

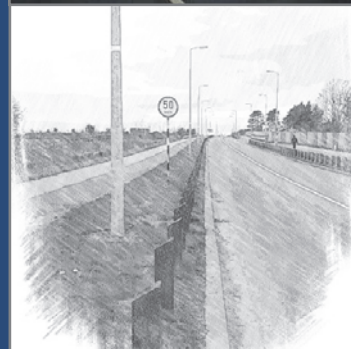


An Roinn Iompair
Turasóireachta agus Spóirt

Department of Transport,
Tourism and Sport

GUIDELINES FOR SETTING AND MANAGING SPEED LIMITS IN IRELAND

Including guidelines for the application of special speed limits



MARCH 2015 EDITION

TABLE OF CONTENTS

1	INTRODUCTION	1	5	THE CONTEXT FOR SPEED LIMITS	25
	PRINCIPAL REQUIREMENTS FOR SETTING AND MANAGING SPEED LIMITS	3	5.1	SPEED	25
2	STRUCTURE OF SPEED LIMITS	5	5.2	SPECIAL AND COLLISION RISK	25
2.1	DEFAULT SPEED LIMITS	6	5.3	SPEED MANAGEMENT	26
2.2	SPECIAL SPEED LIMITS	8	6	THE SETTING OF SPEED LIMITS - GENERAL GUIDANCE	31
2.3	VARIABLE OR PERIODIC SPEED LIMITS	8	6.1	INITIAL REVIEW AND OPTIONS AVAILABLE	31
2.4	TEMPORARY SPEED LIMITS AT ROAD WORKS	8	6.2	GENERAL ADVICE ON THE USE OF SPECIAL SPEED LIMITS	34
2.5	CAUTIONARY SPEEDS AT ROAD WORKS	8	7	THE SETTING OF SPEED LIMITS - DETAILED GUIDANCE	37
3	MANAGING SPEED LIMITS	10	7.1	MOTORWAYS	37
3.1	DEFAULT SPEED LIMITS	10	7.2	RURAL ROADS	38
3.2	LOCAL AUTHORITIES – BYE-LAWS	10	7.2.1	DUAL CARRIAGEWAYS	38
3.3	REVIEWING AND UPDATING SPEED LIMITS	10	7.2.2	SINGLE CARRIAGEWAYS	41
3.4	MAINTENANCE OF SPEED LIMIT SIGNS	12	7.2.3	NEW AND IMPROVED ROADS	48
3.5	ROAD WORKS SPEED LIMIT ORDERS	13	7.3	URBAN ROADS	49
3.6	QUERIES FROM THE PUBLIC	14	7.3.1	GENERAL	49
4	THE MAKING OF SPEED LIMIT BYE-LAWS	15	7.3.2	SPECIAL SPEED LIMIT – 30 KM/H	53
4.1	GENERAL	15	7.3.3	SPECIAL SPEED LIMIT – 40 KM/H	56
4.2	LOCAL AUTHORITIES – BYE-LAWS	15	7.3.4	VILLAGES AND TOWNS	58
4.3	CONSULTATION	15	7.4	SPECIAL SPEED LIMITS – SEPARATE LANES	60
4.4	THE STRUCTURE OF BYE-LAWS	17	7.5	SPECIAL SPEED LIMITS – SELECTED TIMES	61
4.5	APPLYING SPECIAL SPEED LIMITS	17	7.6	SPECIAL SPEED LIMITS – SPECIAL CIRCUMSTANCES	63
4.6	EXAMPLE OF TEXT FOR SCHEDULES	18	7.7	SUMMARY	64
4.7	MAP BASED BYE-LAWS	21	8	TEMPORARY SPEED LIMITS AT ROAD WORKS	65
4.8	MAKING SPECIAL SPEED LIMIT BYE-LAWS	23			

APPENDICES

A	SPEED ASSESSMENT FRAMEWORK	68	D	MapRoad PMS SPEED LIMITS APPLICATION	109
B	SPEED LIMIT SIGNS	85	E	LEGISLATIVE PROVISIONS	120
C	POSITIONING OF SPEED LIMIT SIGNS	100	F	EXTRACTS FROM STANDARDS	132

Chapter/ Appendix	Table			Figure	Page
1	1.1	Who Are These Guidelines Relevant To?			1
2	2.1	Structure of Permitted Speed Limits			5
			2.1	The “Motorway Speed Limit” of 120 km/h	6
			2.2	The “National Roads Speed Limit” of 100 km/h	6
			2.3	The “Non-Urban Regional Road Speed Limit” of 80 km/h	7
			2.4	The “Non-Urban Local Road Speed Limit” of 80 km/h	7
	2.2	Range of Permitted Speed Limits	2.5	The “Built-Up Area Default Speed Limit” of 50 km/h	8
4			4.1	Zoning bye-law map	21
			4.2	Zoning bye-law map	22
			4.3	Road by road bye-law map	22
			4.4	Process of making bye-laws	24
6			6.1	Sign F401 – Speed Limit Ahead	32
			6.2	Vehicle Activated Sign Displaying Speed Limit	33
			6.3	Vehicle Activated Not Displaying Speed Limit	34
7			7.1	Typical Motorway	37
			7.2	High Standard Dual Carriageway	38
			7.3	2+2 Dual Carriageway	38
			7.4	2+1 Dual Carriageway	38
			7.5	Dual Carriageway Suitable for 120 km/h	40
			7.6	Various Rural Single Carriageways	41
	7.1	Rural Speed Limit Stage 1 Assessment			42
			7.7	Wide Single Carriageway Road	43
			7.8	Legacy Single Carriageway Road	43
			7.9	Reclassified Single Carriageway Road	45
			7.10	Various Minor Local Roads	46
			7.11	Extract From 2013 Speed Limit Review Report	47
	7.2	NRA DMRB Design Standards - Types	7.12	New Single Carriageway Road	48
			7.13	Recommended Speed Limits For Urban Areas	49
	7.3	Recommended Speed Limits Urban Areas			51
			7.14	30 km/h Special Speed Limit	53
			7.15	Slow Zones – Sign Options	56
	7.4	Village Speed Limit Length Examples			59
			7.16	Special Speed Limit on Separate Lanes	60
			7.17	Special Speed Limit on Separate Lanes – Sign Types	61
	7.5	Special Speed Limit Timings at Schools			62
		7.18	Special Speed Limit in a Special Circumstance	63	
	7.6	Summary of Speed Limit by Carriageway			64
8	8.1	Road Works Speed Limit Signs			66
A			A.1	Speed Assessment Framework – Flowchart	77
			A2.1	Cumulative Speed Distribution Curve	80
			A2.2	Probability of Fatal Injury	83
			A2.3	Fatality Risk	84
B	B.1	Table of Default Speed Limit Signs			85
	B.2	Table of Special Speed Limit Signs			86
	B.3	Local Roads			95
	B.4	Rural Speed Limit Sign			96
			B.1	Rural Speed Limit Sign	97
			B.2	Existing Local Road Signage	97
			B.3	View From National Road	98
			B.4	Further Inspection	98
			B.5	Rural Speed Limit Sign In Place (Impression)	99
	C			C.1	Speed Limit Sign Positions
			C.2	80 km/h on Poor Quality Road	103
			C.3	Repeater On Bend With Chevrons	104
			C.4	Repeater Sign on Poorly Aligned Section of Road	105
			C.5	Speed Limit Signs in Advance of Junctions	106
			C.6	Speed Limit Signs on Short Links	106
			C.7	In Advance of Roundabout	108
			C.8	Mounted on Sharp Bend to Left	108
			C.9	On Bend With Chevrons	108
			C.10	On Road Narrows Sign	108

1

INTRODUCTION

1

INTRODUCTION

These Guidelines, having regard to Section 9(9) of the 2004 Road Traffic Act, constitute a direction of the Minister for Transport. Their purpose is to provide guidance to Local Authorities, and other practitioners, in making bye-laws in relation to the setting and management of speed limits in Ireland.

The setting of speed limits is primarily driven by road safety, the need to reduce collisions and their severity and to gain consistency in the setting of suitable limits to ensure road traffic speeds are appropriate to their environment.

The 2004 Road Traffic Act provides the legislative basis for speed limits generally, providing for the application of default speed limits in respect of various road types (extracts included in Appendix E).

There will be occasions where it will be necessary, primarily for safety reasons, to review and change speed limits. Default speed limits can only be changed by making *Special Speed Limit* bye-laws. The power to do so is vested in the Elected Members of Local Authorities. The primary purpose of any such intervention should be to better match the maximum speed allowed to the road conditions, and to improve road safety.

Guidance for the setting of appropriate speed limits is provided in Chapters 6 and 7 of this document. This is in turn supported by a Speed Assessment Framework for single carriageway rural roads (See Appendix A).

WHO ARE THESE GUIDELINES RELEVANT TO?		
STATUTORY		NON-STATUTORY
Local Authorities	An Garda Síochána	National Transport Authority
	An Garda Síochána must be consulted in relation to any proposed bye-law applying a <i>Special Speed Limit</i> .	Road Safety Authority
		Railways Procurement Agency
	The National Roads Authority	Motoring organisations
	The National Roads Authority must consent, in writing, to a <i>Special Speed Limit</i> on a National Road.	General Public
		Rail and Bus Operators

Table 1.1 – Who Are These Guidelines Relevant To?

The Road Traffic Act 2010, Section 86, introduced a new *Special Speed Limit* of 40 km/h. These Guidelines outline the criteria required for the implementation and use of this speed limit (See Chapter 7).

The Road Traffic Act 2004 provides powers to Local Authority Chief Executives to apply *Special Speed Limits* at the site of road works. This publication also gives guidance on the making of Road Works Speed Limit Orders by Local Authority Chief Executives.

In Ireland the system of default speed limits is linked to road classification and road function with *Special Speed Limits* being set to take cognisance of variations or physical limitations in the road network. These differences in speed limits on the network have resulted in many additional interface points between different limits such as those between National Roads and Regional or Local Roads. In addition, if the road classification changes, the default speed limit automatically changes accordingly.

The overall objective in setting speed limits is to ensure that safe limits are set for the road in question that appropriately reflect the current network so that roads are self-regulating or self-explaining. Such speed limits may not always be compatible with the desirable speed limit for that network, which should be in accordance with their function.

Speed limits are linked to the cross-section of a road as well as its horizontal and vertical alignment, number of junctions, the operation of a road and the road types which are described in this document. Notwithstanding the function of a road and the desired design speed / speed limit it may be appropriate to review the appropriateness of the speed limit in accordance with the advice contained in Chapters 6 and 7 of these Guidelines.

Where a speed limit is being changed, either from a default limit to a *Special Speed Limit*, or *vice versa*, a “Safe System” approach should be adopted for speed limits whereby place/function, the requirement for physical measures and vehicle speeds (before and after the change) are assessed, to ensure the limit is appropriate to its environment. If a speed limit is being raised or lowered whereby the new limit may be inappropriate for the section then appropriate engineering measures should be adopted.

A Built-up Area is defined by Section 2(1) of the Local Government Act 2001 as the area of a city, borough or town council within the meaning of the Act. For speed limits Section 5 of the Road Traffic Act 2004 sets a default speed limit of 50km/h for ‘built-up areas’. The abolition of Town Councils in 2014 has not affected the meaning, definition and scope of these built-up areas, thus the default speed limit for all roads within these areas remains 50 km/h. For speed limits other than 50 km/h in these areas, *Special Speed Limits* are required.

The following summarises the situation;

- Default speed limits for former town council areas remain.
- *Special Speed Limits* are set on the same basis as before and those currently in place remain.

Mapped records of former town council areas (including their boundaries) should be made and retained on the local authority MapRoad System.

