ROADS Services Training Group

LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION - 2018

Lyrath Estate Hotel, Kilkenny, May 2018.

LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION – 2018

Updates to Chapter 8 of TSM

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LASNTG Local Authority Services National Training Group

An Roinn Iompair Turasóireachta agus Spóirt
Department of Transport, Tourism and Sport

Background

Temporary Traffic Management (TTM) Project

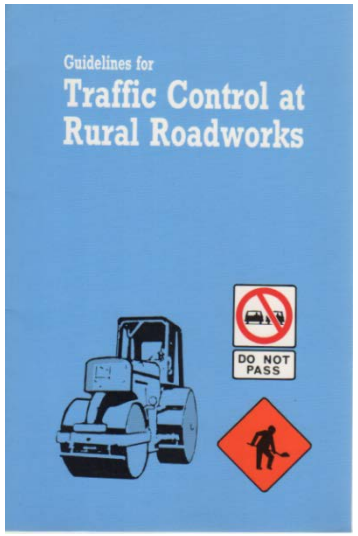
- Produce a Suite of Documents covering all aspects of TTM on Irish Roads
  - Chapter 8 Traffic Signs Manual
  - Temporary Traffic Management Design Guidance
  - Temporary Traffic Management Operations Guidance
- Project Resources
  - Dedicated Project Team
    - Arup and Cork County Council
    - DTTAS Support Office
  - Technical Working Group
    - Representatives from DTTAS, TII, Industry Experts, Local Authorities, Industry Stakeholders

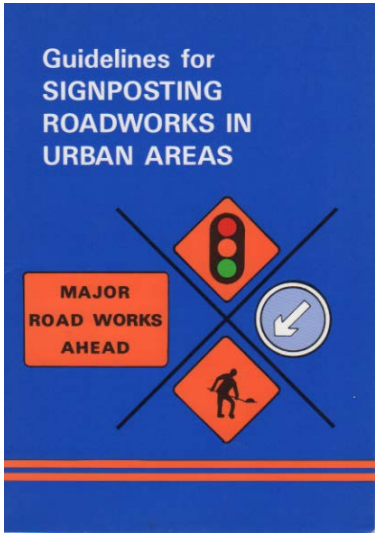
Overview

- Legal status of Chapter 8
- New road level classifications
- Temporary Traffic Management (TTM) Roadworks Types
- Collection of TTM Guidance Documentation
- TTM Signs
- TTM Equipment
- Working drawings for TTM signs

Chapter 8 TSM

- TSM – Ministerial Directive to Road Authorities under Section 95(16) of the Road Traffic Act 1961 in relation to the provision of traffic signs.
- Rural Traffic Control 1986
- Signposting Roadworks in Urban Areas 1988
- Published in 1996, updated 2007
- Updated in 2010
- Updated in 2018
- Sign specifications, works types, road classifications, traffic control methods
- TSM Chapter 8 requires Ministerial approval to implement revisions

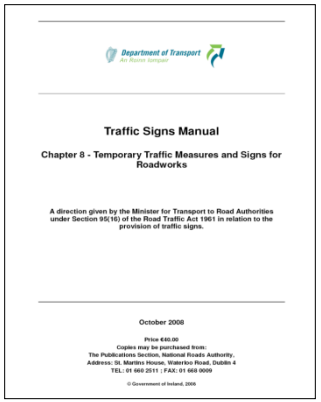




SPECIFIC TTM INDUSTRY LEGISLATION / GUIDANCE

TRAFFIC SIGNS MANUAL (TSM)

- Chapter 1 - Introduction & Sign Location
- Chapter 2 - Directional Information Signs
- Chapter 3 - Variable Message Signs
- Chapter 4 - Other Information Signs
- Chapter 5 - Regulatory Signs
- Chapter 6 - Warning Signs
- Chapter 7 - Road Markings
- Chapter 8 - Temporary Traffic Measures & Signs for Roadworks
- Chapter 9 - Traffic Signals
- Chapter 10 - Application for Signs & Road Markings


Department of Transport

Traffic Signs Manual

Chapter 8 - Temporary Traffic Measures and Signs for Roadworks

A direction given by the Minister for Transport to Road Authorities under Section 95(10) of the Road Traffic Act 1961 in relation to the provision of traffic signs.

October 2008

Price €40.00
Copies may be purchased from:
The Publications Section, National Roads Authority,
Address: St. Martins House, Waterloo Road, Dublin 4
TEL: 01 660 2511 ; FAX: 01 668 9099

Road Classification Levels

Level 1 Roads
Urban and Low Speed Roads;

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 Roads
Rural Single Carriageway Roads; and

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

Level 3 Roads
Dual Carriageways and Motorways.

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

TTM Roadwork 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 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 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

Design Parameters Tables

- Level 1 Road

Minimum Design Parameters for Level 1(i) Roads
(Single Carriageway ≤ 30km/h)

Design Parameter	Type A > 12 hours	Type B < 12 hours	Type C < 15 mins
Advance Signage			
Sign Size (mm)	450	450	-
Sign Visibility (m)	25	25	25
Number of Signs	2	1	-
Cumulative Distance (m)	20	10	-
Distance between advance warning signs (m)	10	10	-
Taper			
Lane Taper Rate	1 in 1	1 in 1	-
Cones			
Cone Height (mm)			
Taper Spacing (m) [A]	1	1	-
Longitudinal Spacing (m) [A]	3	3	-
Lamps (unlit areas only)			
Taper Spacing (m)	3	3	-
Longitudinal Spacing (m)	6	6	-
Safety Zones			
Longitudinal (m)	0.5	0.5	-
Lateral (m)	0.5	0.5	-
Lanes			
Lane Width (m) [B]	2.5	2.5	-
Two-way Roadway Width (m)	5	5	-

Design Parameters Tables

- Level 2 Roads – Rural Single Carriageway Roads (i) and (ii)

Minimum Design Parameters for Level 2(i) Roads (Single Carriageway of 80km/h)

Design Parameter	Type A > 12 hours	Type B < 12 hours	Type C < 15 mins
Advance Signage			
Sign Size (mm)	600	600	-
Sign Visibility (m)	90	90	90
Number of Signs	4	3	-
Cumulative Distance (m)	480	360	-
Distance between advance warning signs (m)	120	120	-
Taper			
Lane Taper Rate [A]	1 in 40	1 in 40	-
Hard Shoulder Taper Rate [A]			-
Cones			
Cone Height (mm)	750	750	-
Taper Spacing (m) [B]	3	3	-
Longitudinal Spacing (m) [B]	12	12	-
Lamps (unlit areas only)			
Taper Spacing (m)	6	6	-
Longitudinal Spacing (m)	24	24	-
Safety Zones			
Longitudinal (m)	45	45	-
Lateral (m)	1.2	1.2	-
Lanes			
Lane Width (m) [C]	3	3	-

Minimum Design Parameters for Level 2(ii) Roads (Single Carriageway of 100km/h)

Design Parameter	Type A > 12 hours	Type B < 12 hours	Type C < 15 mins
Advance Signage			
Sign Size (mm)	750	750	-
Sign Visibility (m)	120	120	120
Number of Signs	4	3	-
Cumulative Distance (m)	800	600	-
Distance between advance warning signs (m)	200	200	-
Taper			
Lane Taper Rate [A]	1 in 60	1 in 60	-
Hard Shoulder Taper Rate [A]	1 in 30	1 in 30	-
Cones			
Cone Height (mm)	1,000	1,000	-
Taper Spacing (m) [B]	3	3	-
Longitudinal Spacing (m) [B]	12	12	-
Lamps (unlit areas only)			
Taper Spacing (m)	6	6	-
Longitudinal Spacing (m)	24	24	-
Safety Zones			
Longitudinal (m)	60	60	-
Lateral (m)	1.2	1.2	-
Lanes			
Lane Width (m) [C]	3	3	-

Design Parameters Tables

- Level 3 Roads – Dual Carriageways and Motorways (i) and (ii)

Minimum Design Parameters for Level 3(i) Roads (Dual Carriageways and Motorways of 80km/h)

