REVISION TO CHAPTER 8

AN OVERVIEW OF THE MAIN CHANGES BEING INTRODUCED

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From vision to solution

The Institute of Asphalt Technology

OUTLINE

- Project Need
- Standard Systems of Control
- Temporary Traffic Management Design
- Traffic Management Operations
- Vulnerable Road Users

GAP ANALYSIS

- Traffic Management Classification not consistent with design standards
  - DMRB
  - DMURS
- Variance in interpretation on Types
  - Type A
  - Type B
  - Type C
- Urban Areas
- Semi-Static Works
- Motorway Network

PROJECT NEED

SCOPE AND GOAL

- Clear guidance
- Ensure consistency
- Standards appropriate to the risk

RISK ASSESSME

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

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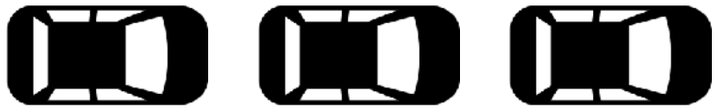
8. Temporary Traffic Measures and Signs for Roadworks

CHAPTER 8

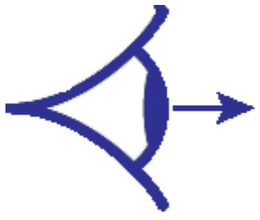
STANDARD VS DESIGNER

Duration of Works

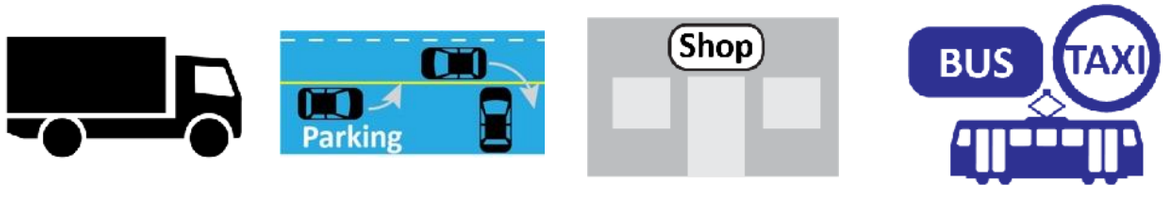
Traffic Volume



Visibility



Hazards



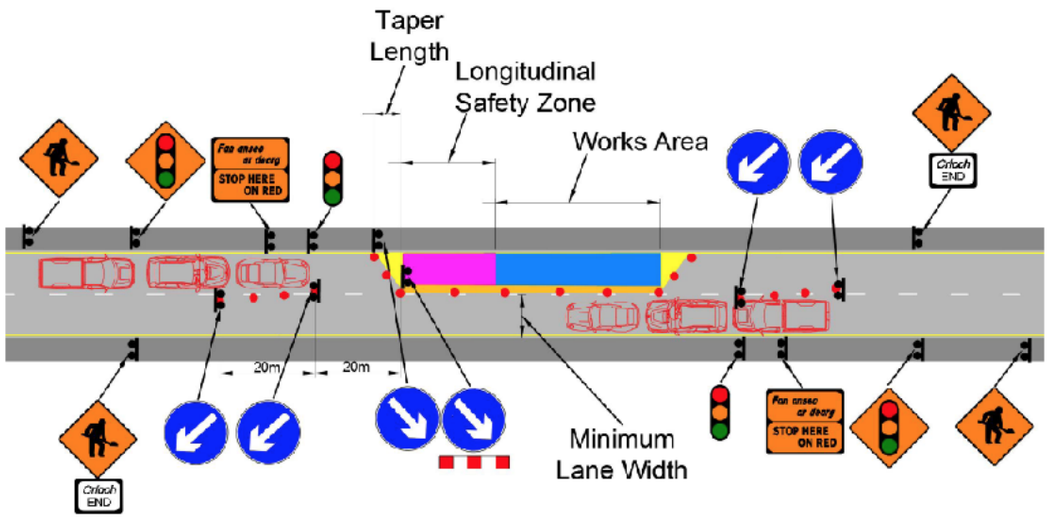
STANDARD OPERATING PROCEDURE

Urban and Low Speed (Level 1 Roads)

Temporary Traffic Signals Operation

Introduction

A Temporary Traffic Signals system is suitable for **Level 1 roads** with a speed limit up to **60km/h.** The TTOS should ensure that the Cardal have been notified in advance of the operation. TTM operatives either **manually operate, pre-programme** or set the traffic signals to **vehicle actuated** mode. **Tapers are at 45° with cones at 1m centres.** Traffic volumes are monitored throughout the works.