Principal Requirements for Setting and Managing Speed Limits

- ⚠ The immediate response to road safety issues at particular locations should not be the introduction of a *Special Speed Limit* that is lower than the default speed limit. Engineering measures should be investigated and/or implemented and only supplemented by a *Special Speed Limit* if necessary.
- ⚠ The provisions in the Road Traffic Act relating to speed limits only apply in respect of public roads. In the Roads Act of 1993 a public road is defined as:

“public road” means a road over which a public right of way exists and the responsibility for the maintenance of which lies on a road authority

Roads Act 1993

- ⚠ These Guidelines, having regard to Section 9(9) of the 2004 Road Traffic Act, constitute a direction of the Minister for Transport. Their purpose is to provide guidance to Local Authorities, and other practitioners, in making bye-laws in relation to the setting and management of speed limits in Ireland. The use of these Guidelines, a statutory document, is **mandatory** when setting and managing speed limits.
- ⚠ Local Authorities shall conduct a review of speed limits (*default and Special Speed Limits, including those on National Roads*) at least on a 5-yearly basis. This, however, does not preclude a Local Authority from carrying out a review of any speed limit and publishing a *Special Speed Limit* bye-law within its administrative area at any time where it is deemed necessary or appropriate to do so.
- ⚠ For National Roads the National Roads Authority shall conduct a review of speed limits (*default and Special Speed Limits*) at least on a 5-yearly basis and their recommendations shall be included in relevant Local Authority bye-laws. This, however, does not preclude the NRA from carrying out a review of any speed limit on National Roads at any time where it is deemed necessary or appropriate to do so.
- ⚠ Local Authority and National Roads Authority staff involved in the setting and management of speed limits must be trained and competent in the use of these guidelines.
- ⚠ Local Authority and National Roads Authority staff overseeing and signing off on the setting and management of speed limits must be trained and competent in the use of these Guidelines and must be a Chartered Engineer. Submissions to Elected Members, applications to the National Roads Authority and responses from the National Roads Authority to change a speed limit must only be ‘signed off’ by such a person.
- ⚠ Road Authorities are required to map and maintain a register of all speed limits (*Default and Special Speed Limits*) on the **MapRoad Road Management System**. Further information on the MapRoad Speed Limits Mobile Application and Browser Interface is contained in Appendix D.

- ⚠ Road Authorities shall maintain copies of the following on www.speedlimits.ie
 - Full details, including maps, of all current *Special Speed Limit* bye-laws
 - Current Road Works Speed Limit Orders
 - Proposals for *Special Speed Limits* and Road Works Speed Limit Orders.
- ⚠ Advance notification of proposals on display for new or changes in *Special Speed Limits* or road works speed limits shall be emailed to notifications@speedlimits.ie.
- ⚠ The written consent of the National Roads Authority is required for a *Special Speed Limit* being applied on a National Road. This consent should be secured before the Local Authority puts the draft bye-law before the Elected Members of the Local Authority for their consideration. See Chapter 4 for further details.



2

STRUCTURE OF SPEED LIMITS IN IRELAND

2

STRUCTURE OF SPEED LIMITS IN IRELAND

This Chapter describes the range of speed limits provided for in the Road Traffic Act 2004 (extracts included in Appendix E), as amended by Section 86 of the Road Traffic Act 2010. The Act establishes speed limits that apply to defined categories of roads. Speed limits apply on a default basis and can only be changed on a permanent basis, as fixed, variable or periodic by Local Authorities through the making of *Special Speed Limit* bye-laws.

Local Authority Chief Executives may change default speed limits on a temporary basis (no more than 1 year) through the making of Road Works Speed Limit Orders.



















Statutory	Default Speed Limits	Motorway (M) – 120 km/h	
		National Roads (N, NP, NS) – 100 km/h	
		Regional (R) – 80 km/h	
		Local Roads (L) – 80 km/h - Local Primary (LP) - Local Secondary (LS) - Local Tertiary (LT)	 
		Built-up area	
	Special Speed Limits	      	
	Variable or Periodic Special Speed Limits	Any <i>Special Speed Limit</i> but normally lower than the speed limit in effect at the time of variable or periodic change	
Non-Statutory	Road works Speed Limits	Any of the above but normally:     	
	Cautionary Speeds at Road Works	Rectangular plates with black text on a white background displaying either 75 km/h, 65 km/h, 55 km/h, 45 km/h, 35 km/h, 25 km/h,	

Table 2.1 - Structure of Permitted Speed Limits

2.1 Default Speed Limits

Default Speed Limits are speed limits that are specified in Sections 5 to 8 of the Road Traffic Act 2004 which sets out the range of speed limits that are applied for a number of classes or categories of public road. These are set out in the following figures: -

A. Motorways (120 km/h)

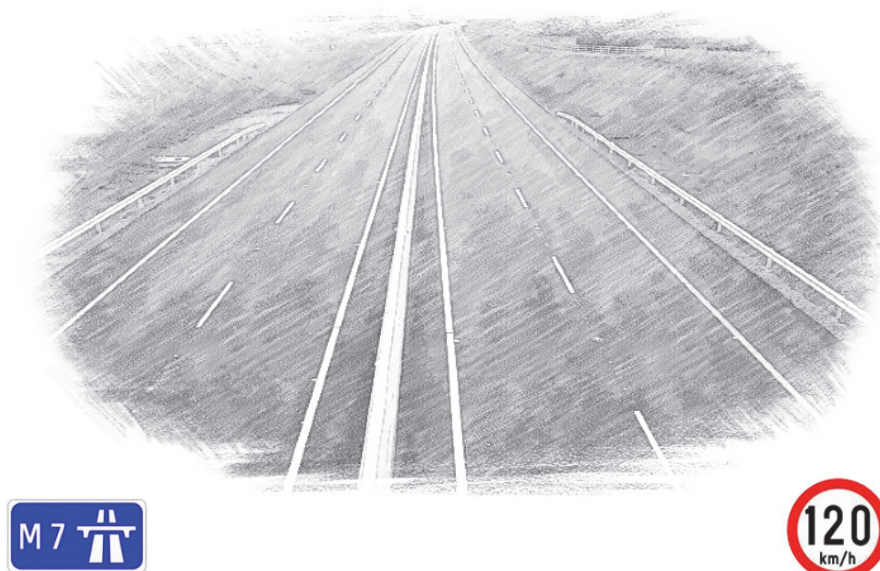


Figure 2.1 – The “Motorway Speed Limit” of 120 km/h

B. National Roads (100 km/h)

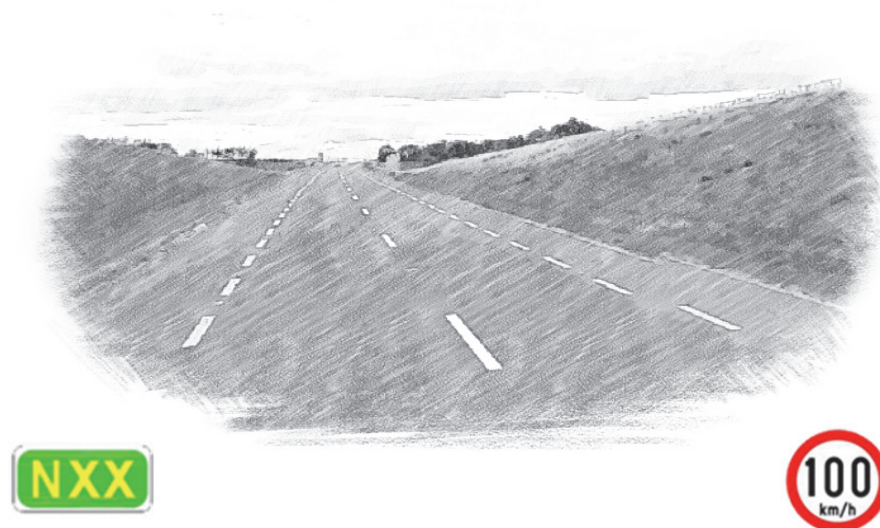


Figure 2.2 – The “National Roads Speed Limit” of 100 km/h

**C. Regional Roads
(80 km/h)**



Figure 2.3 – The “Non-Urban Regional Road Speed Limit” of 80 km/h

**D. Local Roads
(80 km/h)**

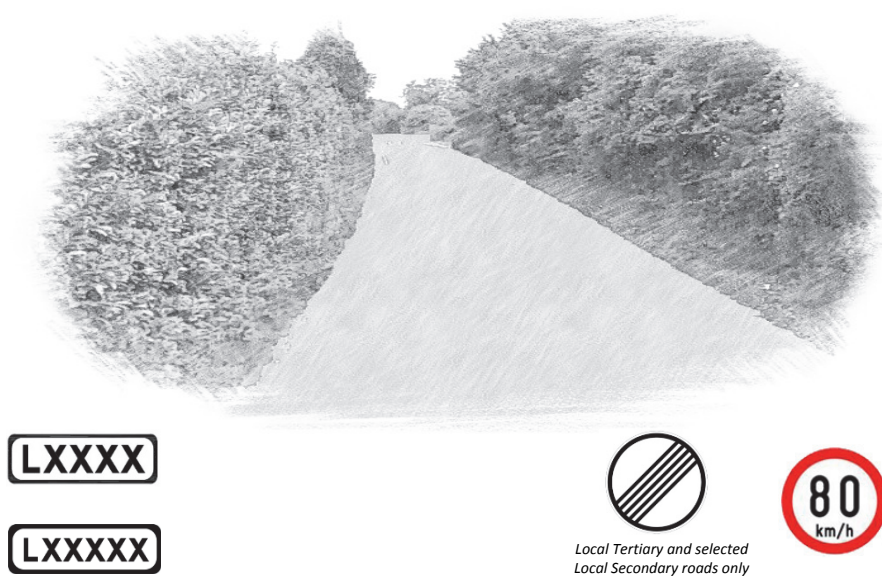


Figure 2.4 – The “Non-Urban Local Road Speed Limit” of 80 km/h

E. Built-up Area (50 km/h)



Figure 2.5 – The “Built-Up Area Default Speed Limit” of 50 km/h.

2.2 Special Speed Limits

Special Speed Limits are speed limits that are specified in bye-laws prepared by Local Authority Engineers and made (adopted by the vote of) by the Elected Members of Local Authorities. Section 9 of the Road Traffic Act 2004 (amended by Section 86 of the Road Traffic Act 2010) sets out the range of *Special Speed Limits* that may be applied through bye-laws.

<i>Special Speed Limit</i> (km/h)	Permitted Use
120	In respect of a dual carriageway that forms part of a national road that is not a motorway in accordance with these Guidelines
100	In respect of a motorway, a non-urban regional or local road, or a road in a built-up area
80	In respect of a motorway, a national road or a road in a built-up area
60	In respect of any road
50	In respect of any road other than a road in a built-up area
40	In respect of a road or roads in accordance with these Guidelines
30	In respect of a road or roads in accordance with these Guidelines

Table 2.2 - Range of Permitted Speed Limits

2.3 *Variable or Periodic Special Speed Limits*

Variable and Periodic *Special Speed Limits* are provided for both in legislation and in the Traffic Signs Manual. These speed limits are generally intended for use on motorways, tunnels and at schools.

2.4 *Temporary Speed Limits at road works*

The Road Traffic Act 2004 introduced the provision for a County or City Manager (now Chief Executive) to apply, by order, a *Special Speed Limit* in respect of road works (Road Works Speed Limit Order). The order can only be made for a maximum duration of 12 months. The speed limit that may be applied cannot be less than 30 km/h and must be from the range of *Special Speed Limits* set out in Section 9 of the Act.