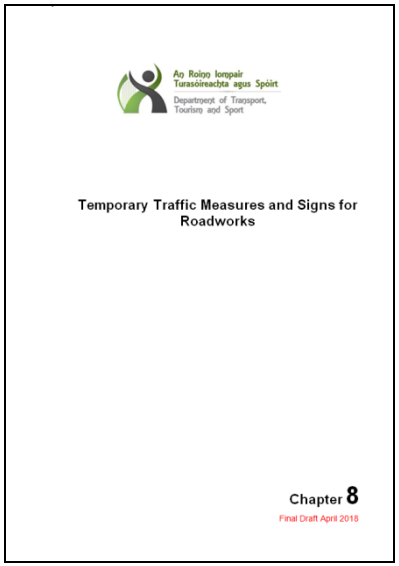
Design Parameter	Type A > 12 hours	Type B < 12 hours	Type C < 15 mins
Advance Signage			
Sign Size (mm)	750	750	-
Sign Visibility (m)	90	90	90
Number of Signs	4 (both sides)	3 (both sides [D]) 4 (left side only [C])	-
Cumulative Distance (m)	480	360 [D] 480 [C]	-
Distance between advance warning signs (m)	120	120	-
Taper			
Lane Taper Length (m)	180	180	-
Hard Shoulder Taper Rate	1 in 20	1 in 20	-
Transition Length (m)	360	360	-
Cones			
Cone Height (mm)	750	750	-
Taper Spacing (m) [A]	3	3	-
Longitudinal Spacing (m) [A]	12	12	-
Lamps (unlit areas only)			
Taper Spacing (m)	6	6	-
Longitudinal Spacing (m)	24	24	-
Safety Zones			
Longitudinal (m)	45	45	-
Lateral (m)	1.2	1.2	-
Set Back (m)	0.4	0.4	-
Lanes			
Lane Width (m) [B]	3.3	3.3	-

Minimum Design Parameters for Level 3(ii) Roads (Dual Carriageways and Motorways ≥ 100km/h)

Design Parameter	Type A > 12 hours	Type B < 12 hours	Type C < 15 mins
Advance Signage			
Sign Size (mm) [C]	1,200	1,200	-
Sign Visibility (m)	160	160	160
Number of Signs	5 (both sides)	4 (both sides [E]) 5 (left side only [D])	-
Cumulative Distance (m)	1,000	800 [E] 1,000 [D]	-
Distance between advance warning signs (m)	200	200	-
Taper			
Lane Taper Length (m)	180	180	-
Hard Shoulder Taper Rate	1 in 30	1 in 30	-
Transition Length (m)	360	360	-
Cones			
Cone Height (mm)	1,000	1,000	-
Max Taper Spacing (m) [A]	3	3	-
Max Longitudinal Spacing (m) [A]	12	12	-
Lamps (unlit areas only)			
Taper Spacing (m)	6	6	-
Longitudinal Spacing (m)	24	24	-
Safety Zones			
Longitudinal (m)	60	60	-
Lateral (m)	1.2	1.2	-
Set Back (m)	0.6	0.6	-
Lanes			
Lane Width (m) [B]	3.3	3.3	-

TTM Documentation

- Chapter 8



- Temporary Traffic Management Design Guidance

- Temporary Traffic Management Operations Guidance

- These 3 documents must be read and understood as a complete set.

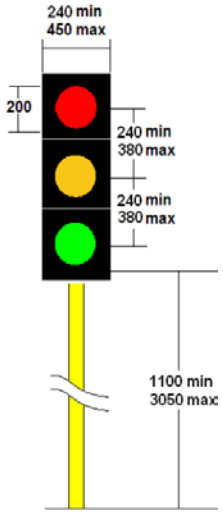
TTM Signs

- Arrow Heads on all signs changed
- Site access signs amended
- Cyclists direction signs included
- Temporary Pedestrian Crossing included
- Amended convoy vehicle sign
- Narrow lane signage included

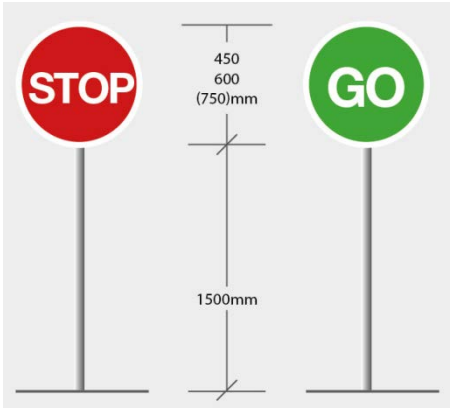
TTM Signs

TTM Equipment

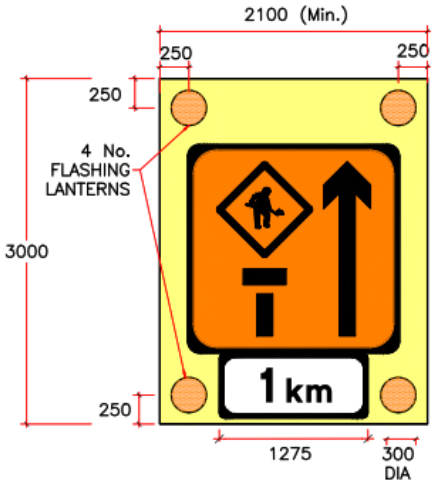
- Temporary Traffic control minimum sizes required included.