Roadworks Type	No. Signs / Cumulative Distance (m)	Sign Visibility (m)	Longitudinal Safety Zone (m)	Lateral Safety Zone (m)	Max Cone / Lamp Spacing (m)
Level 1 (i) A	2 / 20	25	0.5	0.5	3 / N/A
Level 1 (i) B	1 / 10	25	0.5	0.5	3 / N/A
Level 1 (ii) A	2 / 30	35	0.5	0.5	3 / 6
Level 1 (ii) B	2 / 30	35	0.5	0.5	3 / 6
Level 1 (iii) A	2 / 40	50	5	0.5	3 / 6
Level 1 (iii) B	2 / 40	50	5	0.5	3 / 6
Level 1 (iv) A	3 / 60	60	15	0.5	6 / 12
Level 1 (iv) B	2 / 40	60	15	0.5	6 / 12

Signal Sequence

- Red - time is set by Operative
- Green - time is set by Operative
- Amber 3 seconds
- Red - time is set by Operative

Signal Checks

- Batteries
- Bulb/LEDs operating
- Signals communicating with each other
- Housing is in good condition

Summary Criteria

Max Speed Limit (km/h)	Coned Area Length (m)	Max Traffic Flow
60	500	No Restrictions

Lane Widths

Max Lane Width (All Classes)	Optimum Lane Width (All Classes)	Minimum Lane Width (All Classes)	Absolute Minimum (Cars & Light Vehicles only)
4.0m	3.3m	3.0m	2.5m

Installation

1. On arrival on site, park TTM vehicle safely and off the carriageway if possible.
2. The TTOS identifies the works area and carries out a Dynamic Risk Assessment.
3. Install the Roadworks Ahead signs, which are always the first signs to be installed.
4. The safety zones and tapers shall now be measured out after which the position of the advance signs are calculated and TTM equipment laid out on the kerb/verge.
5. The next signs to be installed are the Temporary Traffic Signals signs.
6. Install advance central coning and Stop Here On Red sign.
7. Install the Roadworks End sign.
8. Repeat the above sequence for all approaches to the works.
9. Place Keep Right arrow on kerb edge or verge at start of the lead in taper.
10. Set all signals to red.
11. Step out cones for lead in taper and install Keep Right arrow.
12. Install cones along safety zone and the length of the required works area.
13. Install exit taper.
14. TTMO carries out final check.
15. Inform workforce they may carry out the works.

Removal

1. Check all works personnel, plant, materials and debris are cleared and site is safe to traffic.
2. Pull all TTM equipment around the works area to the kerb/verge under the protection of the longitudinal cone run and lead in taper.
3. Pull off the exit taper and longitudinal cone run back to the lead in taper.
4. Pull off the lead in taper and open carriageway to traffic.
5. Load TTM equipment onto the TTM vehicle.
6. Remove and load Advance Warning Signs.
7. The last signs to be removed are the Roadworks Ahead signs.
8. Check all equipment is loaded securely and safely on TTM vehicle.
9. Make a final check of the site ensuring all items are removed.
10. Do not leave signs in place when no works are being carried out.
11. Leave site.

