Temporary Traffic Management Project

Changes to Chapter 8 and the TTM Document Suite

Aidan Creagh
Senior Executive Engineer, Cork County Council
Introduction

➢ Project Overview
➢ TTM Documentation Suite
➢ Changes to Chapter 8
➢ Temporary Traffic Management Design Guidance
➢ Temporary Traffic Management Operations Guidance
➢ Training Implications
Temporary Traffic Management Project

➢ Project Goal

➢ Produce a Suite of Documents covering all aspects of TTM on Irish Roads

➢ Project Resources

➢ Dedicated Project Team

➢ Arup and Cork County Council

➢ DTTAS Support Office

➢ Technical Working Groups

➢ Representatives from DTTAS, TII, Industry Experts, Local Authorities, MMARC Contracts, Industry Stakeholders
TTM Documentation Suite

TTM Documents
www.trafficsigns.ie

Chapter 8 TSM
➢ Statutory – Ministerial Direction
➢ Sign Spec
➢ Mandatory Requirements

Operations
➢ Installation
➢ Modification
➢ Removal

Design
➢ Health and Safety
➢ Design Process
➢ Ch 8 Design Guidance

Taiwanese Traffic Management (TTM) Documentation Suite

Traffic Signs Manual
Chapter 8

Temporary Traffic Management Design Guidance

Temporary Traffic Management Operations Guidance
Chapter 8 of the Traffic Signs Manual – What’s New?

➢ Restructured in line with Operations and Design Guidance
➢ New TTM Road Classifications and Works Types
➢ New Signs
➢ New Sections – Multi-Lane Streets, Urban Dual Carriageways, Overtaking Lanes, Roundabouts and Junctions
➢ Expanded Motorway & High Speed Dual Carriageway Guidance – changes to Mobile Lane Closure Operations
➢ Example layouts and Working drawings for Signs
➢ Operations Guidance removed
# TTM Road Classification System

<table>
<thead>
<tr>
<th>Level</th>
<th>Sub</th>
<th>Carriageway Type</th>
<th>Speed / Speed Limit (km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Main</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1</td>
<td>i</td>
<td>Single</td>
<td>≤ 30</td>
</tr>
<tr>
<td></td>
<td>ii</td>
<td>Single</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>iii</td>
<td>Single</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>iv</td>
<td>Single / Multi-lane</td>
<td>60</td>
</tr>
<tr>
<td>Level 2</td>
<td>i</td>
<td>Single</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>ii</td>
<td>Single</td>
<td>100</td>
</tr>
<tr>
<td>Level 3</td>
<td>i</td>
<td>Dual and Motorway</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>ii</td>
<td>Dual and Motorway</td>
<td>≥ 100</td>
</tr>
</tbody>
</table>

**Level 1** – Low Speed and Urban, DMURS geometric standards

**Level 2** – Rural Single Carriageway

**Level 3** – High Speed Duals & Motorways (covered in Level 3 Design Course)
<table>
<thead>
<tr>
<th>TTM Type</th>
<th>Description</th>
<th>Traffic Flow Conditions</th>
<th>Visibility Conditions</th>
<th>Planned Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static Type A</td>
<td>Works requiring full time Temporary Traffic Management (TTM)</td>
<td>All</td>
<td>All</td>
<td>Permitted for any duration but required for durations in excess of 12 hours</td>
</tr>
<tr>
<td>Static Type B</td>
<td>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.</td>
<td>Unrestricted by either traffic volume or weather conditions</td>
<td>All</td>
<td>Permitted for a duration of up to 12 hours</td>
</tr>
<tr>
<td>Static Type C</td>
<td>Works at a discrete location that is of a short duration (excluding signage setup).</td>
<td>Unrestricted by either traffic volume or weather conditions</td>
<td>Good</td>
<td>Permitted for a duration of up to 15 minutes</td>
</tr>
<tr>
<td>Semi Static Operation (SSO)</td>
<td>Works where the operations are mobile or making short duration stops continuously along a road where static warning signs are used. A SSO is only suitable on Level 1 to 2 roads.</td>
<td>Unrestricted by either traffic volume or weather conditions</td>
<td>Good</td>
<td>Permitted for stop durations of up to 15 minutes</td>
</tr>
<tr>
<td>Mobile Lane Closure (MLC)</td>
<td>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. A MLC is only suitable for Level 3 roads.</td>
<td>Unrestricted by either traffic volume or weather conditions</td>
<td>Good</td>
<td>Permitted for stop durations of up to 15 minutes</td>
</tr>
</tbody>
</table>