- Stop and GO boards



- MLC Trailer Boards

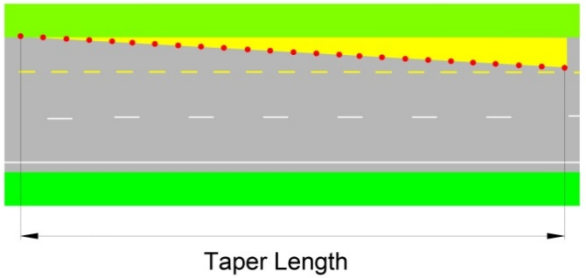


- Permitted use of sequential lamps on lane tapers on Level 3 roads

Level 3 Taper Types

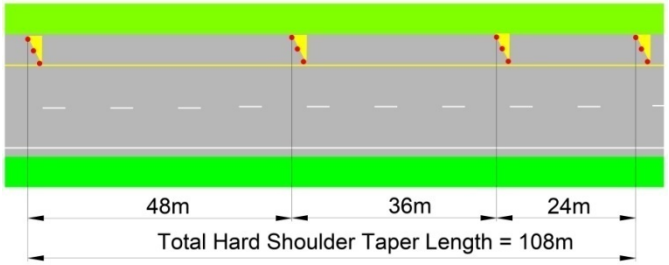
Dual Carriageway Hard Shoulder Taper

- Cones at 3m c/c



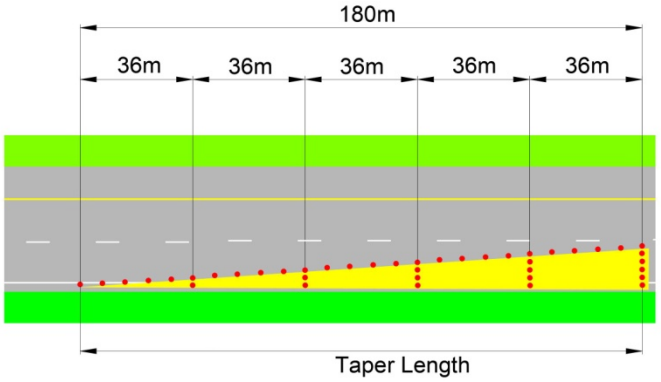
Motorway Hard Shoulder Taper

- Three Cone block at 24m, 36m and 48m in advance of LSZ



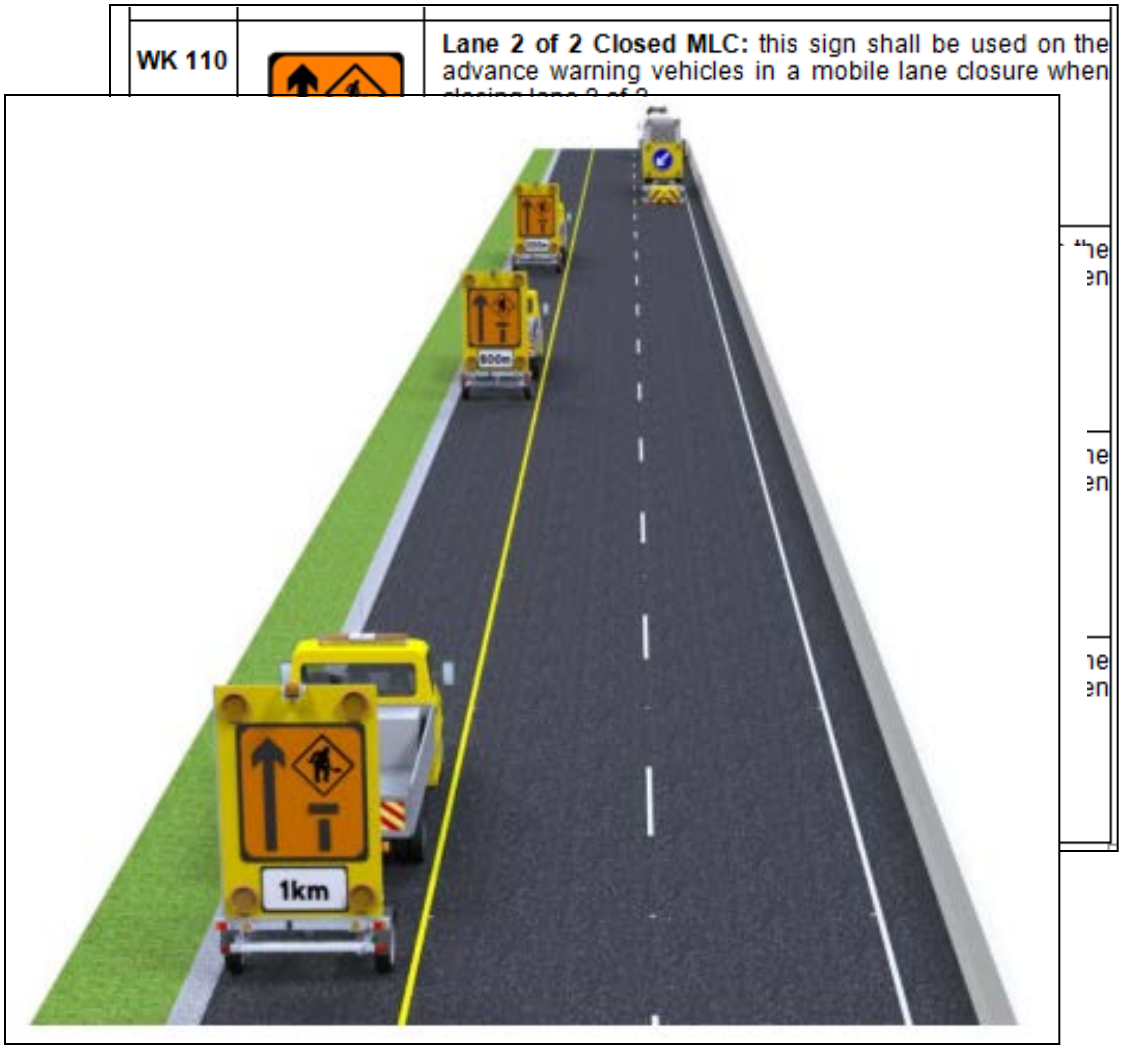
Lane Taper

- To close a live lane 180m taper is required with cones @ 3m c/c and block lines of cones @ 36m intervals



Mobile Lane Closures (MLC)

- MLC Trials were conducted as part of this update with the following conclusions:
  - New trailer board signage
  - New distances defined between Advance Warning vehicles/trailers
  - Amendments to the trailer specification



Further Amendments

Level 1

- Urban Dual Carriageways
- Multi-Lane Streets
- Roundabouts

Level 2

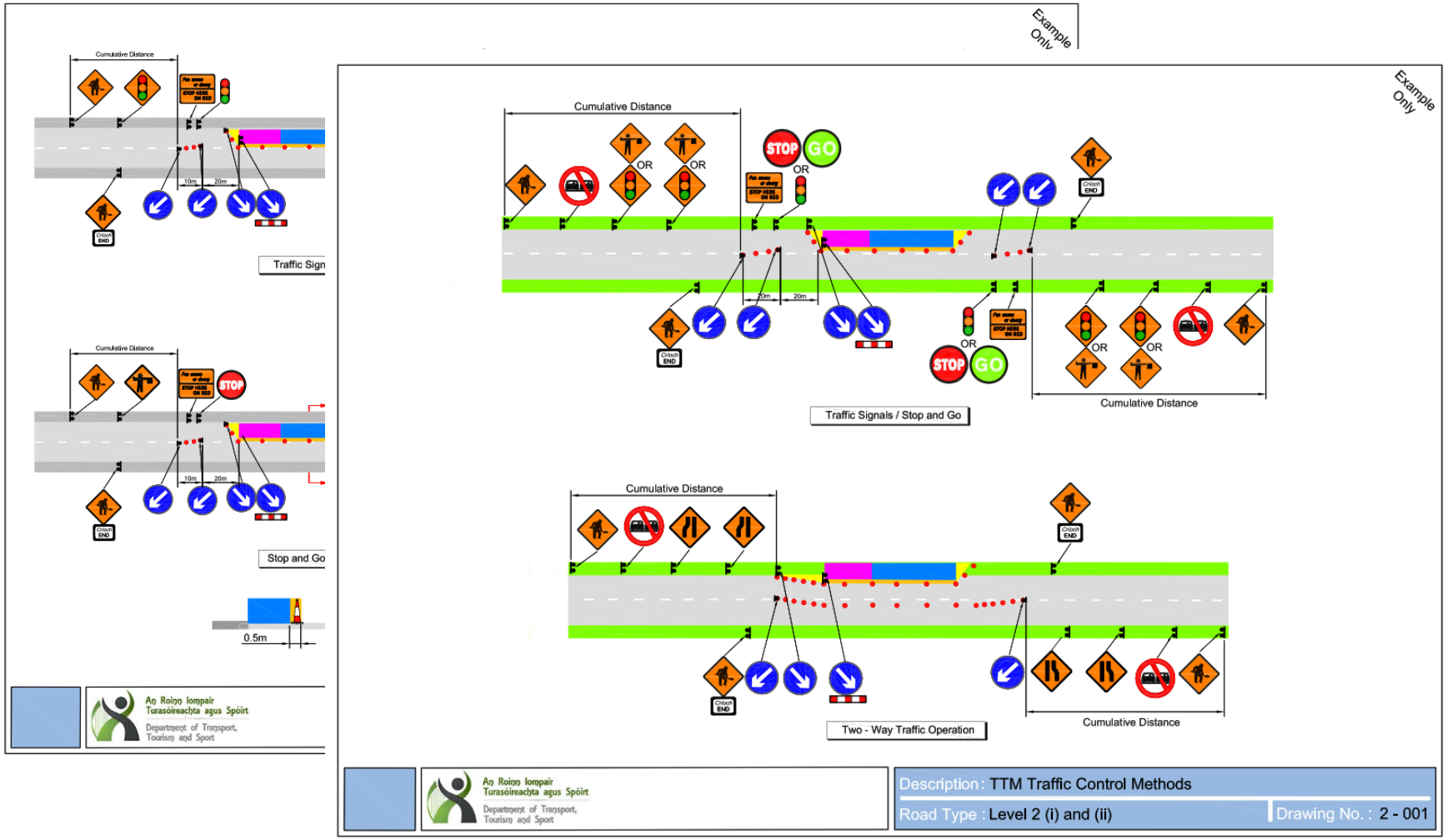
- Climbing / Overtaking Lanes
- SSO for Road Lining Operations
- Junctions

Level 3

- Merge and Diverge,
- Up and Overs,
- Hard Shoulder Running,
- Narrow Lane System,
- Type 2 & Type 3 Dual Carriageways
- Working on Hard Shoulders