TEMPORARY TRAFFIC MANAGEMENT DESIGN

WORKS CLASSIFICATIONS (NEW)

Type	Type of Road	Traffic Flow	Visibility	Duration
Static Type A	Works requiring full-time TTM	All	All	All
Static Type B	Works normally involving the use of 1-2 vehicles	Within traffic flow capacity	All	≤ 12 hours
Static Type C	Works at discrete locations, and not presenting a traffic hazard		All	≤ 15 minutes
Semi-Static	Roadworks where operations are mobile or only stationary for very short periods, but where static signs and temporary traffic measures are used		Good	≤ 15 minutes stop
Mobile	Roadworks where operations are mobile or only stationary for very short periods where mobile warning signs and temporary traffic measures are used		Good	≤ 15 minutes stop

TRAFFIC FLOW

Traffic flow is the volume of traffic that a given carriageway can accommodate when it is unrestricted by either traffic volume or weather conditions

Road Type	Road Width	Veh/ 3 min (busiest direction)
Single Carriageway, ≤ 60 km/h	< 6.0m	20 -30
	≥ 6.0m and < 7.3m	40 - 50
	≥ 7.3m	60- 70
Single Carriageway, > 60 km/h	< 6.0m	35 - 45
	≥ 6.0m and < 7.3m	55 - 65
	≥ 7.3m	75 - 85
Dual Carriageway		60 - 65 per lane left open

ROAD CLASSIFICATIONS (NEW)

Road Classification		Carriageway Type	Speed Limit
Level 1	i	Single	≤ 30 km/h
	ii		40 km/h
	iii		50 km/h
	iv		60 km/h
		Multi-Lane/Dual	≤ 60 km/h
Level 2	i	Single	80 km/h
	ii	Single	100 km/h
Level 3	i	Dual	80 km/h
	ii	Dual	≥ 100 km/h