2.5 *Cautionary Speeds at road works*

Where it is not appropriate or practicable to impose a mandatory regulatory Road Works Speed Limit, a Cautionary Speed plate may be used. Further details are contained in Chapter 8 of the Traffic Signs Manual. The range of speeds permitted for use in this regard are: -

75 km/h, 65 km/h, 55 km/h, 45 km/h, 35 km/h and 25 km/h



3

MANAGING SPEED LIMITS

3**MANAGING SPEED LIMITS****3.1 Default Speed Limits**

The legislative provision for speed limits is set out in the Road Traffic Act 2004 (as amended). The Act provides for speed limits that apply on a default basis to all road types, detailed in Chapter 2 of these Guidelines.

3.2 Local Authorities – Special Speed Limit Bye-laws

Under the Road Traffic Act 2004 (extracts included in Appendix E) the power to make (adopt) bye-laws applying *Special Speed Limits* in lieu of default limits on roads in their administrative area is vested in the Elected Members of Local Authorities.

A Local Authority may carry out a review of any speed limit and publish a *Special Speed Limit* bye-law within its administrative area at any time where it is deemed necessary or appropriate to do so, particularly on the grounds of safety. Further details are set out in Chapter 4.

The National Roads Authority is tasked with the construction and management of the National Road network. The Authority's prior consent, in writing, must be secured in relation to any proposal to apply a *Special Speed Limit*, in lieu of a default speed limit, or to change any existing *Special Speed Limit* on a National Road. The Authority itself may, in certain circumstances, seek a change to a speed limit on a National Road.

3.3 Reviewing and Updating Speed Limits

Arising from the Speed Limit Review 2013 a comprehensive review and update of speed limits shall occur at least every 5 years. This should be led carried out as follows: -

3.3.1 National Road Speed Limits

For National Roads the National Roads Authority shall, in accordance with these Guidelines, conduct a review of all speed limits (default and *Special Speed Limits*) at least every 5 years for publication and submission to Local Authorities. This review shall seek to ensure that limits are appropriate and shall;

- Consist of an updated inventory of speed limit signs and zones on MapRoad, *
- Confirm the correctness of existing speed limit bye-laws and signs, *
- Implement 120 km/h on sections of dual carriageways that are suitable,
- Implement 100 km/h on single carriageway sections that are suitable,

* = to be carried out by Local Authorities on behalf of the NRA

- Implement 80km/h on those sections of road that are not suitable for a 100km/h speed limit,
- Identify and implement speed limits lower than 80km/h as appropriate for urban areas and for 'at-risk' locations,
- Review speed limits at locations where there have been queries.

As a Local Authority is ultimately responsible for setting *Special Speed Limits* on all roads within its administrative area, the NRA shall co-ordinate and support Local Authorities on its proposals in relation to National Roads, particularly in relation to the consultation process and submissions received.

3.3.2 Regional and Local Roads

For Regional and Local roads Local Authorities shall, in accordance with these Guidelines, conduct a review of all speed limits (default and *Special Speed Limits*) at least every 5 years. This review shall seek to ensure that limits are appropriate and shall:

- Consist of an updated inventory of speed limit signs and zones on MapRoad,
- Confirm the correctness of existing speed limit bye-laws and signs,
- Identify and implement 100 km/h speed limits on those sections of rural road that are suitable,
- Implement 80 km/h on those sections of rural roads that are suitable,
- Identify and Implement speed limits lower than 80km/h as appropriate for urban areas or for 'at-risk' locations,
- Review speed limits at locations where there have been queries.
- Review speed limits on housing estate roads and implement lower speed limits as appropriate

The above, however, does not preclude a Road Authority from carrying out a review of any speed limit on roads at any time where it is deemed necessary to do so, particularly where concerns have been raised or representations have been made on safety grounds.

3.4 *Maintenance of Speed Limit Signs*

Road Authorities should maintain the infrastructure in relation to speed limits in a satisfactory condition and in a manner that is visible and understandable to road users. Using the MapRoad inventory of speed limit signs and zones Road Authorities should monitor and identify: -

- Whether signs are located correctly
- Where signs are missing
- The condition of signs
- The location of inappropriate signs

3.4.1 *Removal of Inappropriate Signs*

Speed limit signs, like traffic signs in general, must be managed and maintained. They also must be appropriately located. Inappropriate speed limit signs should be removed. Many of these inappropriate signs relate to repeater signs that are incorrectly placed, such as in the vicinity of bends (eg 'Sharp Bend Ahead' sign), traffic calming scheme signs, schools and narrow bridges.

Appendix C illustrates typical examples. Such signs should be removed, relocated or replaced by more appropriate signs such as a Warning Sign.

Local Authorities, as well as the NRA for National Roads, should review speed limit *signage* for consistency and appropriateness at intervals of no greater than 5 years. This exercise should be part of an overall update to the inventory that shall include the removal or replacement of signs in areas where it is not possible or appropriate to travel at that speed.

Examples of locations where speed limit signs need to be examined are where;

- Signs are near a sharp bend or signs in close proximity to signage associated with poor alignment (chevrons, sharp bend ahead sign, etc.),
- Signs are near or at traffic calming scheme signs,
- Signs are near schools in rural areas,
- Signs are near a narrow bridge,
- Signs are near a 'bend ahead' sign,
- Signs conflict with a blind crest curve and vertical alignment issues,
- Signs are on the approach to a 'road narrows' sign.

Speed limit signs should also be examined if;

- The road cannot be driven at 100km/h.
All speed limit repeater signs should be removed.
- An inappropriate speed limit sign has been identified.
A decision needs to be made to;
 - A. remove the speed limit sign and replace it with a more appropriate sign (sharp bend ahead, road narrows, etc),
 - B. remove the sign and the pole entirely.

Road Authorities should, when undertaking the task of identifying inappropriate speed limit signage, use this process to identify;

- Contractor scheme signs (scheme boards) that are greater than three years old (from date of substantial completion of scheme/project).
- Where there are redundant sign posts (can they be used to mount other appropriate signage? if not, remove)

Local Authorities should also ensure that road works signs are removed at the completion of the works.

See Appendix C for further guidance on the positioning of speed limit signs and repeater signs.

3.5 Road Works Speed Limit Orders

Chief Executives of Local Authorities are empowered by the 2004 Act to make Orders for the purposes of applying speed limits at road works. The Order cannot be for a period of more than 12 months. The speed limit that may be applied cannot be less than 30 km/h and must be from the range of *Special Speed Limits* set out in Section 9 of the Act (as amended by Section 86 of the Road Traffic Act 2010). These limits are tabulated in Chapter 2.

Where a Chief Executive proposes to make a Road Works Speed Limit Order, the Commissioner of An Garda Síochána, or delegated officer, must be notified of the proposal to make the Order, and the Chief Executive must consider any representations made.

If the proposed Order is in respect of a National Road or a Motorway, the prior written consent of the National Roads Authority must be obtained.

When an Order has been made, the Chief Executive must publish a notice in at least one newspaper circulating in the area and on its website, giving details of the location where the Order will have effect, the period for which it will have effect and the speed limit being applied.

It should be noted that the speed limit chosen for a Road Works Speed Limit Order must not be more than 2 steps below the currently posted speed limit on the road (as per bye-laws) at the time the Order is made.

3.6 *Queries from the Public.*

Queries on speed limits can arise for a number of reasons, such as part of a review process or those that may be submitted from time to time by members of the public or organisations such as motoring organisations. These queries should be addressed in accordance with these Guidelines, in a managed way, on an on-going basis and, in particular, when a comprehensive review is underway.

4

THE MAKING OF SPEED LIMIT BYE-LAWS

4**THE MAKING OF SPEED LIMIT BYE-LAWS****4.1 General**

The purpose of this chapter is to give advice to members and officials of Local Authorities in relation to the making of *Special Speed Limit* bye-laws. This section is also relevant to the Gardaí, who must be consulted in relation to the proposed bye-laws, the National Roads Authority, who must consent in writing to proposals relating to National Roads and to the general public who must be consulted in relation to the final draft bye-law proposals.

The overriding principle that must inform any decision to change a default speed limit should be road safety. In addition, to be effective, a speed limit should be self-regulating (self-explaining) and regarded as appropriate by road users and should not be imposed on a road unless there is a clear justification for doing so. If a *Special Speed Limit* is not warranted and does not appear appropriate to the road user, the road user will tend to ignore it, creating enforcement difficulties and potentially bringing the whole system of speed limits into disrepute.

The principle of giving the Elected Members of Local Authorities the power to make bye-laws (as a reserved function) for the purpose of applying *Special Speed Limits* which was established in 1994, is retained in the Road Traffic Act 2004 (see Appendix E) and introduced fundamental changes to the process of making bye-laws and the range of powers available to Local Authorities.

As originally set out in the Road Traffic Act 1994, bye-laws should generally be made in respect of a Local Authority area as a whole. Dealing with proposals for specific areas or roads on an independent basis should be avoided unless it is deemed necessary or appropriate to do so, particularly on the grounds of safety.

The requirements for Road Works speed limits are set out in Section 10 of the Road Traffic Act 2004 – See Chapter 8.

4.2 Local Authorities – Special Speed Limit Bye-laws

Under the Road Traffic Act 2004 (extracts included in Appendix E) the power to make bye-laws to apply *Special Speed Limits* in lieu of the default limits is vested in the Elected Members of Local Authorities on roads in their administrative area. However, a Local Authority may, from time to time, carry out a review of any speed limit and publish a *Special Speed Limit* bye-law within its administrative area at any time where it is deemed necessary or appropriate to do so, particularly on the grounds of safety.

The process of making *Special Speed Limit* bye-laws requires Local Authorities to engage in consultation with a number of bodies as well as the general public.

4.3 Consultation under the Road Traffic Act 2004

Local Authorities have, since the enactment of the Road Traffic Act 1994, been required to engage in a consultation process with respect to the publication of *Special Speed Limit* bye-

laws. It is recommended that the process should commence at the earliest opportunity so that the bodies involved can make informed contributions to the overall process. The Road Traffic Act 2004 introduced a requirement for consultation with the general public. All representations and objections relating to proposed bye-laws must be made in writing to the Local Authority.

Consultation includes:

- Advertising for submission of requests for consideration
- Consultation with any adjoining Road Authority in respect of roads which pass through each adjoining Authority to ensure consistency of approach.
- Road Authorities must consult with An Garda Síochána in respect of all proposals relating to *Special Speed Limit* bye-laws.
- The Road Traffic Act 2004 provides for a *public consultation* process in relation to the making of *Special Speed Limit* bye-laws.

Section 9(3) and 9(4) of the Road Traffic Act 2004 sets out a formal consultation process that must be followed, however an informal non statutory consultation process is also carried out by many Local Authorities in the drafting of *Special Speed Limit* bye-laws. Non statutory consultation is carried out by engagement with neighbouring local authorities, local Gardaí, and residential associations and community development groups.

Before a Local Authority proposes to make bye-laws they shall give notice under Section 9(3) of the Road Traffic Act 2004 to the Garda Commissioner and shall consider any representations made in writing where they are received within the period (not being less than one month after the date of service of that notice) specified in the notice.

Following the consideration of any representations under section 9(3) above, a Local Authority proposing to make bye-laws are required to undertake a formal period of public consultation under Section 9(4) of the Road Traffic Act, 2004. The council shall publish a notice of the proposal in at least 2 daily newspapers. This notice shall state where the draft bye-laws can be inspected and where any person can make any objection, in writing, to the draft bye-laws within 30 days from the date of publication of this newspaper notice and the Local Authority shall consider the objections.

The considerations of objections by a Local Authority shall be considered by the Elected Members at the full Council meeting.

The above is a summary of the formal consultation process under Section 9(3) and 9(4) of the Road Traffic Act 2004, however, reference to the full provision of this section of the act should be made in the process of making special speed limit bye-laws.