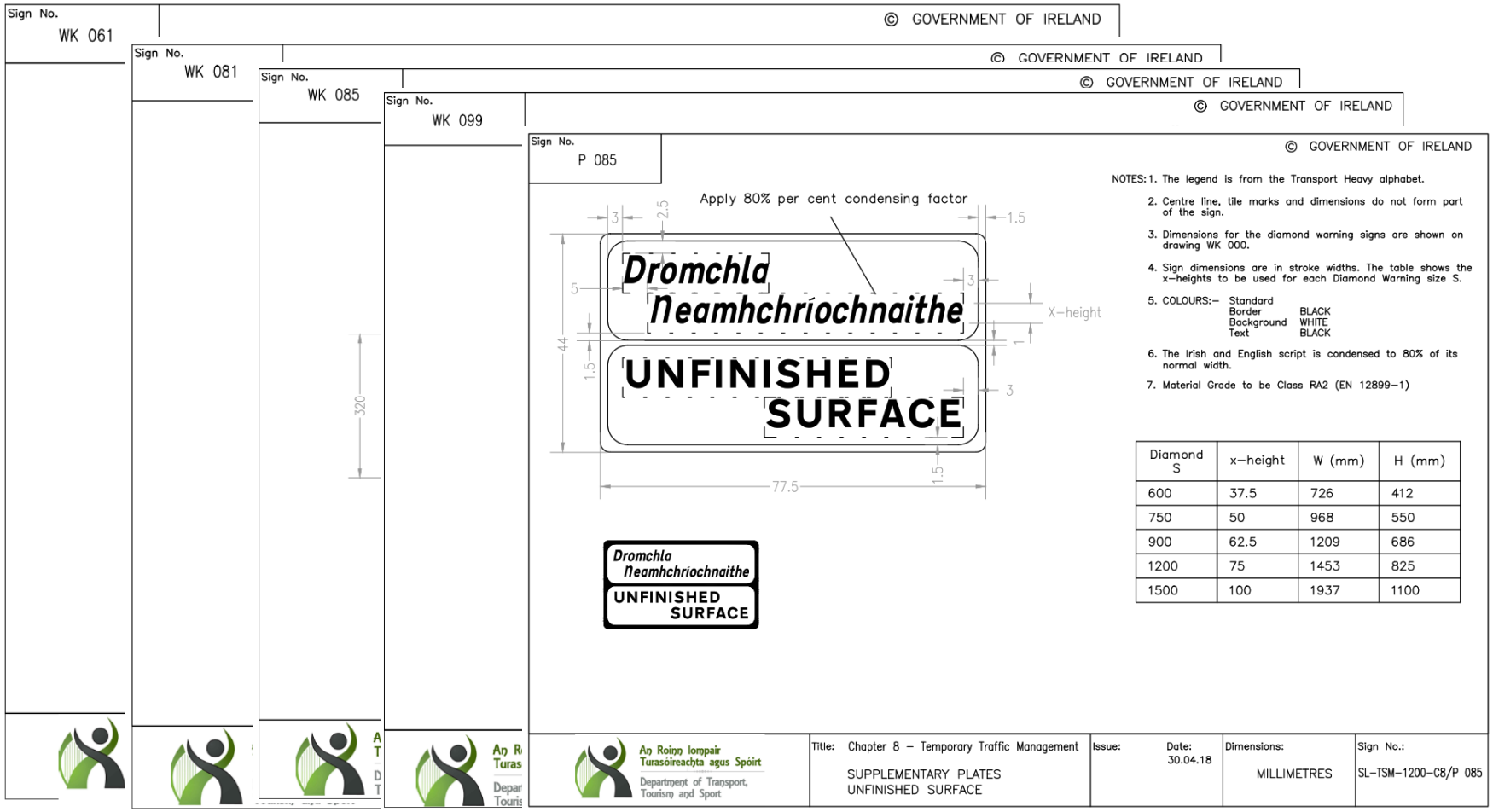
Chapter 8 Drawings

- Located in **Appendix B** of Chapter 8



Working Drawings

- Located in www.trafficsigns.ie website



LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION – 2018

Temporary Traffic Management

Aidan Creagh
A/Senior Executive Engineer
Cork County Council

LASNTG Local Authority Services National Training Group

An Roinn Iompair Turasóireachta agus Spóirt
Department of Transport, Tourism and Sport

INTRODUCTION

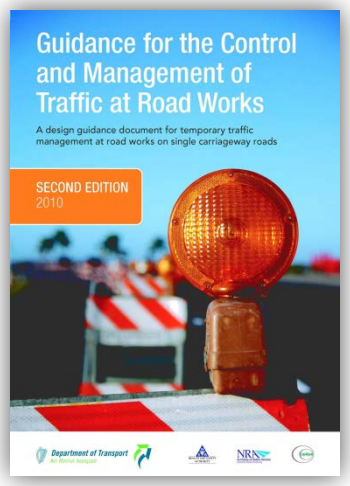
- Temporary Traffic Management Design Guidance
- Temporary Traffic Management Operations Guidance
- Training Update

TTM Design Guidance Documents

- Current Guidance

"***Guidance for the Control and Management of Traffic at Road Works"*** - Second Edition 2010

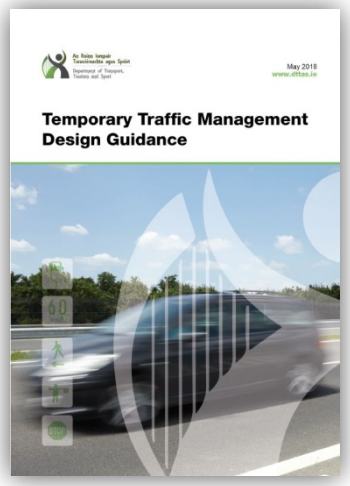
  - Single Carriageways only



- New Guidance Document

"***Temporary Traffic Management Design Guidance***"

  - All Carriageway Types and Road Levels



Design Guidance Document Structure

Part 0

Introduction
Road and Traffic Background
Health and Safety
TTM Design Process
Traffic Control Methods

Part 1

Level 1 Roads
Urban and Low Speed Roads

Part 2

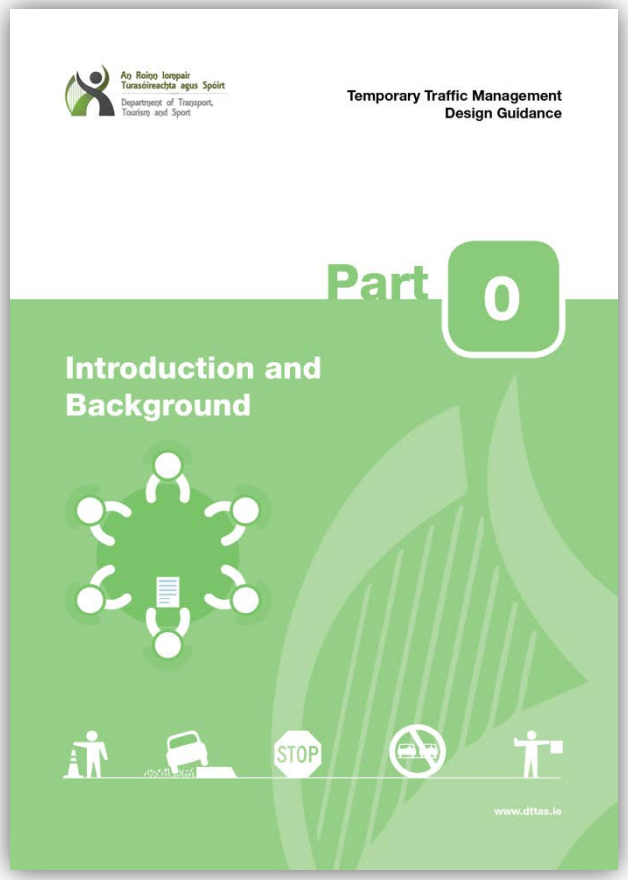
Level 2 Roads
Rural Single Carriageway Roads

Part 3

Level 3 Roads
Dual Carriageways and Motorways

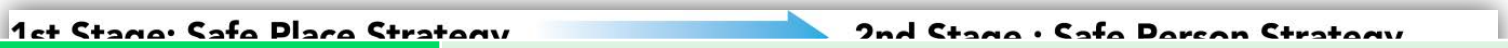
Part 0 – Design Guidance

- Roles, Responsibilities and Competence
- Legal Background
- Health and Safety Responsibilities
- Design Process
  - Planning
  - Elements
  - Criteria
  - Detailed Design – Job Information Packs
- Traffic Control Methods
- Junctions/ Roundabouts



Part 0

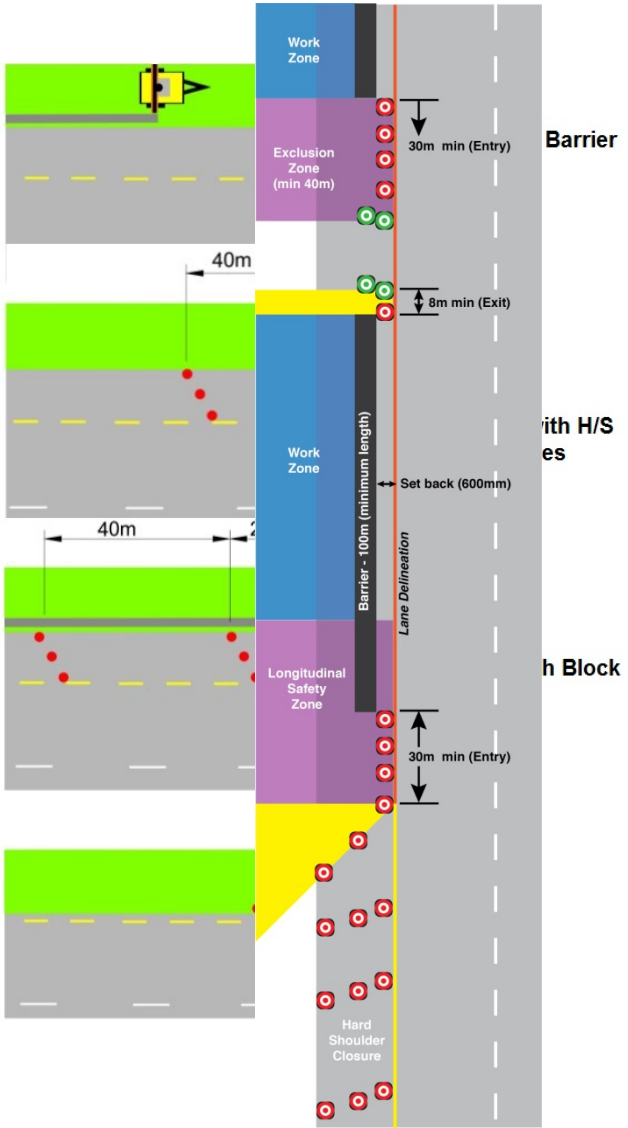
- Health and Safety
  - Hierarchy of controls
  - Preliminary TTM Plans at PSDP stage
  - TTM Risk assessments
  - SOP’s and SSWP’s



Low	Standard basic controls are sufficient.
Medium	May require additional controls to be selected. Organisational SOP’s. Type B Works.
High	Site Specific Risk Assess and Plan by TTM Designer. Identify controls to reduce the risk. Consider if works are a “Particular Risk” under 2013 Construction Regs

