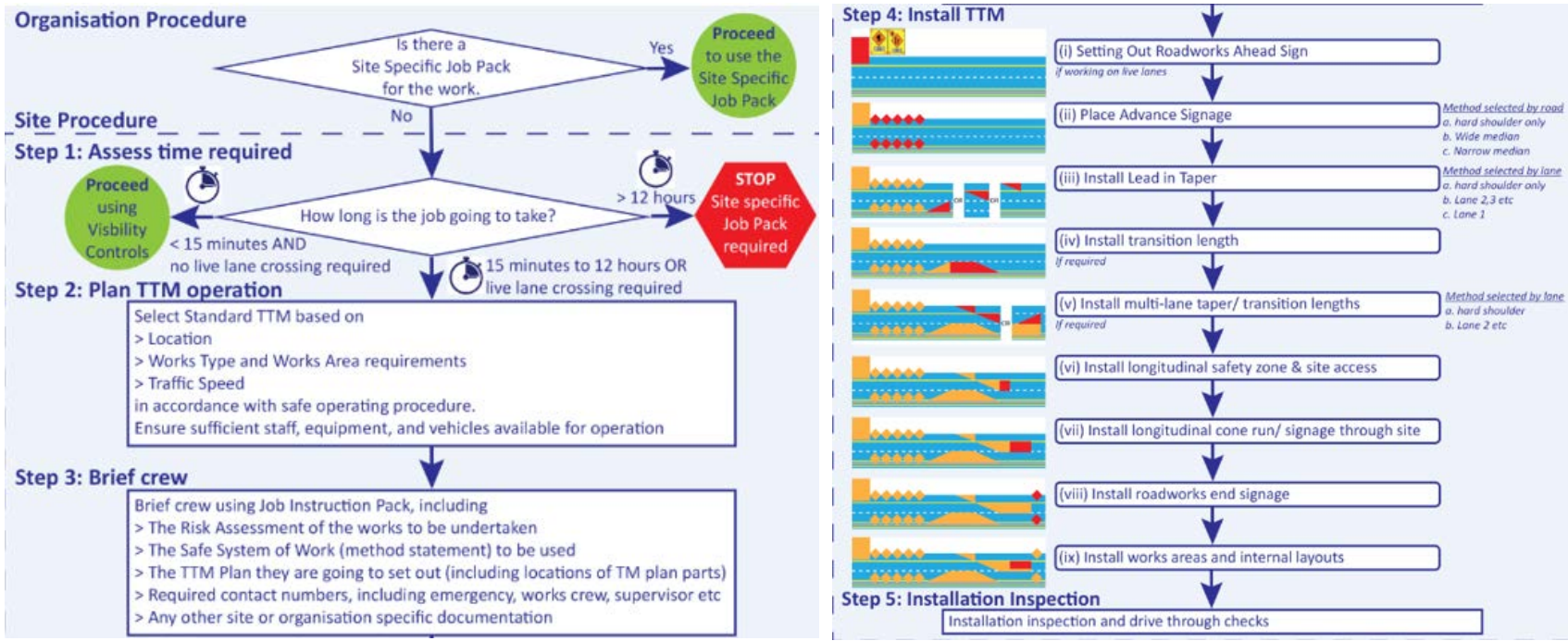


- Mobile Lane Closures



Part 3 – Level 3 Roads

Static Operations – Setting-out Methodology



Part 3 – Level 3 Roads

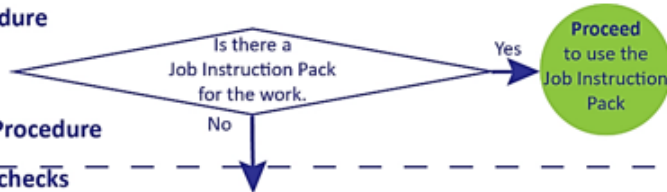
Static Operations – Installations

- H/S Closure
- Lane 1 Closure
- Lane 2 Closure
- Multi-lane Closures
- Merges and Diverges
- Hard Shoulder Running
- Lane Switches during Works
- Narrow Lanes
- Lane Gain & Lane Drop
- Up & Overs
- Road Closures
- Roundabouts
- H/S and verge works
- Contra-flows
- 2+1 c/w
- Transitions to 2+1 & 2+2 c/w