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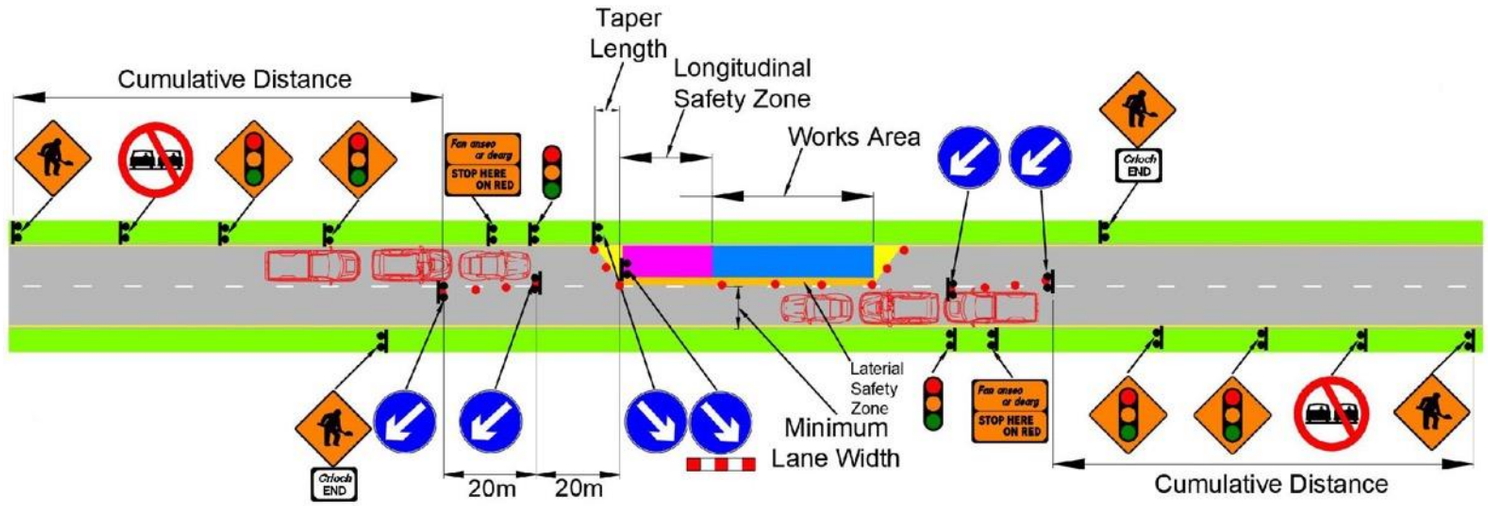
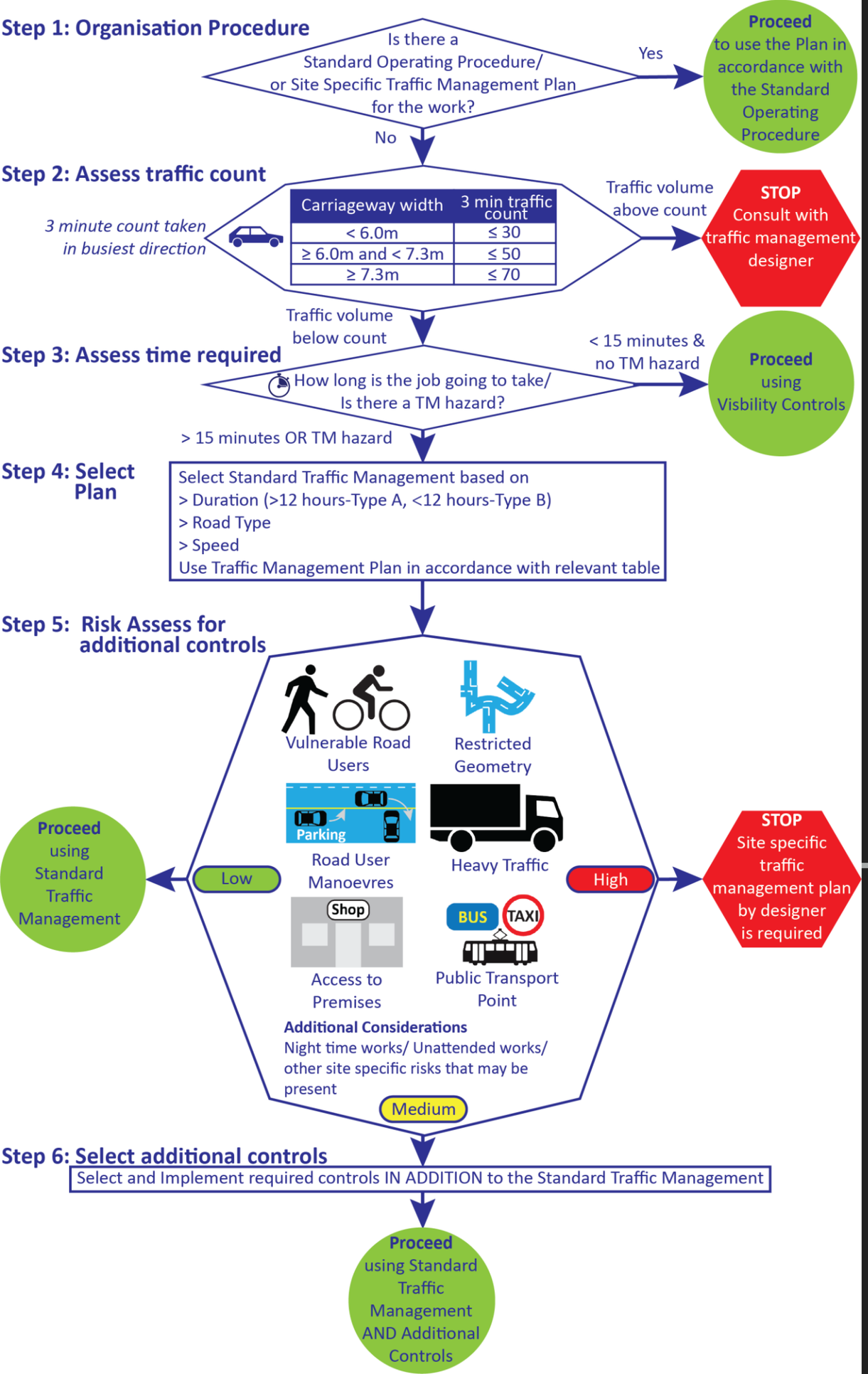