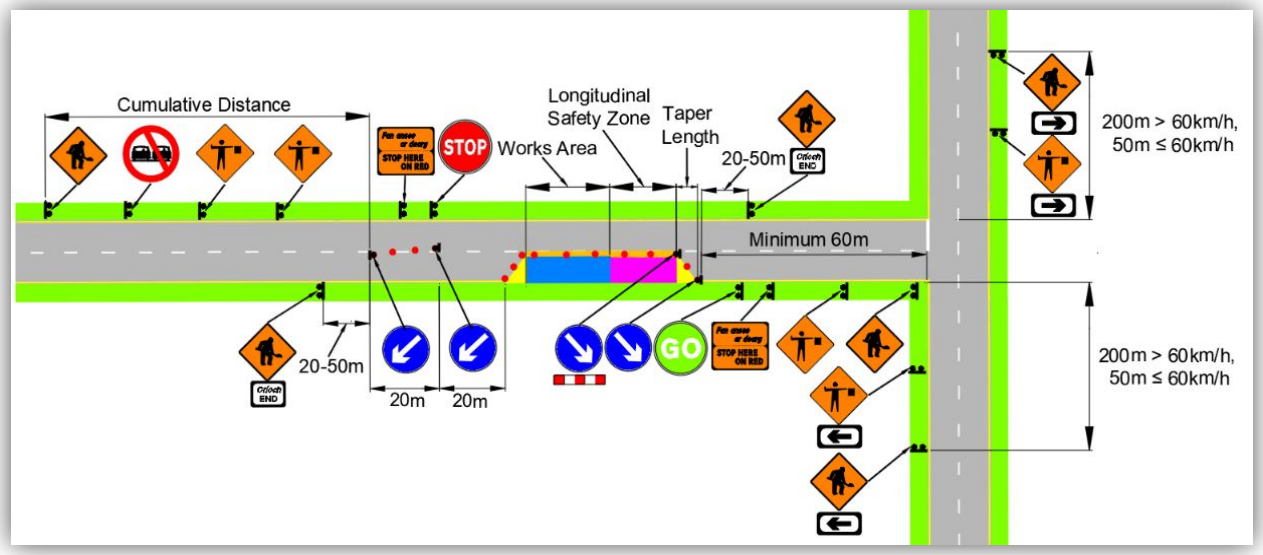
Part 0

- TTM Design Elements
  - VMS – message content, positioning and protectio
  - Barriers
- TTM Job Information Packs
  - Type A Works
    - Site Specific Layouts and Method Statements
  - Type B Works
    - Use of Standard Plans /SOP’s and SSWPs
- Use of Standard Plans
  - Must be assessed onsite as appropriate to task



Part 0

- Traffic Control Methods
- Junctions / Roundabouts



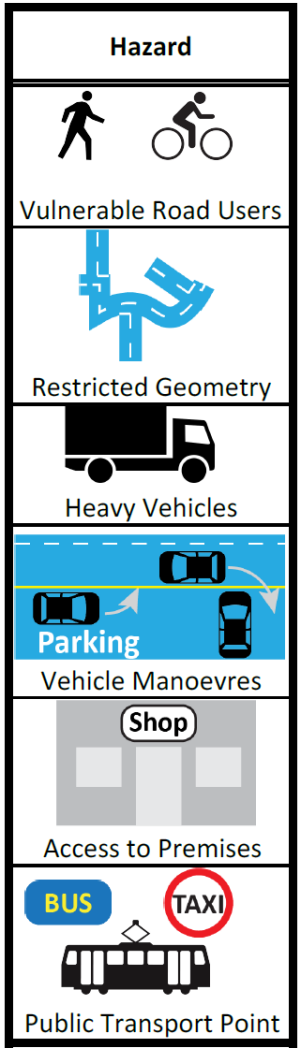
- Road Marking and Road Signage
  - Consistent with TII Dashboards Manuals

Part 1 – Level 1 Roads

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

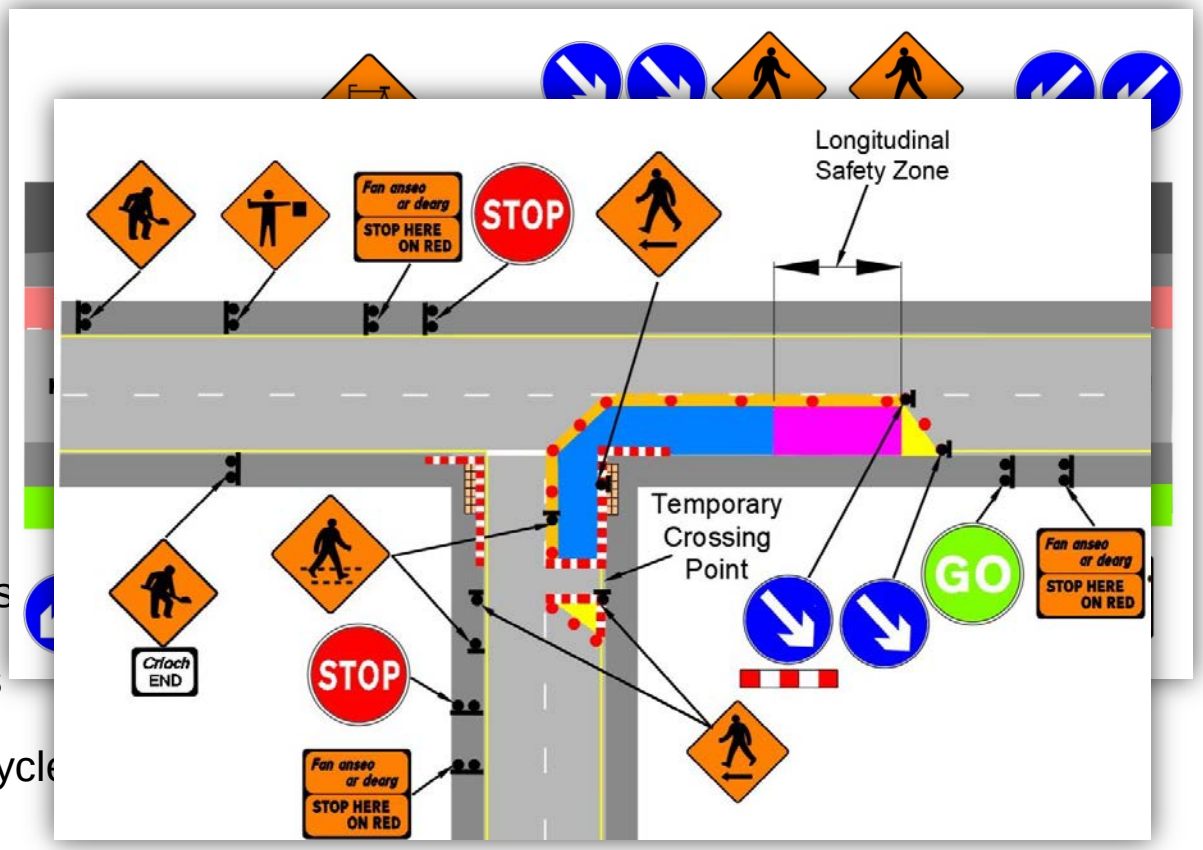
Part 1 – Level 1 Roads

- Urban Design Process
  - Assessing for additional controls
- Multi-Lane Streets
- Urban Dual Carriageways
- Urban Semi Static Operations