The National Roads Authority is tasked with the construction and management of the National Road network. The Authority's prior consent, in writing, must be given in relation to any proposal to apply a *Special Speed Limit*, in lieu of a default speed limit, or to change any

existing *Special Speed Limit* on a National Road and may, in certain circumstances, seek a change to a speed limit on a National Road itself.

4.4 *The Structure of the Bye-laws*

One of the major changes to the law relating to speed limits introduced in the Road Traffic Act 2004 was the application of separate speed limits on rural National Roads and rural Regional and Local roads. That Act also specified that default speed limit values can be applied as *Special Speed Limits* on roads where they do not apply on a default basis.

As part of those particular changes, the Act provided that when a Local Authority applies a *Special Speed Limit* in lieu of a default speed limit, the latter speed limit is automatically dis-applied. This removed the requirement to dis-apply the speed limit in bye-laws. Where a *Special Speed Limit* is removed the speed limit reverts to the appropriate default speed limit. This is relevant in that *Special Speed Limit* bye-laws can be amended as necessary.

Notwithstanding the above, when carrying out a comprehensive review or where there are multiple amendments to existing speed limits, it is good practice to consolidate all *Special Speed Limits* into a new single bye-law and to revoke existing bye-laws.

4.5 *Applying Special Speed Limits*

Where *Special Speed Limit* bye-laws are made, the description of the locations at which the *Special Speed Limits* apply must be very specific. *Special Speed Limits* should generally be applied in respect of a complete road or for specific distances on a road. Normally the reference points should be to, or from, junctions or city and town boundaries and departures from that approach are discouraged. In all cases, the location of the speed limit sign should directly reflect the location set down in the bye-laws.

There are occasions where the identification of individual roads may not be the appropriate approach to the application of *Special Speed Limits* in an area. There are a large number of towns, some with very sizeable populations, and areas of major urban development adjacent to major cities where a more appropriate approach would be to establish a zone within which the *Special Speed Limit* applies.

A speed limit zone, within which all roads, or all roads with certain exceptions, will be covered by the *Special Speed Limit* of 50 km/h, can be established by reference to a series of points that are joined together, effectively creating a “boundary”. These reference points should be to locations on roads. Speed limit signs must be erected at those locations.

It is important to note that once a road is not within the boundary of a built-up area (i.e. City Council and former Borough and Town Council areas) the default speed limit for all of the roads in that area, as per Road Traffic Act 2004, is 80 km/h for Regional and Local Roads and 100 km/h for National Roads. In such circumstances the appropriate *Special Speed Limit* should be chosen and must be applied through bye-laws. Chapter 7 provides detailed guidance for setting *Special Speed Limits* in rural and urban areas

4.6 Examples of text for Schedules

Where a *Special Speed Limit* is being applied to a stretch of road, there are a number of options available for the purposes of describing the exact parameters of the speed limit. Some suggested formats follow. Examples 1 and 2 are taken from text in the speed limit regulations made in relation to County Cork and are used purely as examples. These are for illustrative purposes only as the speed limits in both cases may have been the subject of significant change since the bye-laws were made.

In order to assist all involved in the process of making bye-laws and bodies that must be consulted, a map of the area should be prepared that clearly shows the locations of the roads and of the points where the speed limits start and finish. The use of different colours for different speed limits can provide a useful aid to identifying the sections of road in question, and should be accompanied by a legend. The map should also show the direction North.

Example

Relating to roads in Buttevant, Co. Cork.

1

The overall title to the reference was - "The following roads at Buttevant". The actual descriptions presented for the roads were as follows –

- (a) Ball Alley Lane, Barrack Place, Military Road, New Street, St. Coleman's Place, Mill Lane.
- (b) The Knockbarry Road for a distance of 942 metres from its junction with the Mallow-Limerick Road (National Road N20).
- (c) The Liscarroll Road between its junction with the Mallow-Limerick Road (National road N20) and a point 340 metres west of its junction with the Military Road.

The second example is the application of a *Special Speed Limit* zone.

Example

The following roads at Dunmanway:-

2

All roads in the area enclosed by a line commencing at a point on the Cork Road 281 metres east of its junction with the Macroom Road and drawn thence in straight lines successively to the following points:-

- (a) a point on the Clonakilty Road 46 metres east of its junction with the Mullough Road,
- (b) a point on the Mullough Road 385 metres south of its junction with the Clonakilty Road,
- (c) a point on the Bantry-Coach road 1,086 metres south-west of the junction of Mary Street with the Kilbarry Road,
- (d) a point on the Kilbarry Road 92 metres south-west of its junction with

Mary Street,

- (e) a point on Castle Street 23 metres east of its junction with the Inch Road,
- (f) a point on High Street 284 metres north of its junction with The Square,
- (g) a point on the Spa Road 23 metres north-west of its junction with Chapel Street,
- (h) a point on the Macroom Road 92 metres north of its junction with Chapel Street,

and from the last mentioned point in a straight line to the commencement point on the Cork Road.

Under the provisions of the Road Traffic Act 2004, bye-laws may be made applying different speed limits to different carriageways or lanes on a road. A similar approach to the presentation of text should be adopted for these bye-laws, as is the case in the making of bye-laws to apply a *Special Speed Limit* on the full length of a road.

The Act also provides for the application of *Special Speed Limits* at specified/restricted times and in special circumstances. In terms of the structure of bye-laws, such provisions should be addressed through Schedules that are separate from those under which *Special Speed Limits* are applied to roads or parts of roads on a full-time basis. It is very important that the circumstances that create the need for the special arrangements are clearly outlined in the bye-laws.

The following examples are taken from text in the speed limit regulations made in relation to Dún Laoghaire-Rathdown County Council and are used purely as examples. They are used for illustrative purposes only and the speed limits may have been the subject of significant change since the Regulations were made.

Example

3

1.1 FIRST SCHEDULE – SPECIAL SPEED LIMIT 50 KM/H

50 km/h shall be the speed limit for mechanically propelled vehicles on public roads located within the boundary of Dún Laoghaire-Rathdown County Council's administrative area (as shown on the county boundary map prepared in accordance with section 10 of the Local Government (Dublin) Act, 1993), as also shown indicatively on drawing No. TT-107-01-13 County Speed Limits (shaded green), except those roads specified in the following second, third, fourth, fifth, sixth, seventh and eighth schedules to these Bye-Laws;

Example

4

1.3 THIRD SCHEDULE - SPECIAL SPEED LIMIT OF 60 KM/H (BUS LANE ONLY)

60 km/h shall be the special speed limit for mechanically propelled vehicles driving in the bus lanes on those public roads shown indicatively on drawing No. TT-107-01-13 County Speed Limits, coloured magenta and as specified hereunder:-

Bray Road (Southbound)

- (i) The Bray Road southbound bus lane from a point 89m south-east of its junction with Kill Lane to a point 15 metres north-west of its junction with Old Bray Road opposite Mart Lane.
- (ii) The Bray Road southbound bus lane from a point 15 metres south-east of its junction with Old Bray Road opposite Mart Lane to a point 15 metres north-west of its junction with Clonkeen Road.
- (iii) The Bray Road southbound bus lane from a point 15 metres south-east of its junction with Clonkeen Road to a point 7.5 metres north-west of its junction with Johnstown Road.
- (iv) The Bray Road southbound bus lane from a point 15 metres south-east of its junction with Johnstown Road to a point 5 metres north-west of its junction with Shanganagh Vale.
- (v) The Bray Road southbound bus lane from a point 10 metres south-east of its junction with Shanganagh Vale to its junction to a point 100 metres north of the Loughlinstown Roundabout junction.

Example**5****1.4 FOURTH SCHEDULE - SPECIAL SPEED LIMIT 80 KM/H EXCLUDING BUS LANE**

80 km/h shall be the special speed limit for mechanically propelled vehicles on those public roads (excluding the bus lane which as detailed in the Third Schedule above will be 60km/h) shown indicatively on drawing No. TT-107-01-13 County Speed Limits, coloured magenta and as specified hereunder:-

Bray Road

- (i) Southbound side of the Bray Road, excluding the Southbound nearside bus lane, between a point 89 metres south-east of its junction with Kill Lane to a point 100 metres north of the Loughlinstown Roundabout junction.
- (ii) Northbound side of the Bray Road, excluding the Northbound nearside bus lane, between its junction with Cherrywood Road and a point 89 metres south-east of its junction with Kill Lane.

Miscellaneous Roads

- (i) The southbound Exit Ramp from the Bray Road to a point 50 metres north-west of its junction with the Wyattville Road.
- (ii) The southbound Entry Ramp to the Bray Road at Cherrywood, from a point 50 metres south-east from its junction with the Wyattville Road to its junction with the Bray Road.

4.7 Map based Bye-Laws

It is also possible to produce bye-laws by the use of maps only. The maps used must be OSI maps as they provide a greater level of detail than other maps. Scales used must be 1:5000 or 1:2500.

The drawings (maps) produced must be to scale to allow measurements to be scaled from them. While text based bye-laws are, and always will be suitable, improvements in mapping and the ongoing development of the MapRoad PMS Road Management System may provide a more efficient way to deliver bye-laws with reference only to maps. These are easier to read by the public and easier to display on a web portal.

The examples shown are taken from bye-laws produced by Galway County Council and Wexford County Council and are used purely as examples. Note that these are for illustrative purposes only as the speed limits in these cases may have been the subject of significant change since the bye-laws were made.