Table 0.4.3.2.1: Roadworks Types
Type C Roadworks

➢ Works at discrete locations < 15mins
➢ Good visibility and Traffic < Carriageway Capacity
➢ Should not present additional hazard over and above normal road usage
➢ If operative in live lane be under the protection of a fend vehicle
➢ Signs on vehicle or WK 001 erected on approach to works
➢ Eg: Sign washing, gulley cleaning, one off pothole on minor road,
New Design Parameter Tables

Each Road sub level has its own Design Parameters

Different requirements for Type A and Type B

Type C – Visibility requirements only
Design Parameter Tables Sample Changes

➢ Level 1 (iii) 50km/h Urban Road

<table>
<thead>
<tr>
<th>Type B Works</th>
<th>Number of Signs</th>
<th>Distance between signs</th>
<th>Cumulative Distance</th>
<th>Longitudinal Safety Zone</th>
<th>Length to Works from first sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>3</td>
<td>25</td>
<td>75</td>
<td>25</td>
<td>100m</td>
</tr>
<tr>
<td>Proposed</td>
<td>2</td>
<td>20</td>
<td>40</td>
<td>5</td>
<td>45m</td>
</tr>
</tbody>
</table>

➢ Level 2 (i) 80km/h Rural Single Carriageway

<table>
<thead>
<tr>
<th>Type B Works</th>
<th>Number of Signs</th>
<th>Distance between signs</th>
<th>Cumulative Distance</th>
<th>Longitudinal Safety Zone</th>
<th>Length to Works from first sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>4</td>
<td>200</td>
<td>800</td>
<td>60</td>
<td>860m</td>
</tr>
<tr>
<td>Proposed</td>
<td>3</td>
<td>120</td>
<td>360</td>
<td>45</td>
<td>405m</td>
</tr>
</tbody>
</table>
Chapter 8 of the TSM – New Signage

- Arrow Heads on all signs changed
- Site access signs amended
- Cyclists direction signs included
- Temporary Pedestrian Crossing included
- Amended convoy vehicle sign
- Amended Supplementary Plates
Square advance waning signs shall be used for Level 3 roads.

For Level 3 Roads Class RA2 Fluorescent Orange background shall be used.

New Signage for Narrow Lanes Systems

New signage for Mobile Lane Closures on Level 3 Roads

Chapter 8 of the TSM – New Signage Level 3
Chapter 8 TSM – Equipment Specifications

➢ Temporary Traffic Signals minimum sizes required.

➢ Stop and GO boards minimum sizes required.

➢ Permitted use of sequential lamps on lane tapers on Level 3 roads
Chapter 8 TSM – Sample Layouts

➢ Located in appendix to Chapter 8
Chapter 8 TSM – Working Drawings

➢ Will be located on www.trafficsigns.ie

<table>
<thead>
<tr>
<th>Sign No.</th>
<th>WK 061</th>
</tr>
</thead>
</table>

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Notes:

1. Centre line, centre marks and dimensions do not form part of the sign.
2. The 'sign size' is defined as the distance along the side and perimeter dimensions for the sign as shown.
3. All dimensions in millimeters or stroke widths as indicated.
4. Other dimensions for the diamond are shown on drawing WK 000.
5. All ISO sign dimensions shall be used proportionately for other warning sign sizes.
6. Colours: Standard
   - Border: Black
   - Background: Orange
   - Symbol: Black
7. Material Grade to be Class R52 (EN 12899-1)

<table>
<thead>
<tr>
<th>Title: Chapter 8 – Temporary Traffic Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue:</td>
</tr>
<tr>
<td>Date: 04.04.18</td>
</tr>
<tr>
<td>Dimensions: MILLIMETRES</td>
</tr>
<tr>
<td>Sign No.: SL-TSM-1200-08-WK 061</td>
</tr>
</tbody>
</table>
Temporary Traffic Management Design Guidance

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
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 – Design Guidance