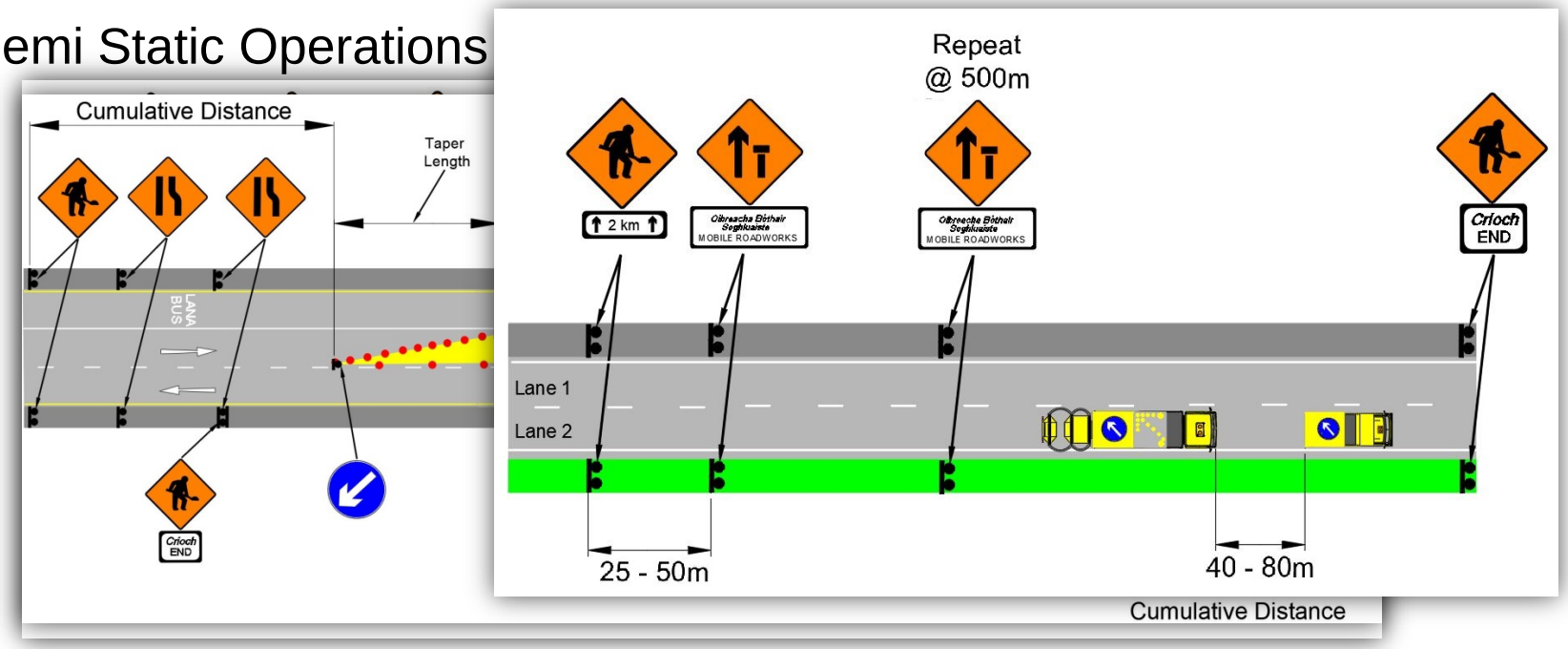
Part 1 – Vulnerable Road Users

- Pedestrians
  - Temporary Footways
  - Temporary Crossings
  - Divert to other Footway
- Cyclists
  - Temporary Cycle Tracks
  - Closure of Cycle Tracks
  - On / Off Carriageway Cycle
  - Cyclist Merges



Part 1 – Multi-Lane Streets and Urban Dual Carriageways

- Advance warning signage - both sides on multi-lane approaches
  - Multi-lane Streets – WK 032 and WK 033
  - Dual Carriageways – WK 040A, WK 041A etc.
- Semi Static Operations



Part 2 – Level 2 Roads

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

Part 2 – Level 2 Roads

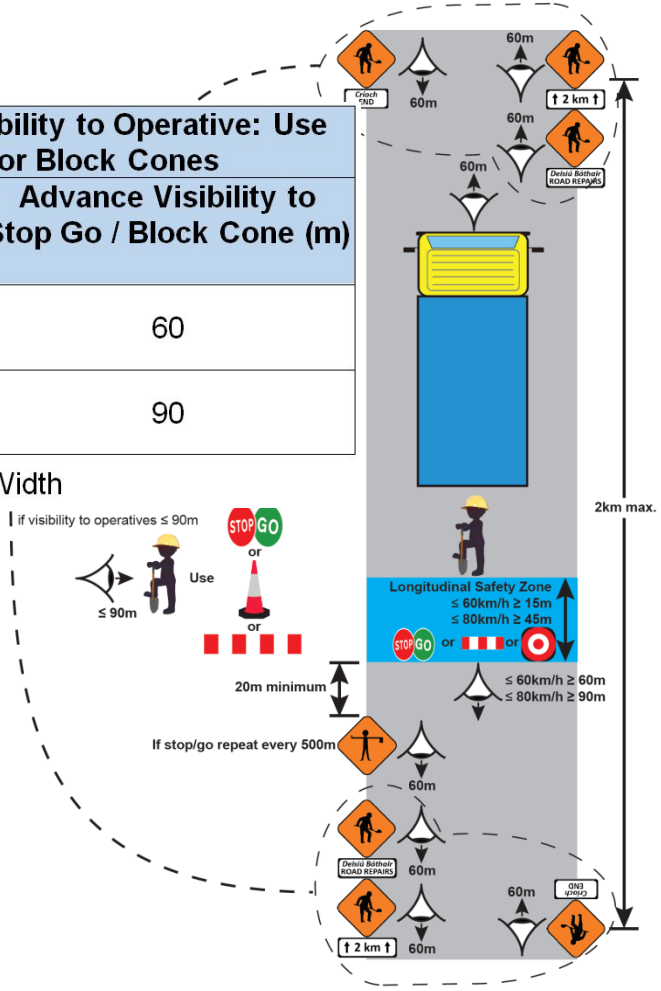
- Minor Roads
- Lateral Safety Zone Reductions
- Semi Static Operations
- Overtaking / Climbing Lanes
- Road Strengthening and Surface Dressing
- Vulnerable Road Users

Part 2 – Level 2 Roads

- Semi Static Operations

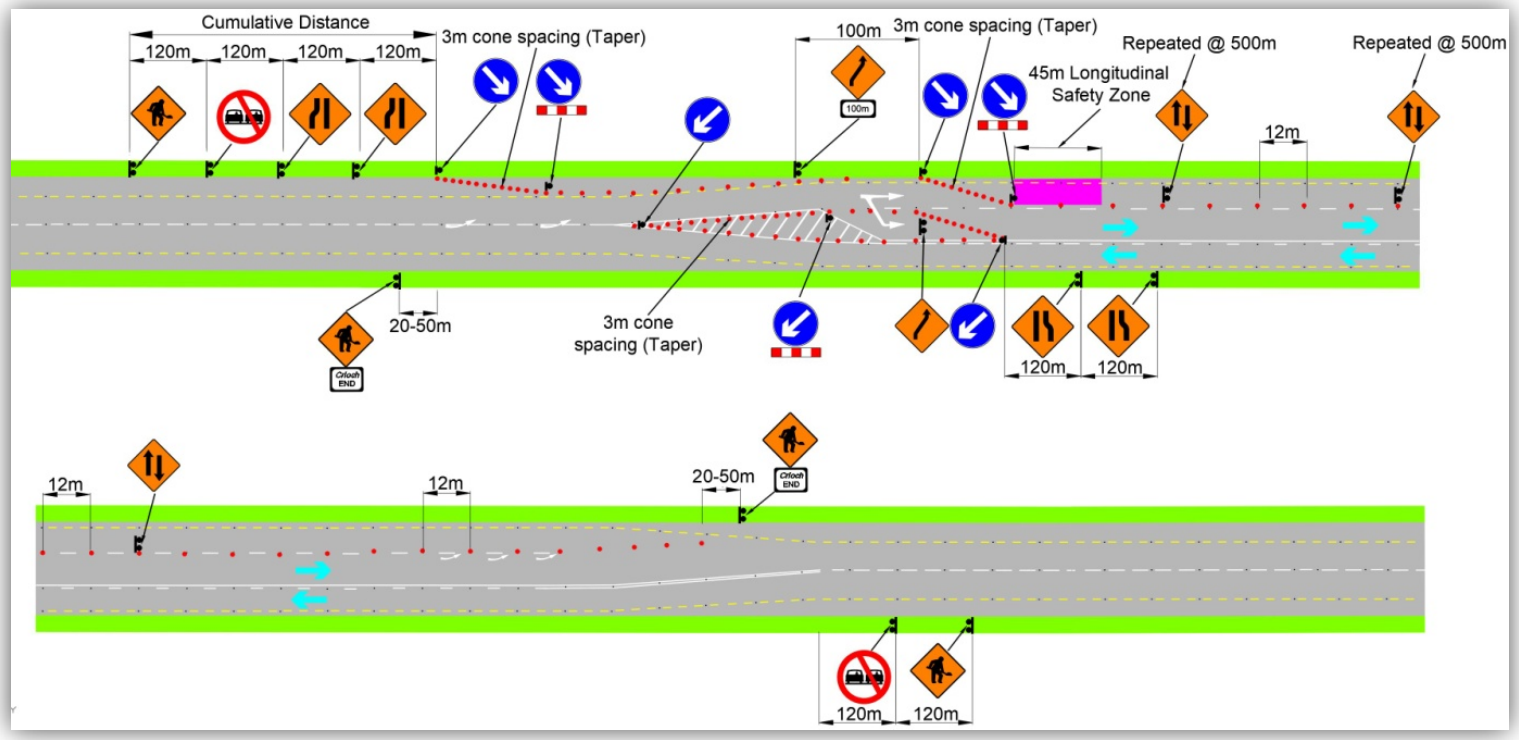
Speed (km/h)	Max Veh / 3min	Signage Visibility (m)	Advance Visibility to Works Vehicle (m)	Visibility to Operatives (m)	Insufficient Visibility to Operative: Use Stop/Go or Block Cones	
					Stop Go / Block Cone Distance from Works (m)	Advance Visibility to Stop Go / Block Cone (m)
60	15	60	60	90	15	60
80					45	90