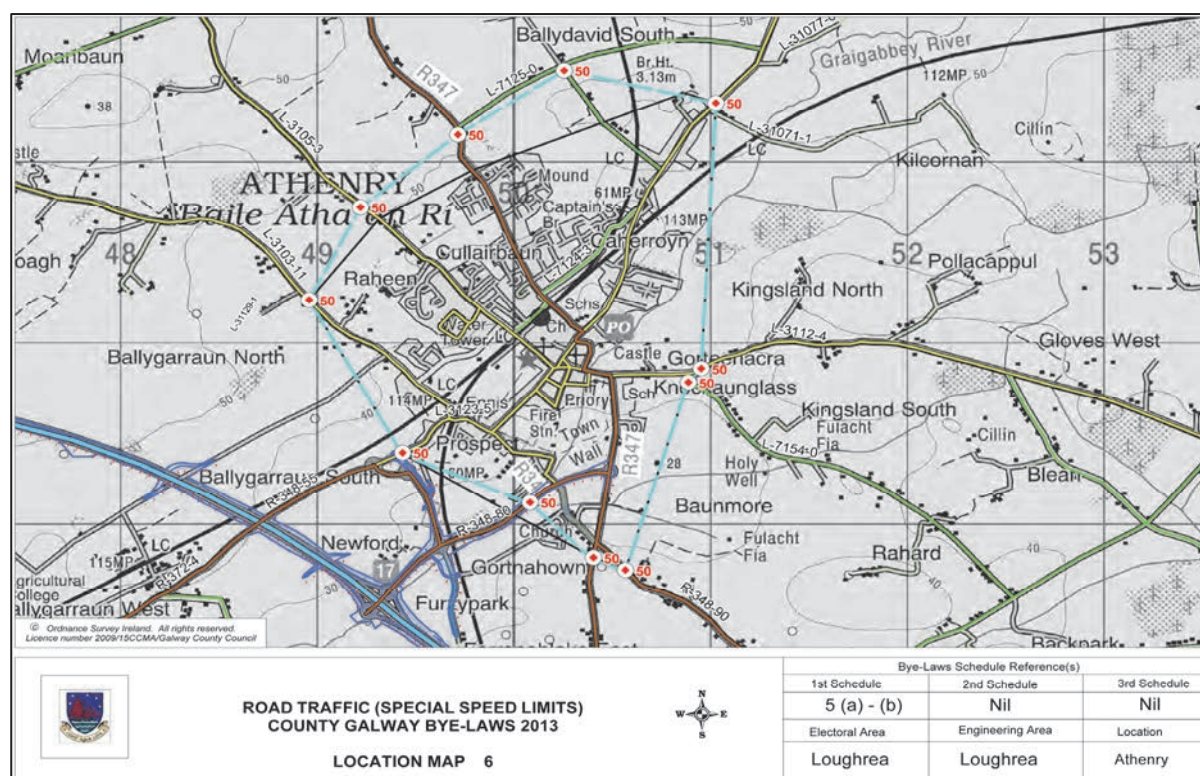


Figure 4.1 – Zoning bye-law map

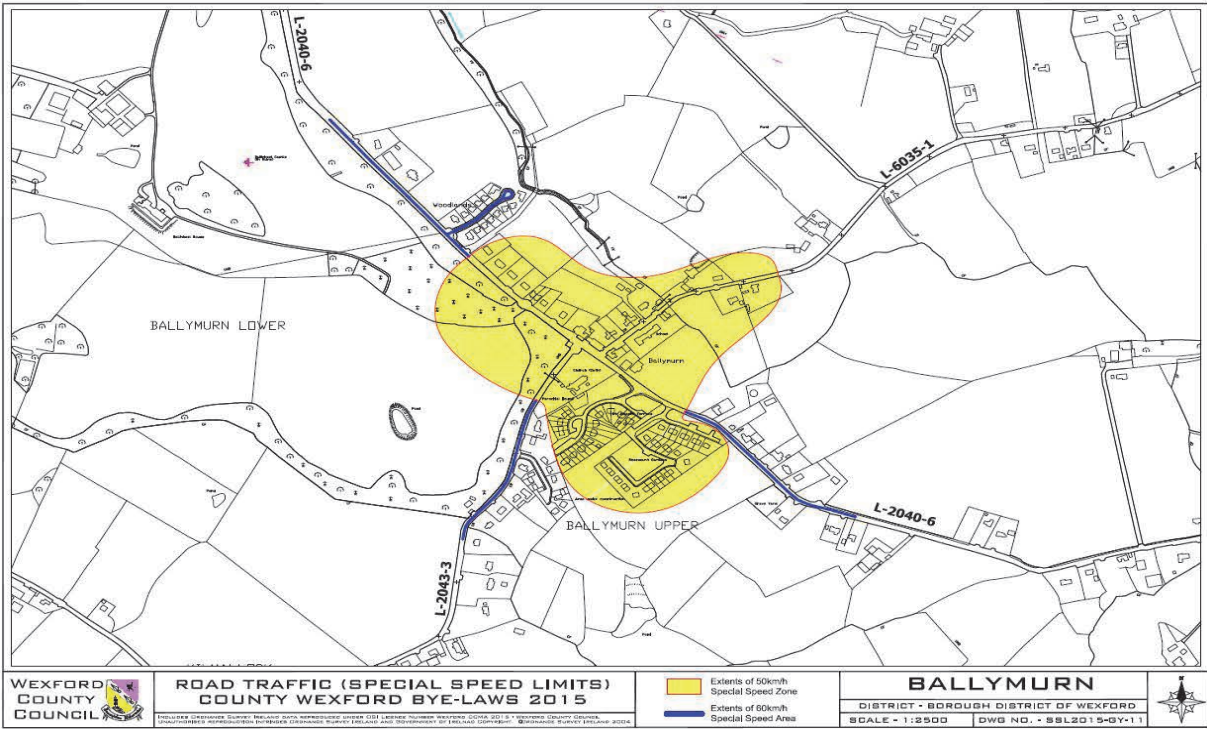


Figure 4.2 – Zoning bye-law map

The first examples (Figures 4.1 & 4.2) are bye-laws using a zoning map. The default 80 km/h sections are not mapped - as with the written bye-laws, the assumption is that anything not mentioned is default.

The second example (Figure 4.3) is a traditional road by road map based bye-law.

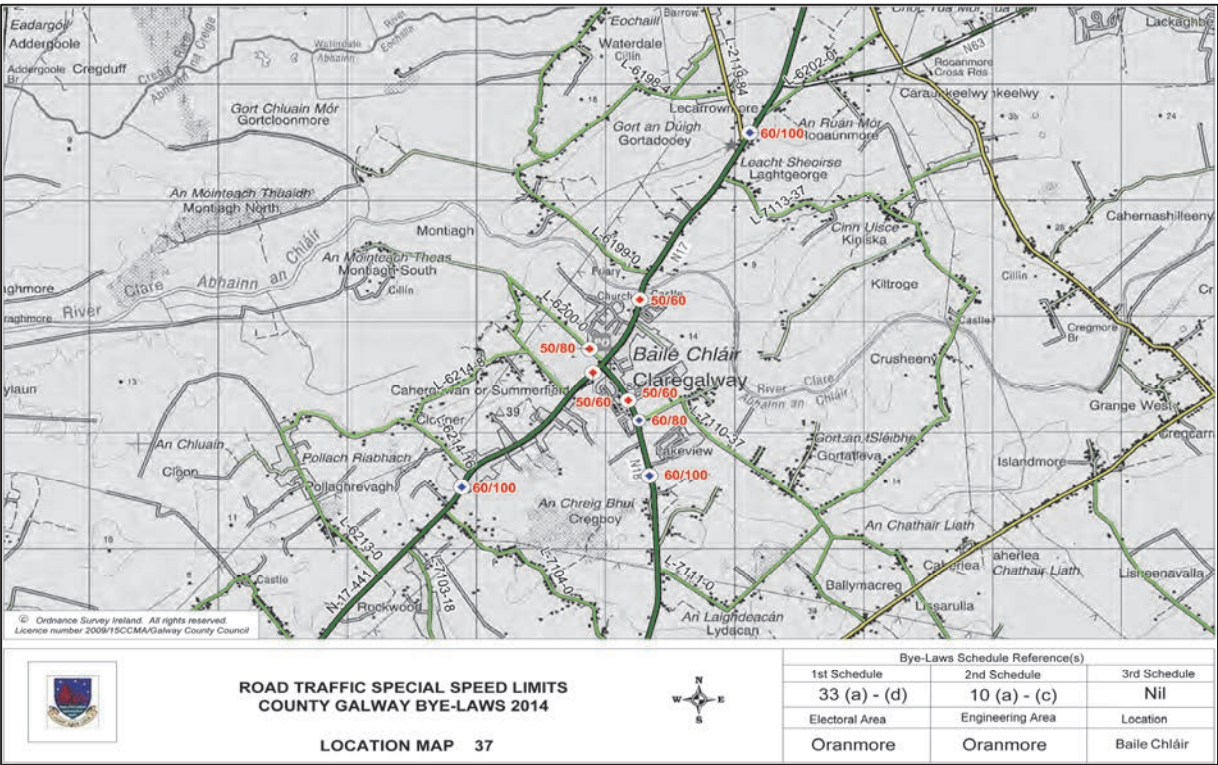


Figure 4.3 – Road by road bye-law map

4.8 *Making Special Speed Limit Bye-Laws*

Figure 4.4 (next page) outlines the process Local Authorities typically follow when making bye-laws. Statutory requirements in relation to the process of making bye-laws are highlighted and the applicable sections of the Road Traffic Act 2004 (as amended) are referenced.

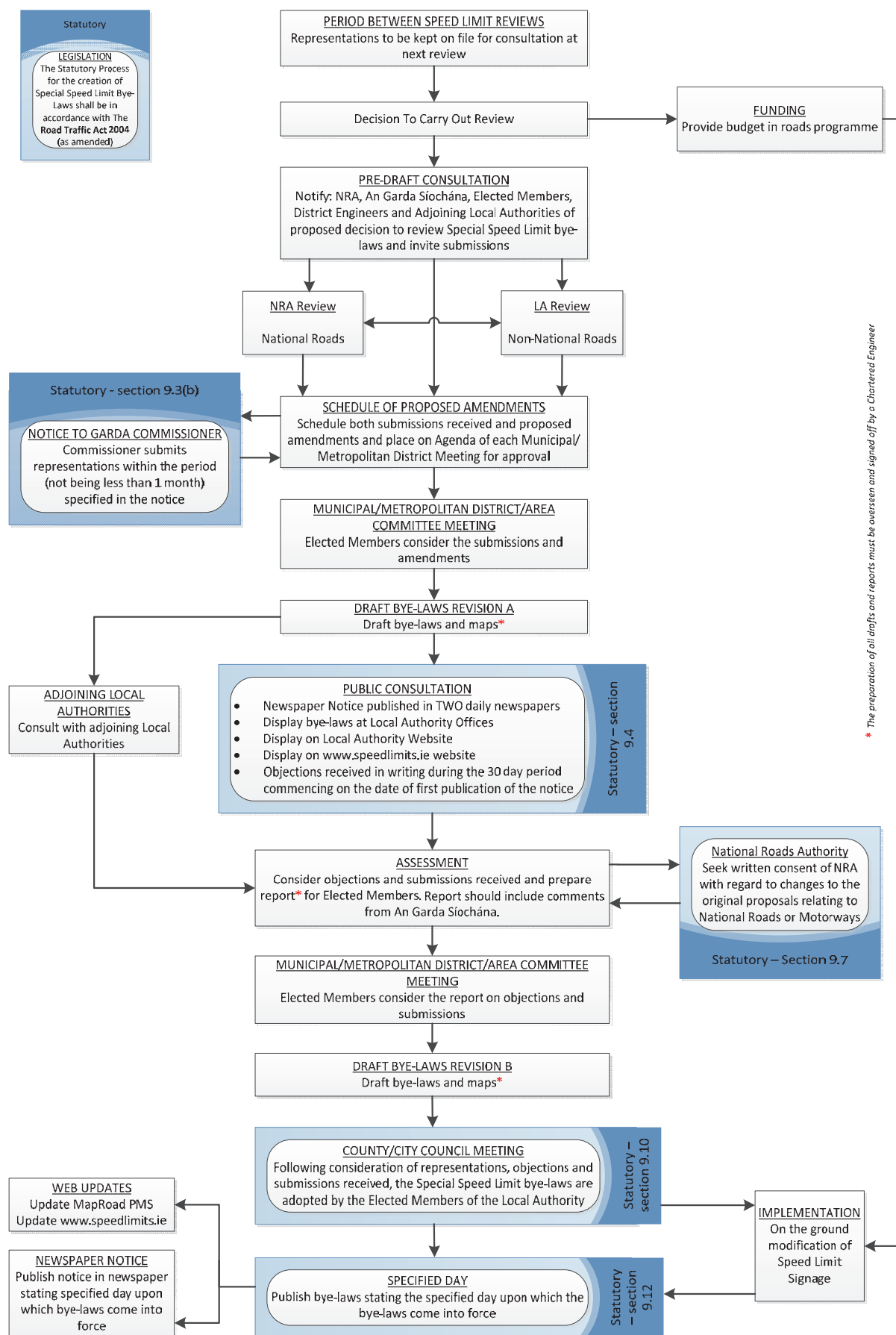


Figure 4.4 – Process of making bye-laws



5

THE CONTEXT FOR SPEED LIMITS

5

THE CONTEXT FOR SPEED LIMITS

5.1 Speed

Speed has several positive impacts, the most obvious being that it permits a reduction in journey time therefore improving mobility. It can also have a negative outcome on road safety and the environment as well as being a factor in significant harmful impacts on quality of life in residential and urban areas.

According to a report published in 2006 by The Organisation for Economic Co-operation and Development (OECD) the number one safety problem in many countries, including Ireland, often contributing to as much as one third of fatal collisions and an aggravating factor in all collisions is: -

Excessive Speed – Which is driving above the speed limit

and

Inappropriate Speed – Which is driving too fast for the prevailing conditions, but within the speed limit.

This report, and its summary, can be found on the International Transport Forum website.