- Health and Safety
  - Hierarchy of controls
  - TTM Risk assessments
  - SOP’s and SSWP’s

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Controls may or may not be required. Standard basic controls are sufficient.</td>
</tr>
<tr>
<td>Medium</td>
<td>May require additional controls to be selected. Organisational SOP’s may be appropriate. Type B Works.</td>
</tr>
<tr>
<td>High</td>
<td>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. Type A Works</td>
</tr>
</tbody>
</table>
Part 0 – Design Guidance

A TTM Plan is not just a layout drawing
Part 0 – Design Guidance

TTM Design Elements

➢ VMS – message content, positioning, protection

➢ Barriers

➢ Traffic Control Measures

➢ Junctions
# Level 1 Urban Roads

<table>
<thead>
<tr>
<th>Sub</th>
<th>Carriageway Type</th>
<th>Speed Limit / Speed (km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Single</td>
<td>≤ 30</td>
</tr>
<tr>
<td>ii</td>
<td>Single</td>
<td>40</td>
</tr>
<tr>
<td>iii</td>
<td>Single</td>
<td>50</td>
</tr>
<tr>
<td>iv</td>
<td>Multi-Lane / Dual</td>
<td>≤ 60</td>
</tr>
<tr>
<td>Hazard Type</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Vulnerable Road Users</strong></td>
<td>Pedestrians/ Cyclists/ People with disabilities. Greater presence of these in more urban areas. They have little tolerance for delays and tend to follow desire lines. Particular attention to be paid around schools, hospitals etc.</td>
<td></td>
</tr>
<tr>
<td><strong>Restricted Geometry</strong></td>
<td>Tight bends and multiple junctions. Results in issues with achieving required visibility to devices and operatives.</td>
<td></td>
</tr>
<tr>
<td><strong>Heavy Vehicles</strong></td>
<td>High traffic volumes or large numbers of HGVs. Larger vehicles may have poorer all round visibility for their drivers. May be difficult to get a break in traffic for operations</td>
<td></td>
</tr>
<tr>
<td><strong>Vehicle and Vulnerable Road User Movement</strong></td>
<td>Vehicles turning (especially parking areas), frequent crossing points, all present issues for the temporary traffic management</td>
<td></td>
</tr>
<tr>
<td><strong>Access to Premises</strong></td>
<td>This can be domestic, public or commercial. These should be maintained where possible</td>
<td></td>
</tr>
<tr>
<td><strong>Public Transport Points</strong></td>
<td>May have large numbers of unsuspecting public alighting from public transport within your site, including people with disabilities</td>
<td></td>
</tr>
</tbody>
</table>
Part 1 – Vulnerable Road Users

➢ Pedestrians
  ➢ Temporary Footways
  ➢ Temporary Crossings
  ➢ Divert to other Footways

➢ Cyclists
  ➢ Temporary Cycle Tracks
  ➢ Closure of Cycle Tracks
  ➢ On / Off Carriageway Cycle Tracks
  ➢ Cyclist Lane Widths – avoid 3.5 – 4.0m
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

<table>
<thead>
<tr>
<th>Level</th>
<th>Carriageway Type</th>
<th>Speed Limit / Speed (km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td>Sub</td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td>i</td>
<td>Single</td>
</tr>
<tr>
<td></td>
<td>ii</td>
<td>Single</td>
</tr>
</tbody>
</table>
Part 2 – Level 2 Roads

- Minor Roads
  - Relaxations – diversions, Surface Dressing
  - Permanent Speed Limit v Operating Speed
- Lateral Safety Zone Reductions
- Semi Static Operations
- Overtaking / Climbing Lanes
- Road Strengthening and Surface Dressing
- Vulnerable Road Users
# Level 2 - Semi Static Operations

- Unobstructed Road width > 2.5m – vehicles can pass the works

<table>
<thead>
<tr>
<th>Speed (km/h)</th>
<th>Advance signage (m)</th>
<th>Hard Shoulder Works (Veh / 3 min)</th>
<th>Semi-Static Give and Take (Veh / 3 min)</th>
<th>Stop and Go (Works (m))</th>
<th>Stop and Go (Veh / 3min) Operator Distance from Works (m)</th>
<th>Stop and Go (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>90</td>
<td>130</td>
<td>20</td>
<td>160</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>100</td>
<td>120</td>
<td>130</td>
<td>20</td>
<td>215</td>
<td>50</td>
<td>60</td>
</tr>
</tbody>
</table>