Table 2.3.3.1: Criteria for SSO on Minor Road < 2.5m Unobstructed Road Width



Part 2 – Level 2 Roads

- Wide Single Carriageways
- Climbing / Overtaking Lanes



Part 3 – Level 3 Roads

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

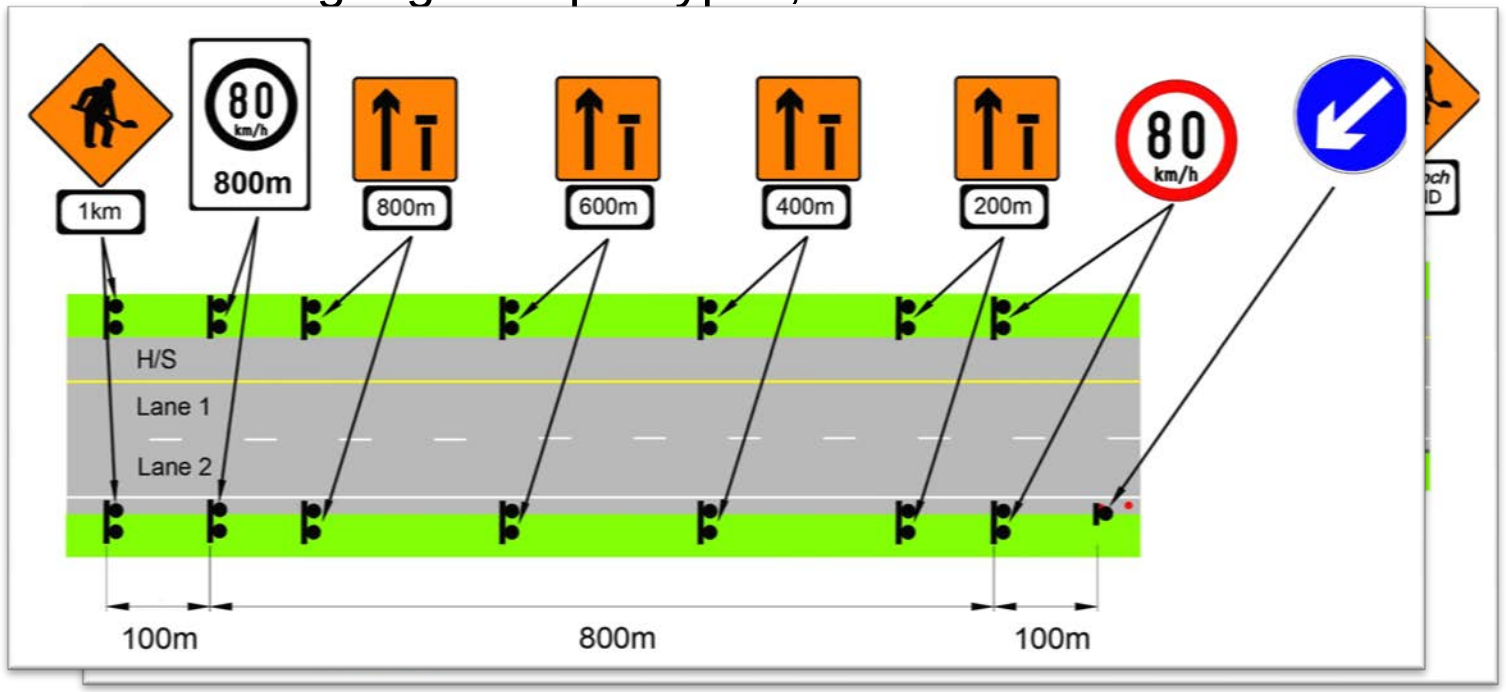
Part 3 – Level 3 Roads

- Advance Signage and Tapers
- Lane Closures
  - Single and Multi-lane
  - Direct Lane 1 Closures
- Merges and Diverges
- Hard Shoulder Running and Narrow Lane Systems
- Cross Overs and Contra-flows
  - Tidal Systems
- Single Vehicle Operations
- Mobile Lane Closures

Part 3 – Level 3 Roads

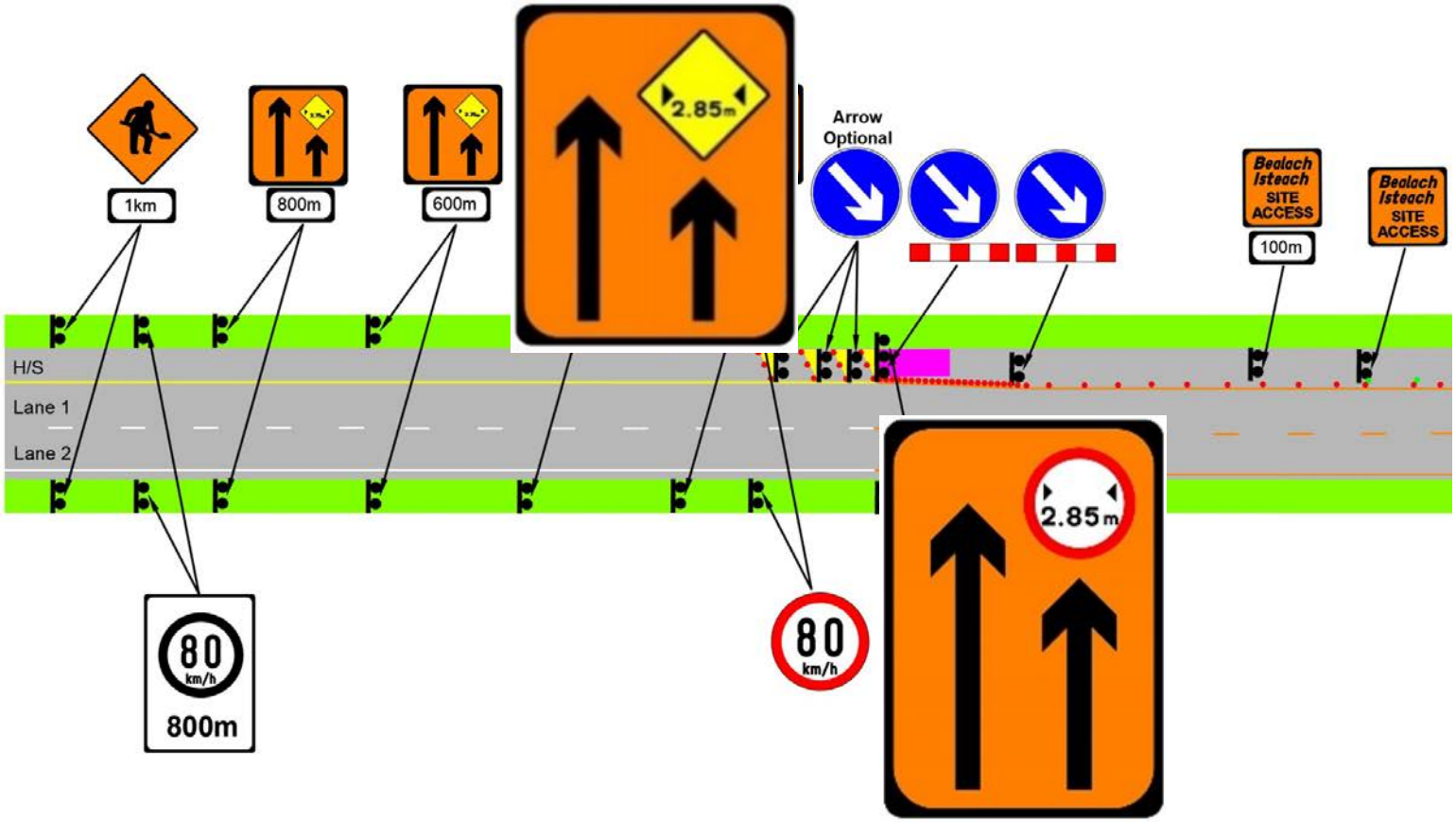
Lane Closures

- Advance Warning Signage – including incorporation of roadworks speed limit
- Works Area Signage – taper types, site access locations



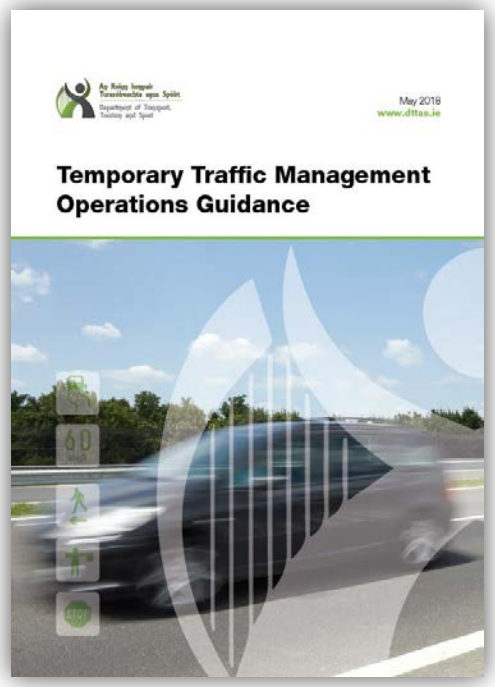
Part 3 – Level 3 Roads

- Narrow Lanes Systems
  - New signage in Chapter 8 – Advance Warning and Works Area Signs