5.2 Speed and Collision Risk

A driver's choice of speed is primarily determined by the physical appearance of the road ahead and their resultant assessment of risk. Drivers tend to underestimate risk, particularly the risk to road users other than themselves. Consequently speeds tend to be higher than the levels required for safe operation on individual roads. This in turn leads to a reduction in safety on the road network. For similar types of road the risk of collision increases with increasing speed mainly due to the increased stopping distance required. The severity of injuries sustained increases with increasing speed, because of the higher impact forces which are associated with higher speeds.

The use of speed limits has been a feature of Irish traffic and speed management policies for many years. Speed limits are introduced as an aid for road safety. Experience of setting reduced speed limits however has clearly established that they will not succeed without the implementation of associated speed reduction measures.

If a speed limit is set in isolation or is set at an unrealistically low level, it is likely to be ineffective and lead to disrespect for the speed limit - drivers will be more inclined to choose their own speed. If limits are perceived as not being credible too often, it will also harm the trust in the speed limit system as a whole (European Transport Safety Council 2010). As well as requiring significant and avoidable enforcement costs, this may also result in substantial numbers of drivers continuing to travel at unacceptable speeds, thus increasing the risk of collisions and injuries. From a general perspective, the introduction of a speed limit that is

lower than the default speed limit should not be the immediate response to road safety issues at particular locations. Engineering initiatives and solutions should always be explored first.

A speed limit is the maximum speed at which vehicles may legally travel on a section of road between speed limit signs. It is the responsibility of a driver to obey a speed limit at all times. The responsibility of a driver however extends much further than simply obeying a speed limit. A driver is required to ensure that the speed at which their vehicle is being driven is appropriate for the prevailing conditions, even if that speed is lower than the speed limit applying either to the road being driven on or to the vehicle being driven.

5.3 Speed Management

While speed management must take account of the requirements of traffic flow, the primary focus must be road safety. Successful speed management programmes are progressed as follows;

- Decide on the function of the road within the network,
- Apply engineering techniques to make the road as safe as possible relative to its function. (e.g. the use of traffic signs, road markings, traffic calming/speed reduction measures and design improvements),
- Apply a speed limit appropriate to the particular road,
- Enforce the speed limit,
- Assess the speed limit and revise if required.

The setting of appropriate speed limits is an important component of speed management which, in turn, is an essential part of the management of safety on the road network. Speed limits should thus be set in accordance with the principles of self-explaining (self-regulating) roads, design speed and function. See Chapter 7 for additional considerations in relation to urban areas.

5.3.1 Self-Explaining Road (Self-Regulating Road)

The objective of a self-explaining road is to provide a roadway environment so that the user can interpret the safe operating speed correctly, minimise their mistakes and minimise the impact of their mistakes. The user should get consistent information from the roadway, signage and the surrounding environment. With regard to speed, speed information (limits) should be provided clearly and consistently and speeds should be 'enforced' by physical means (engineering measures) and by signs and markings.

5.3.2 Design Speed

Increasingly, a new approach to design speed is now broadly used whereby the design speed of a road can be defined as the highest speed that can be maintained safely and comfortably when traffic is light. In principle, the required design speed depends

on the function of the road and hence on the desired speed level. If, because of the road function, high speeds are desired, road quality and roadside protection should be of an appropriate standard. If this is not the case then the speed limit should reflect the mean speed on the existing road. Critically, the design speed should not be lower than the speed limit and the speed limit should not be significantly lower than the design speed of a road.

5.3.3 Function of the Road

With respect to the function of the road within the network, Local Authorities should adopt a two-tier hierarchical approach that differentiates between single carriageway roads with;

- **Strategic Function** - Higher speed limits should be restricted to 'upper tier' or high quality strategic single carriageway roads where there are few bends, junctions or accesses.
- **Local Access Function** - Lower speed limits would be appropriate on 'lower tier' single carriageway roads passing through a local community, or having a local access or recreational function. They would also be appropriate where there are significant environmental considerations or where there is a high density of bends, junctions or accesses, or the road has frequent and steep changes in elevation.

It should be noted that notwithstanding the objectives of setting speed limits based on the adoption of a two tier hierarchical approach, the physical constraints of a road may not permit this. Thus, a poor quality (e.g. narrow) 'upper tier' or high quality strategic road may not be suitable for a higher speed limit.

In urban areas in particular, other function types need to be considered that can relate to 'Movement' or 'Place' as set out in the Design Manual for Urban Roads and Streets (DMURS).

5.3.3 Planning and Road

The setting of Speed Limits should have regard to local planning and zoning and should be appropriately aligned with the current level of development. This is particularly so for the fringes of urban areas in determining an appropriate speed limit. For National Roads, the NRA and Local Authorities should also ensure that speed limits are set in a manner that is consistent with the Department of Environment Community and Local Government Guidelines for Spatial Planning on National Roads (January 2012).

5.3.4 At-Risk Locations

Speed limits should not generally be reduced for isolated road hazards, except for 'at-risk locations' where there is a history of road collisions which cannot be addressed by

other measures such as Warning Signs or road markings. Speed zoning of at-risk locations needs to be undertaken as part of a route-based approach to ensure the consistency of road environments with speed limits.

5.3.5 *Change in Classification*

The system of speed limits in Ireland links the default speed limits to *Road Classification*. Thus if the classification of a road changes, the default speed limit automatically changes accordingly. Where a road is about to change or has changed classification Local Authorities need to consider the speed limit in advance of the change or as soon as possible.

5.3.6 *Speed Management - Summary*

Roads should be self-explaining or self-regulating. Horizontal and vertical alignment, cross-sections, junctions, as well as the operating mode of the road are linked to the speed limit. Notwithstanding the function of a road and the design speed / desired speed limit, if it is not possible to realign/widen the road due to physical constraints (buildings etc.) or budgetary limitations, the speed limit may be reduced to reduce actual speeds (operating speeds) to a more appropriate level consistent with the current standard of, and risk pertaining to, the road.

It is important to note that, for some of these roads, engineering measures may be required to support the desired speed limit. See Appendix A for further information on road function and the use of the Speed Assessment Framework.

5.4 *Speed Limits*

One of the key measures for achieving appropriate speed outcomes is the implementation of speed limits. Appropriate speed limits in themselves are only one element of a speed management approach but for the foreseeable future speed limits will continue to form the backbone of speed management strategies and policies.

When an appropriate speed limit has been determined for a road or section of road, taking into account road safety requirements as well as mobility, environmental considerations and quality of life for citizens living along the road, steps must be taken to ensure drivers adopt the appropriate speed.

The character of the road must also be taken into consideration and speed limits should be supported by engineering measures that elicit safe and appropriate behaviour through designs that evoke correct expectations from road users (essentially the principle of self-explaining roads). Speed limits specify:

THE MAXIMUM SPEED AT WHICH VEHICLES MAY LEGALLY TRAVEL ON A SECTION OF ROAD BETWEEN SPEED LIMIT SIGNS.

Speed limits act as a key source of information for road users. Set correctly, they help to reinforce drivers' assessment of a safe speed and act as a guide to the nature of the road and associated level of risk to themselves and other road users. Speed limits therefore are a key element in achieving appropriate vehicle speeds and wider road safety benefits.

Speed limits should not be seen by drivers as the setting of a target speed, or as being appropriate in all conditions, nor are they intended to be. Although it is incumbent upon drivers to adopt slower speeds when required by the prevailing conditions, Local Authorities should not set speed limits in isolation; they must consider speed limits alongside other methods of managing speed. This will include engineering measures, education, training, publicity and enforcement.

In addition to the provisions relating to speed limits, the Road Traffic Acts contain a number of additional references to speed. Under Section 53 of the Road Traffic Act 1961 the offence of dangerous driving includes a specific reference to speed and the Road Traffic (Traffic and Parking) Regulations 1997 states the following:

"A vehicle shall not be driven at a speed exceeding that which will enable its driver to bring it to a halt within the distance which the driver can see to be clear."

Article 7 of S.I. No. 182 of 1997 – Road Traffic (Traffic and Parking) Regulations 1997

The driver must therefore take responsibility to drive at a safe speed appropriate to the particular road and surrounding environment, while not exceeding the posted speed limit.

"Signed speed limits set the maximum speed at which vehicles may legally travel on a section of road between speed limit signs, assuming the vehicles are not restricted in any way."

"The signs indicate the maximum speed at which your vehicle may travel on a particular road or stretch of road, not the required speed for the road."

Rules of the Road 2010

Research on speed limits suggests that;

- Speed limits at lower levels are more successful when supported by road safety engineering measures, or in the case of urban areas, where they are supported by a combination of self-regulating urban design and engineering measures.
- The major benefits of speed limits are in terms of a reduction in collision severity and frequency.
- The primary consideration that may require a Local Authority to consider changing a default speed limit will be collision data with particular reference to the safety of vulnerable road users
- The physical characteristics of a road are important in the setting of a speed limit.

- The establishment of the mean speed and 85th percentile speeds (the speed at or below which 85% of the traffic is travelling), will also provide a good reference point for the establishment of a speed limit. Local Authorities should routinely collect both however mean speeds should be used as the basis for determining speed limits. For the majority of roads there is a consistent relationship between mean and 85th percentile speeds. Where this is not the case, it usually indicates it is difficult for drivers to decide an appropriate speed for the road, suggesting a better match between road design and speed limit is required.
- Data relating to the Annual Average Daily Traffic on a road or in an area might also influence decisions in relation to the use of *Special Speed Limits*.
- Speed limits are more successful when supported by enforcement.

6

THE SETTING OF SPEED LIMITS – GENERAL GUIDANCE

6**THE SETTING OF SPEED LIMITS – GENERAL GUIDANCE**

As previously stated, responsibility for applying a *Special Speed Limit*, in lieu of a default speed limit, lies with the Elected Members of Local Authorities. This chapter and Chapter 7 sets out criteria to be applied in setting speed limits and addresses the question;

How should Local Authorities assess the need for a speed limit and then set it?

Ideally the appearance and character of a length of road would provide a clear and unambiguous message to drivers about its function within the route and within the network. Driving speeds would closely match ideal operating speeds and there would be harmony within the road between function, character, safety and speed. This is a basic principle of self-explaining roads (the self-enforcing type - a traffic environment that is uncomplicated and easy to interpret by adopting homogeneous and consistent design principles). The layout of self-enforcing roads should prevent or deter road users from driving at inappropriate or excessive speeds and encourage motorists to overtake only at locations where it is safe to do so.

In practice, however, this is often not the case. Invariably, road safety and traffic flow requirements will give rise to the need for reviews of speed limits with the aim of determining appropriate speed limits for roads in particular circumstances.

This chapter aims to provide general guidance to Local Authority staff undertaking reviews of speed limits with a view to setting *Special Speed Limits* in their areas. Chapter 7 provides in depth guidance for the various road types that are encountered and discusses speed limit options for each. The application of *Special Speed Limits* on the various road types is discussed against the background of the default speed limits that would normally apply.

Roads may be categorised to reflect their location (inside/outside built-up or urban areas) and types (e.g. a motorway or a laneway). However, a one size fits all approach is not possible, mainly because it relies on the network being physically homogenous and consistent and appropriate for each category of road. In practice, this is not the case, with many examples of inconsistency such as some Regional or Local Roads being constructed or aligned to a higher standard than some legacy (evolved roads not constructed to a design standard) National Roads.

6.1 Initial review of location and options available

It should be noted at the outset that, generally, the immediate response to road safety issues at particular locations *should not* be the introduction of a lower speed limit. Initially, engineering measures should be investigated and/or implemented and, only if necessary, supplemented by a *Special Speed Limit*.

Examples of engineering measures available include;

A. Review Signage

Determine if additional warning signs or rationalisation of existing signage might improve the situation. Care should be taken when considering the use of chevron boards on bends to ensure they are designed and installed correctly.