- Minor Road Unobstructed Road Width <2.5m – vehicles cannot pass works

<table>
<thead>
<tr>
<th>Speed (km/h)</th>
<th>Max Veh / 3min</th>
<th>Signage Visibility (m)</th>
<th>Advance Visibility to Works Vehicle (m)</th>
<th>Visibility to Operatives (m)</th>
<th>Insufficient Visibility to Operative: Use Stop/Go or Block Cones</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>15</td>
<td>60</td>
<td>60</td>
<td>90</td>
<td>Stop Go / Block Cone Distance from Works (m)</td>
</tr>
<tr>
<td>80</td>
<td>15</td>
<td>60</td>
<td>60</td>
<td>90</td>
<td>Stop Go / Block Cone Distance from Works (m)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Level</th>
<th>Sub</th>
<th>Carriageway Type</th>
<th>Speed Limit / Speed (km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>i</td>
<td>Dual</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>ii</td>
<td>Dual</td>
<td>≥ 100</td>
</tr>
</tbody>
</table>
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
➢ Mobile Lane Closures
Level 3 Taper Types

Lane Taper

➢ To close a live lane 180m taper is required with cones @ 3m c/c and block lines of cones @ 36m intervals
Part 3 – Level 3 Roads

➢ Lane Closures

➢ Advance Warning Signage – including incorporation of roadworks speed limit

➢ Works Area Signage – taper types, site access locations
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
Temporoy Traffic Management Operations Guidance

➢ Safe Systems of Work

➢ Process Flowcharts

➢ Traffic Control Methods

➢ Method Information Sheets
Temporary Traffic Management Training

- **Solas Construction Skills Certification Scheme Courses:**
  - CSCS – Health and Safety at Roadworks
    - Substantial changes to format and content
  - CSCS – Signing, Lighting and Guarding
    - Update for new standards
    - More Urban Guidance and Risk Assessment Module
  - Courses Complete, SLG Trainers currently being updated on new course contents
Temporary Traffic Management Training

- **LASNTG Designer / Inspector Courses** - QQI Level 6 Accreditation Sought
  - Temporary Traffic Management Design Level 1 and 2
  - Temporary Traffic Management Design Level 3
  - Traffic Management Audit and Inspection - new

- **LASNTG High Speed Courses** - QQI Level 5 Accreditation Sought
  - Temporary Traffic Management on High Speed Roads Static
  - Temporary Traffic Management on High Speed Roads Mobile
  - Temporary Traffic Management on High Speed Roads IPV
    - All courses to be updated for new standards and new guidance topics
  - Temporary Traffic Management Supervisor Level 3 Roads - new
    - New course for Level 3 supervision of works crews
Temporary Traffic Management Training Update

- Update Course content for new Road Classifications, Works Types, New Guidance Topics and Industry Best Practice.
- Increased emphasis on Risk Assessment across all courses

<table>
<thead>
<tr>
<th>Severity</th>
<th>Risk</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Serious</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Minor</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Unlikely</td>
<td>Likely</td>
<td>Very Likely</td>
</tr>
</tbody>
</table>

- Use basic controls

- Use SOP

- Need Designer

Light volumes at 30 km/h

Light volumes at 60 km/h

Heavy volumes at 50 km/h
Temporary Traffic Management Training Update

➢ Update Course material and delivery mechanisms.
➢ Sample Course Content Video
Temporary Traffic Management Project

Summary

➢ Temporary Traffic Management Document Suite
  ➢ Chapter 8 of the Traffic Signs Manual
  ➢ Temporary Traffic Management Design Guidance
  ➢ Temporary Traffic Management Operations Guidance

➢ Training
  ➢ Specification and Course Materials Complete
  ➢ All courses have been Piloted in Q3 and Q4 2018
  ➢ Module Assessment Programs (MAPS) being prepared for QQI
  ➢ New courses will be available from sign off date

➢ Ministerial Sign off Chapter 8 – expected to be March 2019

➢ Documentation Launch
  ➢ Regional Workshops by TII and DTTAS on documentation - March / April
Thank You

Contact: ttm@dttas.ie