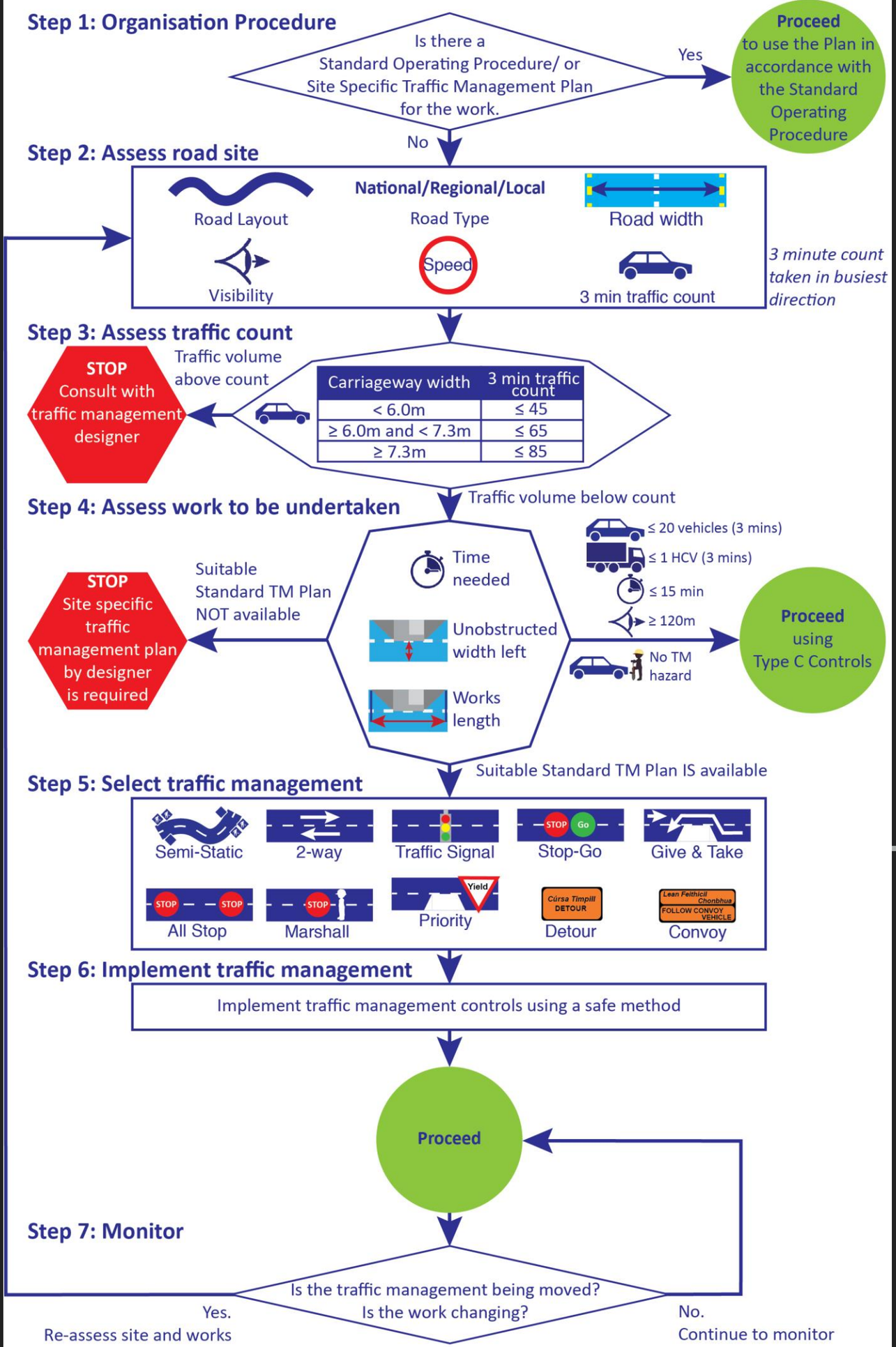
	30 km/h: 1(i)]		50 km/h: 1(iii)		60 km/h: 1(iv)		80 km/h: 2(i)		100 km/h: 2(ii)	
	Type A	Type B	Type A	Type B	Type A	Type B	Type A	Type B	Type A	Type B
Sign Size	450mm		600mm		600mm		600mm		750mm	
Visibility	25m		50m		60m		90m		120m	
Number	2	1	2		3	2	4	3	4	3
Distance	20m	10m	40m		60m	40m	480m	360m	800m	600m
Cone Spacing										
Tapers	1m		3m		3m		3m		3m	
Longitudinal	3m		3m		6m		12m		12m	
Safety Zone										
Longitudinal	0.5m		5m		15m		45m		60m	
Lateral	0.5m		0.5m		0.5m		1.2m		1.2m	