The Warn & Inform principle can be applied effectively to isolated hazards or features which are out of character with the rest of the route. Giving drivers useful information on tight bends and other potential hazards helps them to drive appropriately and may be more effective than the lowering of the speed limit to address the issue.

Local Authorities may consider the use of Warning or information signs in advance of locations where a change of speed limit occurs such as where *Special Speed Limits* are applied. For example, where a *Special Speed Limit* is required for safety purposes on a road where its design or purpose suggests that a higher speed limit would seem to be appropriate, motorists may be advised of the reason for the *Special Speed Limit* through the provision of warning signs. Research shows (SWOV 2007) that less time is spent driving above the speed limit when it is credible than when the limit was perceived as being too low.



Figure 6.1 – Sign F401 – Speed Limit Ahead

B. Road Markings

Determine if the road markings can be improved. It may be possible to improve traffic calming measures by way of central or edge hatching to visually reduce the road width. (Traffic calming measures may need to be supported by the introduction of a *Special Speed Limit*). Yellow bar markings shall only be used on high-speed approaches to roundabouts, in accordance with the provisions of the Traffic Signs Manual (See Traffic Signs Manual Section 7.18). Transverse bar markings or rumble strips shall not generally be used in an attempt to reduce speeds, due to the problems they create with reduced skid resistance during wet road conditions (particularly for 2-wheeled vehicles) and other negative factors such as discomfort and environmental noise.

C. Footway/Cycleways and Public Lighting

Where the section under review provides sufficient width, consideration should be given to the installation of footway or cycle paths, coupled with public lighting, where there is a concentration of vulnerable road users. In so doing drivers will perceive the road to be narrower thus reducing their speed. This approach is likely to be successful on the approaches to towns and villages and can potentially eliminate the need to extend a 50km/h 'built-up' area speed limit an unnecessary distance out from the town/village. Refer to the following guidance documents;

- NRA Guidelines on Traffic Calming for Towns and Villages on National Routes,
- DTTAS (DTO/NTA) Traffic Management Guidelines
- DTTAS / DECLG Design Manual for Urban Roads and Streets

D. Vehicle Activated Signs

There is an established relationship between speed and road collisions with driving too fast for the conditions being likely to be a factor in collisions. Encouraging drivers to adjust their speed to suit conditions is important. Vehicle Activated Signing is one measure which has been developed to encourage drivers to approach hazards such as bends and junctions at a safe speed and to encourage compliance with speed limits.

Drivers exceeding a set threshold speed trigger a sign indicating the specific hazard or actual travel speed. These have proven to be effective at approaches to isolated hazards, junctions and bends in both urban and rural areas.

They can be further divided into two categories;

1. Situations where the speed limit is being exceeded and the sign shows vehicle speed in conjunction with the speed limit.



Figure 6.2 – Vehicle Activated Sign with Speed Limit

2. Situations where the speed limit is not necessarily being exceeded, but drivers are travelling at speeds that are inappropriate for the situation. The signs used in this case should not include the speed limit.

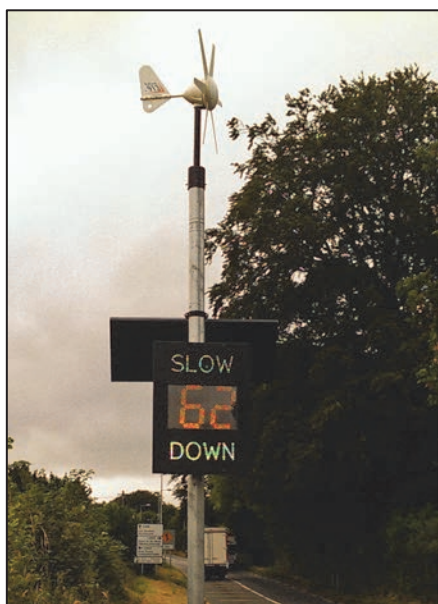


Figure 6.3 – Vehicle Activated Sign without Speed Limit

For a specific hazard, where safety issues have been identified, the signs should be left in place permanently. Research however indicates that, for other locations, eg urban roads where the speed limit is being exceeded, the signs are most effective for the first two weeks after installation, and that they should be left in place for no longer than three weeks. An option for such locations would be to install permanent bases at a number of appropriate locations, and move the signs periodically from base to base. Overuse of these signs however can lead to over-familiarity by drivers and hence detract from their effectiveness.

6.2 General advice on the use of Special Speed Limits

Local Authorities must consider the following issues when determining the locations and circumstances where they consider a default speed limit should be replaced with a *Special Speed Limit*. In general, references to a single road may be regarded as having a relevance to more than one road particularly where proposals are being considered on an area wide basis.

- *Special Speed Limits* lower than 80 km/h are normally unnecessary where the character of the road itself limits the mean speed to a level at or below that of the *Special Speed Limit* under consideration;
- Careful consideration should be given to the function of the road within the network. Local Authorities should adopt a two-tier hierarchical approach that differentiates between single carriageway roads with a Strategic Function and those with a Local Access Function;
- Speed limits should not be used to solve the problem of isolated hazards, such as a single road junction or bend, as they would be difficult to enforce over such a short length. Other measures such as warning signs, improvement of junctions, superelevation of bends and new or improved street lighting are likely to be more effective;

- The provision of adequate footway or cycleways (or combination of both) which will usually be a more effective means of ensuring pedestrian and cyclist safety than will a lower speed limit;
- The establishment of the mean speed and 85th percentile speeds (the speed at or below which 85% of the traffic is travelling) will also provide a good reference point for the establishment of a speed limit. Local Authorities should continue to routinely monitor speeds and calculate both the mean and 85th percentile speeds, however mean speeds should be used as the basis for determining local speed limits. For the majority of roads there is a consistent relationship between mean speed and 85th percentile speed. Where this is not the case, it is usually indicative of the fact that drivers are having difficulty in deciding the appropriate speed for the road (or the road is not self-explaining), suggesting that a better match between road design and speed limit may be required.
- Frequent changes of speed limits over short distances will have a negative effect on the operation of a road and may not lead to road safety benefits.

In the majority of cases, such interventions will lead to the application of a speed limit lower than the default speed limit. There will however be instances where a *Special Speed Limit* higher than the *default* speed limit will be seen as being appropriate.

6.2.1 Planning and speed limits

The setting of *Special Speed Limits* **must not** be used as a mechanism to facilitate additional development and/or access onto the road and/or to satisfy certain planning criteria. Examples of speed limits being used in this manner are set out below;

- **Extending the 50 or 60 km/h speed limit** – *Accommodating additional accesses by extending the 50 km/h speed limit beyond the built-up area limit, without corresponding engineering measures.*

This is particularly evident where the 50 km/h speed limit is extended into a wider road cross section area to accommodate development that cannot meet sightline requirements for the 60, 80 or 100 km/h speed limit in effect, and offers no credibility to the driver for the 50 km/h speed limit. Such *Special Speed Limits* need to reflect the extent of the urban area and therefore needs to be accompanied by appropriate engineering measures such as road markings, traffic calming, pedestrian and cycle facilities and other road design measures. This would offer credibility to the speed limit and improve compliance.

- **Reducing 80 km/h to 60 km/h** – *Applying a Special Speed Limit to allow a planning application to meet certain planning criteria.*

This might occur where provision of an access does not meet the sightline requirements for the 80 km/h speed limit but does meet the requirements of the 60 km/h limit. Such changes to speed limits without the appropriate associated

engineering measures offers no credibility to the speed limit and can cause confusion and frustration for the driver.

If applying a lower *Special Speed Limit* on a road based on road safety criteria, future additional development onto the road must be carefully considered. Allowing such additional development direct access onto the road may eliminate any safety benefits gained from the lower *Special Speed Limit*.

The most immediate consideration that might require a Local Authority to consider changing a *default* speed limit will be collision data with an emphasis on reducing road traffic collision severity. The foregoing examples will invariably create inconsistencies in speed limits, cause frustration and encourage practices such as unsafe overtaking and are not recommended unless in exceptional documented circumstances and supported by appropriate engineering measures.

6.2.2 *Small population centres (non-built-up areas)*

On many roads in towns, villages and small population centres, which do not fall within the definition of a “built-up area” (See 7.3.3), the retention of the *default* speed limit of the road in question may not be appropriate. Determining the appropriate *Special Speed Limit* in such circumstances can be challenging, especially in the context of isolated settlements. A guide to the determination of the approach that might be pursued in any particular location would be the number of house accesses onto the road being examined. This might be particularly useful as housing development extends from existing urban environments.

6.2.3 *At-risk locations*

Generally, speed limits should not be reduced for isolated road hazards such as where there are road geometry constraints or hazards, except for ‘at-risk locations’ where there is a history of road collisions which cannot be addressed by other measures such as warning signs.

Speed zoning of at-risk locations must be undertaken as part of a route-based approach to ensure the consistency of road environments with speed limits. At-risk speed zones should minimise the impact of the *Special Speed Limit* on motorists without compromising safety.

7

THE SETTING OF SPEED LIMITS – DETAILED GUIDANCE

7

THE SETTING OF SPEED LIMITS – DETAILED GUIDANCE

(Guidance by road type)

This chapter presents circumstances where Local Authorities may consider the introduction of *Special Speed Limits* having regard to the various types of road encountered in both urban and rural settings. The references to the various “types” are relevant to the perceived use of roads as opposed to the strict legal status afforded to roads in the Roads Act 1993. In the case of the use of the *Special Speed Limit* of 120 km/h on National Road Dual Carriageways and the *Special Speed Limits* of 40 km/h and 30 km/h, the criteria presented in the applicable section must be in place for any of those speed limits to be applied.

7.1 Motorways



Figure 7.1 – Typical Motorway

While motorways have a default speed limit of 120 km/h it may be considered necessary to apply a lower speed limit in certain situations including: -

- Where roads cannot meet the standards for 120 km/h in terms of stopping sight distance, horizontal curvature and vertical alignment as set out in the NRA Design Manual for Roads and Bridges,
- Where a lower speed limit is desirable for road safety or capacity reasons,
- At on/off ramps at interchanges,
- At sections with high levels of merging or weaving traffic,
- In the vicinity of toll plazas.

In order to identify the correct extent or location of default speed limits on Motorways, reference should be made to the relevant Motorway Order maps. Variation of speed limits from those locations will necessitate *Special Speed Limits*.

Under the Road Traffic Act 2004, *Special Speed Limits* may be set in respect of individual carriageways and traffic lanes. This concept is discussed in more detail in Section 7.4.

Off-ramps, linking the motorway to the rest of the network, normally provide ample opportunity to decelerate. A transitional speed limit however may be appropriate on the ramp, or, if deemed absolutely necessary for safety reasons, on a lane drop approaching the off ramp. In the latter circumstances, the use of gantries may be required and, at all times, appropriate and clear signage and road markings must be provided.

In other situations it may be appropriate to apply a *Special Speed Limit* on the off-ramp itself, for instance, if there is a sharp curve on the off-ramp. The Traffic Signs Manual 2010 provides for loop warning signs which can be used with cautionary speed plates on ramps (on or off) with tight curves.

7.2 Rural Roads

7.2.1 Dual Carriageways

This section provides guidance for the following dual carriageway roads;

- High standard dual carriageways **Type 1**
- 2 + 2 type dual carriageways **Type 2**
- 2 + 1 type roads **Type 3**



Figure 7.2 – High Standard Dual Carriageway



DUAL CARRIAGEWAY	
Default Speed Limits	
	
National	Regional & Local
Applies to Dual Carriageways in Rural areas	



Figure 7.3 – 2+2 Dual Carriageway



Figure 7.4 – 2+1 Dual Carriageway

In rural areas every effort should be made to achieve an appropriate balance between vehicle speeds, speed limits, road type, design, the differing needs of road users, and other characteristics. This balance may be delivered by introducing one or more speed management measures in conjunction with the speed limits and/or as part of an overall route safety strategy. The aim should be to align the speed limit so that the mean speed driven on the road, or the 85th percentile, is at or below the posted speed limit for that road.