Part 3 – Level 3 Roads

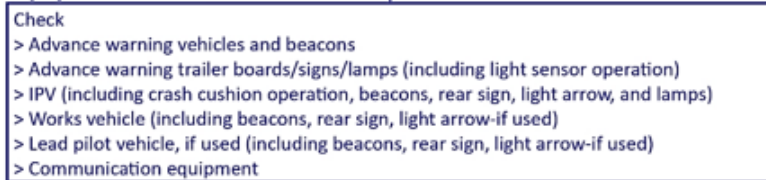
Mobile Operations - Methodology

Organisation Procedure

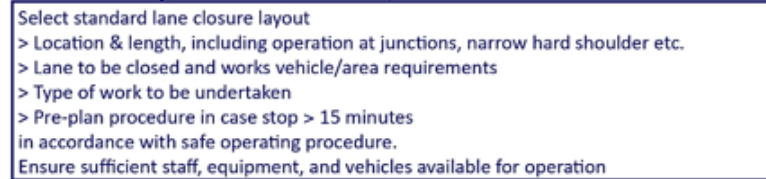


Mobile Operation Procedure

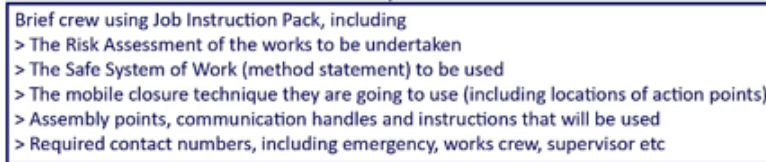
Step 1: Equipment checks



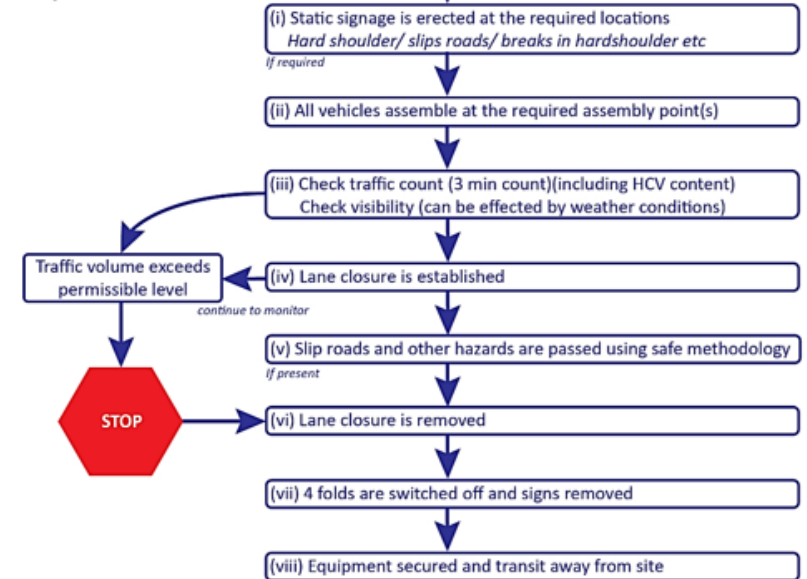
Step 2: Plan mobile operation



Step 3: Brief TTM and works crew



Step 4: Mobile lane closure



Part 3 – Level 3 Roads

Mobile Operations – Applications

- ❑ H/S Closure
- ❑ Mobile Lane 1, Lane 2/3 & Multi-lane Closures



Part 3 – Level 3 Roads

Mobile Operations – Applications

- ❑ Slip Roads Works
- ❑ Rolling Road Block
- ❑ Hazard Negotiation
 - Slip Road Negotiation
 - Passing Obstacles
 - Compact Junction Negotiation
 - Operations where Hard Shoulder is not present
- ❑ Verge and Median Works

Summary and Next Steps

- ❑ The reader should now be able to take the requirements within Chapter 8 of the TSM and Design Guidance Document and implement them using safe operation methods on-site.
- ❑ DTTAS notification to LA's and other stakeholders in May 2017 detailing consultation process
- ❑ Draft documents to be issued for consultation by the end of Q2 2017
- ❑ Final Documents to be issued to DTTAS in Q4 2017



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Thank You