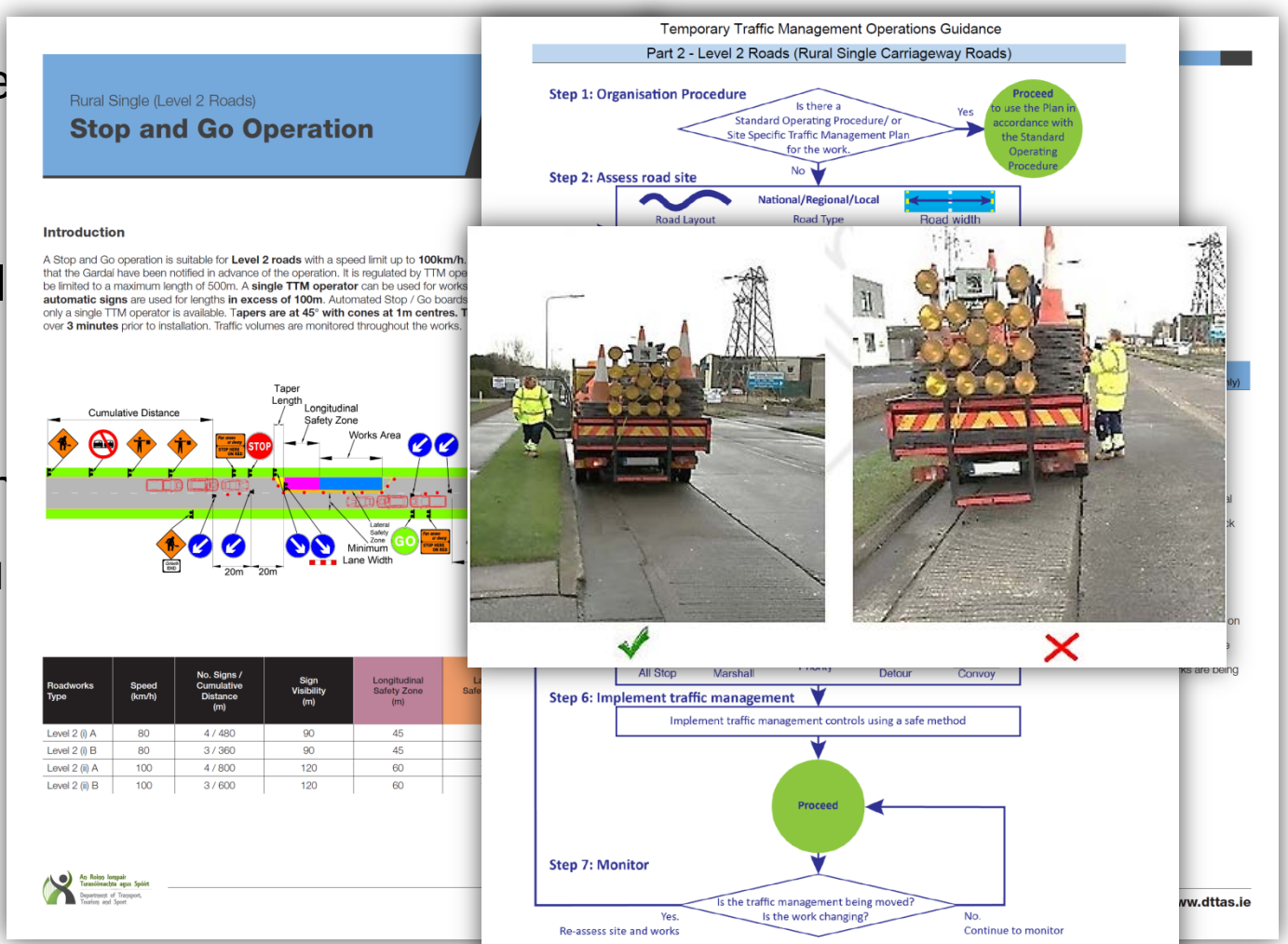
Temporay Traffic Management Operations Guidance

- Installation, maintenance, modification and removal of TTM
- 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
- Intended for use by the Temporary Traffic Operations Supervisor (TTOS) and others involved in TTM
- Assist stakeholders in the development of standard operating procedures (SOPs) for their own particular routine operations



Temporay Traffic Management Operations Guidance

- Safe Syste
- Process Fl
- Traffic Cor
  - Method I



Rural Single (Level 2 Roads)

Stop and Go Operation

Introduction

A Stop and Go operation is suitable for **Level 2 roads** with a speed limit up to **100km/h**. that the Gardaí have been notified in advance of the operation. It is regulated by TTM ope be limited to a maximum length of 500m. A **single TTM operator** can be used for works **automatic signs** are used for lengths **in excess of 100m**. Automated Stop / Go boards only a single TTM operator is available. T**apers are at 45° with cones at 1m centres.** T over **3 minutes** prior to installation. Traffic volumes are monitored throughout the works.

Roadworks Type	Speed (km/h)	No. Signs / Cumulative Distance (m)	Sign Visibility (m)	Longitudinal Safety Zone (m)
Level 2 (i) A	80	4 / 480	90	45
Level 2 (i) B	80	3 / 360	90	45
Level 2 (ii) A	100	4 / 800	120	60
Level 2 (ii) B	100	3 / 600	120	60

Temporary Traffic Management Operations Guidance

Part 2 - Level 2 Roads (Rural Single Carriageway Roads)

Step 1: Organisation Procedure

Is there a Standard Operating Procedure/ or Site Specific Traffic Management Plan for the work.

Yes — Proceed to use the Plan in accordance with the Standard Operating Procedure

No

Step 2: Assess road site

Road Layout — National/Regional/Local Road Type — Road width

All Stop — Marshall — Detour — Convoy

Step 6: Implement traffic management

Implement traffic management controls using a safe method

Proceed

Step 7: Monitor

Is the traffic management being moved? Is the work changing?

Yes. Re-assess site and works

No. Continue to monitor

Figure 2.3.2.1: Traffic Management Process Summary

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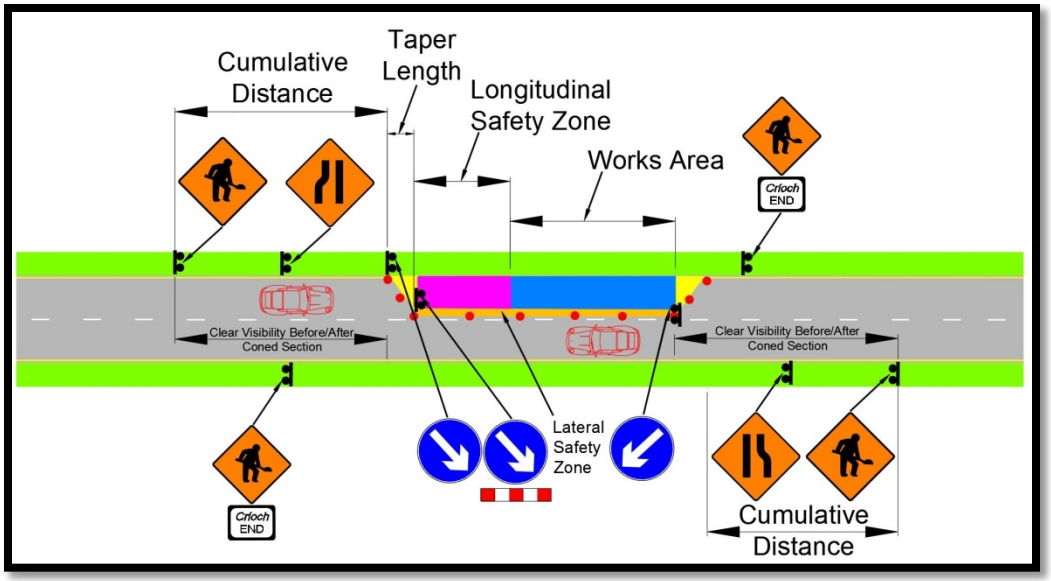
Temporary Traffic Management Training Update

- Update Course content for new Road Classifications, Works Types, Guidance Topics and Industry Best Practice.
- Update Course material and delivery mechanisms.
- Sample CSCS Course Content Video



Temporary Traffic Management Project Summary

- Temporary Traffic Management Document Suite – June 2018
  - Chapter 8 of the Traffic Signs Manual
  - Temporary Traffic Management Design Guidance
  - Temporary Traffic Management Operations Guidance
- Training Specification and Course Materials Completion June 2018
  - Training Pilots Q3 2018
- Ministerial Sign off Chapter 8 Q3 2018
- Documentation Launch
  - Regional Workshops on documentation
  - Training Update Seminars

Thank You

Contact: ttm@dttas.ie