TRAFFIC MANAGEMENT OPERATIONS



TRAFFIC MANAGEMENT OPERATIONS

URBAN ROADS



TRAFFIC MANAGEMENT OPERATIONS

RURAL ROADS

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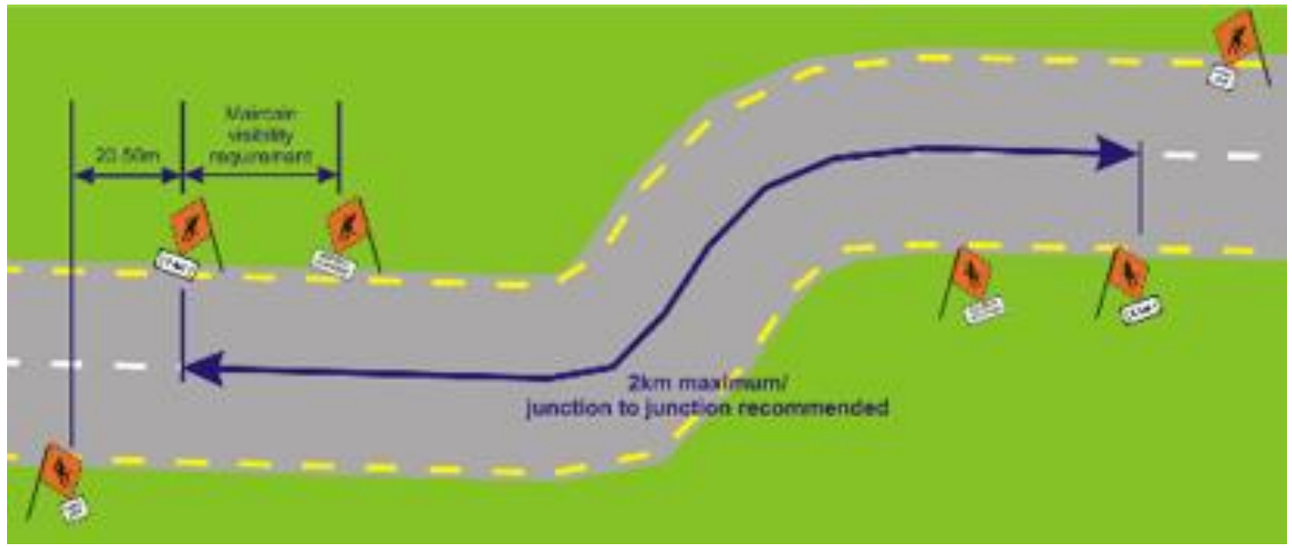
SEMI-STATIC OPERATIONS

Existing

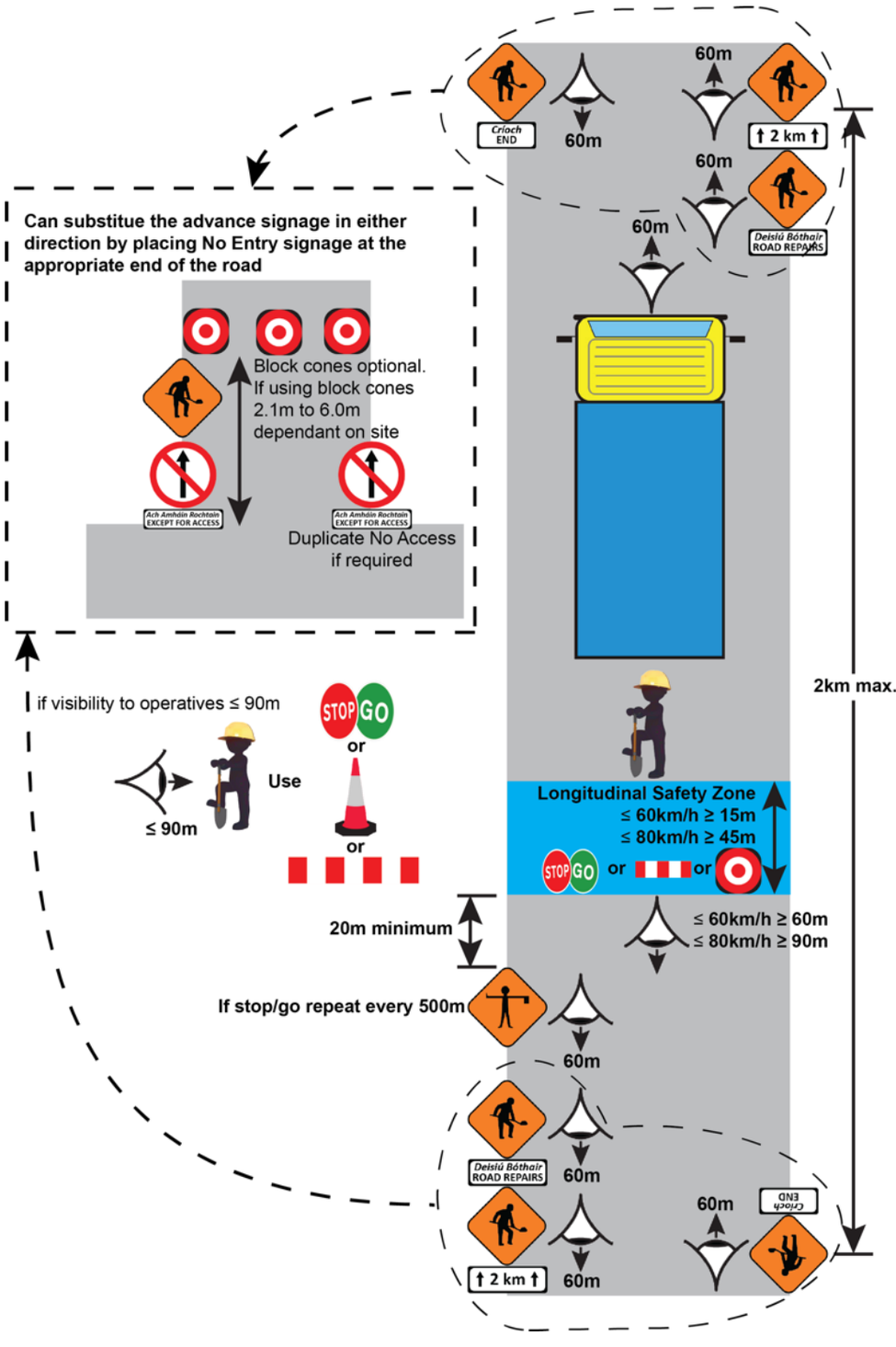


New

Speed	Visibility	Hard Shoulder Works	Give/ Take		Stop/ Go		
		veh/ 3 min	veh/ 3 min	Works visibility	veh/ 3 min	Advance stop	Stop visibility
80 km/h	90m	130	20	160m	50	45m	90m
100 km/h	120m			215m		60m	120m

GUIDANCE

MINOR ROADS



Speed	Max veh/ 3min	Sign visibility	Visibility to works vehicle	Visibility to operatives	Insufficient visibility to operatives	
					Advance stop	Stop visibility
60 km/h	15	60	60	90	15	60
80 km/h					45	90

TYPE C ROADWORKS

- Step 1: Vehicle
  - Legally parked/ Parked off the live lane
  - Good visibility (guidance given)
- Step 2: Roadworker
  - ≤ 60km/h
    - Not working in carriageway, or
    - Protected by fend (as per Step 1)
  - > 60km/h
    - Not working < 1.5m from carriageway, or
    - Working on a footway, or
    - Protected by fend (as per Step 1)

GUIDANCE

SHORT DURATION WORKS (TYPE C)

PEDESTRIANS AND VULNERABLE ROAD USERS

DIVERTING PEDESTRIAN

Visibility (m)

Speed	Pedestrian to traffic	Driver to crossing
60 km/h	60m/lane	60
50 km/h	45m/lane	45
30 km/h	30m/lane	25

SHARED RUNNING LANE

Lane Width (m)

< 3.3	Should be supplemented with cyclist present sign. If existing lane width < 3.3m wide can be omitted. Signage only required if lane width is reduced
3.3 to 3.5	Can be used
3.5 to 4.0	To be avoided
> 4.0	Can be used

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From vision to solution

Standards/Operating Procedures/Training/Tools

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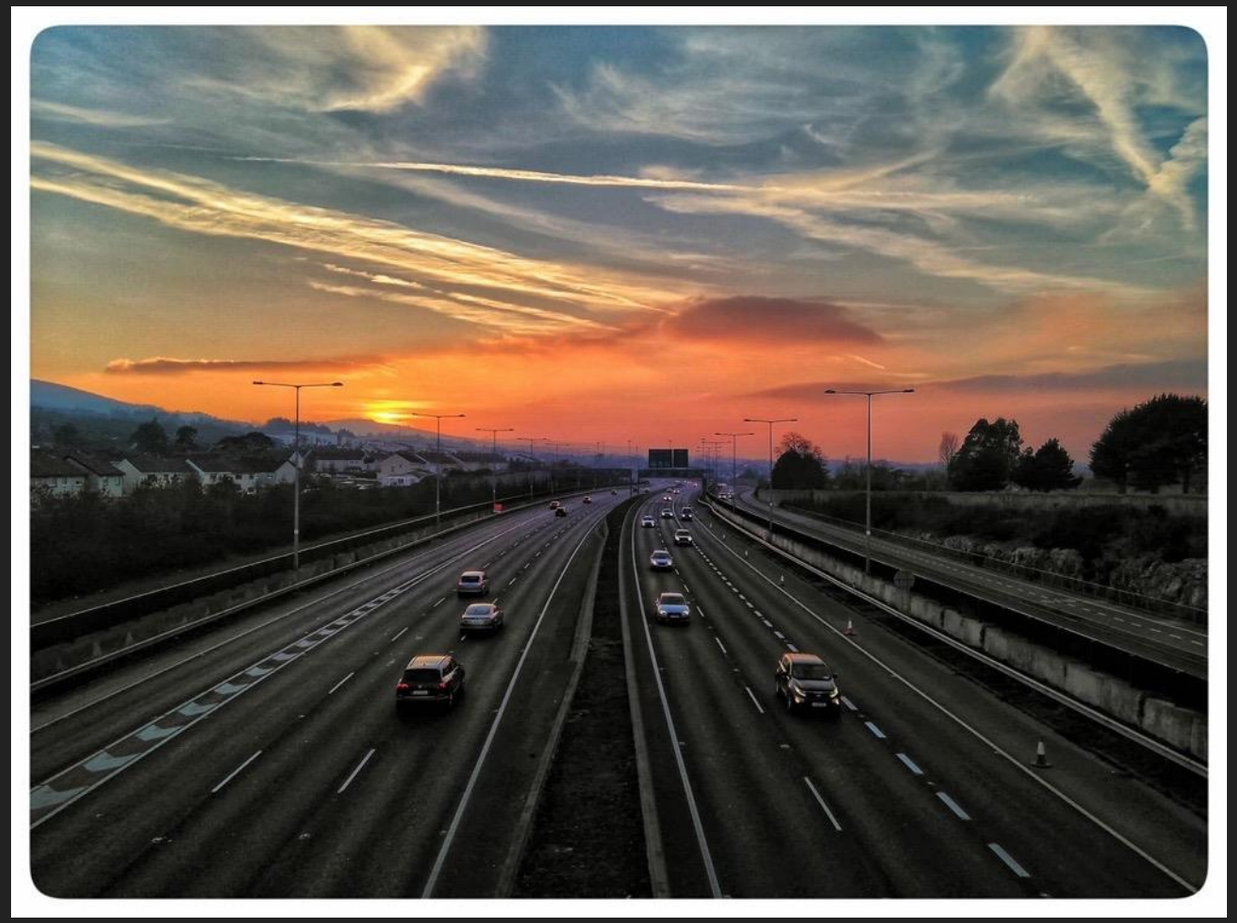

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