In general, rural dual carriageways with a speed limit of 100 km/h should comply with the following criteria: -

- The standards for stopping sight distance, horizontal curvature and vertical alignment as set out in the NRA Design Manual for Roads and Bridges over at least 85% of their length;
- Where the road alignment does not meet the standards set out above then additional engineering measures such as road marking, signing and minor improvements should be investigated and/or be in place at these locations;
- Roads should meet the requirements for safety barrier as set out in the NRA Design Manual for Roads and Bridges;
- The density of development must be low (i.e. very few direct accesses onto the dual carriageway). Development adjacent to the dual carriageway without direct access to the dual carriageway should not be considered in the selection of the speed limit.

High quality dual carriageways, as shown above, with grade-separated junctions should have a 100 km/h speed limit. On some dual carriageways with traffic signals at junctions, it may be necessary to consider a speed limit of 80 km/h or less on the approaches and through these junctions where other initiatives are deemed insufficient.

A lower speed limit would be appropriate if, for example, there is a collision history that cannot be addressed safely with other measures such as with signage. Where a lower speed limit is implemented it should be supported by engineering measures.

In most situations a speed limit of 100km/h is appropriate for rural dual carriageways where development is limited. In circumstances where there is a high level of development it may be appropriate to consider a speed limit of 80 km/h on rural dual carriageways. Reclassified former national road dual carriageways, carrying a new default speed limit of 80 km/h, may be suitable for a *Special Speed Limit* of 100 km/h. If a Local Authority is considering a *Special Speed Limit* of 100km/h on a rural dual carriageway the criteria set out above should be met. Road sections to which the 100 km/h *Special Speed Limit* applies should extend for a continuous minimum distance of 3km.

7.2.1.1 Special Speed Limit of 120km/h



Figure 7.5 – Dual Carriageway Suitable for 120 km/h

SSL – 120 km/h

May be applied in lieu of default limit of

on National Road Dual Carriageways

The Road Traffic Act 2004 allows Local Authorities to apply a *Special Speed Limit* of 120 km/h on National Road Dual Carriageways. The Act establishes that, in the pursuance of an application, a Local Authority must comply with relevant provisions in the Guidelines made by the Minister for Transport.

The facility in relation to the application of this *Special Speed Limit* is limited to National Road Dual Carriageways and, as such, all proposals must receive the prior written consent of the National Roads Authority. As is the case in relation to the deployment of *Special Speed Limits* generally, Local Authorities will be influenced by particular considerations, including collision history. However, the following specific criteria must apply in respect of any proposals for the deployment of this *Special Speed Limit* in addition to any such localised considerations;

- The Special Speed Limit should be applied over a minimum continuous length of 3 kilometres,
- Roads should meet the standards for stopping sight distance, horizontal curvature and vertical alignment for 120 km/h as set out in the NRA DMRB design standards,
- There should be no direct access to the section of road under consideration, except in respect of maintenance activities
- There must be continuous medians (i.e. no median openings), other than emergency crossing points and no at-grade junctions in the section under consideration.

7.2.2 Single Carriageways

This section provides guidance for single carriageway roads with sections specifically dealing with high standard roads, legacy roads, reclassified roads, minor Local Roads as well as roads approaching built up or urban areas. If changing a speed limit for a rural single carriageway is under consideration then the criteria in this section must be applied.

7.2.2.1 General





SINGLE CARRIAGEWAY	
Default Speed Limits	
	
National	Regional & Local
Applies to Single Carriageways in Rural areas	



Figure 7.6 – Various Rural Single Carriageway Roads

Road Authorities need to have regard to the function of a road and as a consequence what speed limit should ideally apply. However, as stated in previous chapters, this may not be possible to achieve due to current physical constraints. In the vast majority of instances, the physical characteristics, environment of a road as well as the actual speeds being driven should enable Local Authorities to determine the appropriate speed limit on single carriageway rural roads.

It is important that routes are assessed as a whole, rather than looking at specific short sections of a route in isolation. An overall route assessment will produce a much more appropriate and consistent result.

To avoid driver confusion, it is important not to impose frequent changes in speed limits. Therefore a minimum of 3km would generally be applied, and there should be no more than 2 changes of speed limit over a distance of 10km. If the distance between adjacent towns/villages is short, say 5km or less, it may be appropriate to have only one speed limit on the rural section between the two.

Where, for example, a decision has been made, having taken all the above factors into consideration, that a particular section should have a limit of 100 km/h, but there is a stretch within the 100 km/h limit where the driver needs to slow down, such as at a series of bends, then all 100 km/h repeater signs along that bendy section should be removed and warning signs may be installed informing drivers of the potential hazard ahead.

Principally, the roadway width should be the initial determining characteristic to be considered (Stage 1). This criterion, in the first instance, should help decide whether a road is suitable for a 100 km/h speed limit or an 80 km/h speed limit. Where the width does not resolve what the speed limit should be, other criteria should then be taken into account (Stage 2).

Stage 1 Assessment – Primary Criteria

The Stage 1 assessment is based on the primary factor that determines the appropriate speed limit – the average width of the road. This approach is consistent with road design standards and allows criteria to be set which determine whether the speed limit should be 100 km/h or 80 km/h. Subject to a minimum section of road length of 3km, the average width for that section should be calculated and the following criteria should be applied to determine the appropriate speed limit.

SPEED LIMIT (km/h)	PAVED ROAD WIDTH
80	Less than or equal to 7.0 m
100	Greater than 7.0 m

Table 7.1 - Rural Speed Limit Stage 1 Assessment

In Table 7.1 above Paved Road Width is defined as the Roadway or that portion of a road which is provided primarily for the use of vehicles and includes hard shoulders/hard strips. The full paved width includes traffic lanes, hard shoulders and hard strips but does not include on-road cycle tracks.

Stage 2 Assessment – Other Criteria – (including Speed Assessment Framework)

If the Stage 1 assessment gives a result which may appear inappropriate, or may cause an unreasonable risk to road safety, the following factors should also be taken into account: -



- Geometry of the road, including paved width, visibility, bendiness and verge width,
- Amount of development accessing directly onto the road,
- Forgiving nature of the roadsides,
- Collision history,
- Level of use by pedestrians/cyclists,
- AADT,
- Mean speeds and 85th percentile speeds.

Local Authorities and the NRA should also consider the Speed Assessment Framework (see Appendix A) for those roads with high collision rates or simply as a way of helping decisions in borderline cases where the choice of the appropriate speed limit is not immediately obvious.

7.2.2.2. *High Standard Single Carriageway Roads*



Figure 7.7 - Wide Single Carriageway



HIGH STANDARD ROADS	
Default Speed Limit	
	
National	Regional & Local
Applies to wide single carriageways	

These roads are wide two-lane roads with hard shoulders and have an overall minimum paved width of 8m, have grass verges and are characterised as being 'improved'. For these roads the appropriate speed limit should normally be 100 km/h. These sections of road should also meet the criteria for 100 km/h in section 7.2.2.1. Where the criteria for a Speed Limit of 100 km/h are not met a Speed Limit of 80 km/h should apply.

7.2.2.3. *Legacy Single Carriageway Roads*



Figure 7.8 - Legacy Single Carriageway Road

'LEGACY' ROADS	
Default Speed Limit	
	
National	Regional & Local
Applies to non-wide single	

Legacy roads are roads that have evolved over the years most of which were never designed to the current design standard. Legacy roads represent much of the rural road network. However some roads may have been improved but not have been designed to a current design standard and may have rudimentary hard shoulders or no hard shoulders or grass verges. Subject to the criteria in Section 7.2.2.1 the appropriate speed limit should be either 80 km/h or 100 km/h. Where the criteria for a Speed Limit of 100 km/h are not met a Speed Limit of 80 km/h should apply.

7.2.2.4. *Roads approaching built up or urban areas*

Arising out of the above where roads transition from a higher speed rural area to a lower speed urban zone, Road Authorities need to have regard to this transition zone and as to how it can be managed. This can be done by;

- Introducing measures that provide an additional sense of enclosure,
- Improved pedestrian and/or cycle facilities,
- Improved public lighting,
- Visual clues such as changes to carriageway surface material,
- Changes to road geometry such as road narrowing.


For roads with 100 km/h sections which adjoin a built-up area or urban area with a speed limit of 50 km/h, additional measures may be required to affect a smooth transition between the 100 km/h and the 50 km/h sections:

- If existing levels of development at the edge of the town / village are consistent with those of a 60 km/h limit, then a 60 km/h limit should be applied between the 100 km/h limit and the 50 km/h limit.
- Otherwise, the speed limit should change directly from 100 km/h to 50 km/h, and drivers should be informed of the 50 km/h speed limit ahead through the use of the Speed Limit Ahead sign as contained in the Traffic Signs Manual (F 401).

If there is a particular location where issues arise at the 100 km/h / 50 km/h interface even after the erection of the Speed Limit Ahead sign on the approach, then it may be appropriate to consider the installation of traffic calming elements on the approach to the 50 km/h speed limit.

7.2.2.5. *Reclassified Single Carriageway Roads*

Figure 7.9 – Reclassified Single Carriageway Road (with SSL of 100 km/h)

RECLASSIFIED ROADS
Default Speed Limit

Regional & Local
Applies to single carriageways formerly part of the national network



For high standard roads where the classification has changed such as from National to Regional with the result that the default speed limit has changed, the criteria as set out in section 7.2.2.1 shall apply. Such a change should be managed in advance of the change in classification to ensure that speed limits continue to be appropriate and consistent.

An example of where a change of classification has occurred is on by-passed National Roads which have been re-classified in relation to the new major interurban network. This has created significant lengths of former National Roads (now Regional or Local Roads) which have reduced default speed limits of 80km/h.

Where this occurs consideration needs to be given in advance as to whether the appropriate speed limit should be 80 km/h or 100 km/h.

Where these roads have been constructed to a high standard a speed limit of 100 km/h should apply. Thus, if 100 km/h is the appropriate speed limit, a *Special Speed Limit* should be advanced before a change in classification occurs so that the *Special Speed Limit* takes effect as soon as possible after a change in classification.

7.2.2.6 *Minor Local Roads*

LOCAL ROADS	
Default Speed Limit	
	
Local Tertiary or minor Local Secondary Roads	
Local Primary, Secondary & Tertiary Roads	

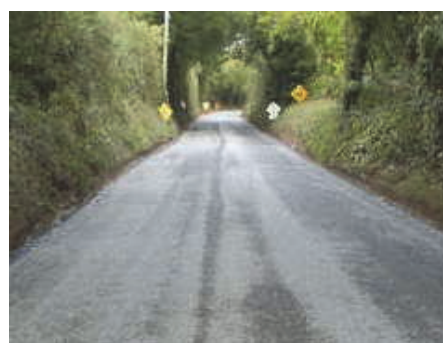


Figure 7.10 – Various Minor Local Roads

With the replacement of the old general speed limit in the 2004 Road Traffic Act by separate default speed limits for rural National Roads and Rural Regional and Local Roads, there is a requirement to provide speed limit signs at these interface points.

Notwithstanding the fact that the new speed limit is approximately 17 km/h below the previous general speed limit that applied to such roads, the depiction of the 80 km/h speed limit using the numerical sign may not be appropriate at the interface points for certain low standard local roads.

In instances where Local Tertiary roads or minor Local Secondary roads with a poor alignment and cross-section (“boreen”) connect to other roads that have a speed limit of 100km/h or greater, the Rural Speed Limit Sign (RUS 041A) should be used instead of the numerical 80 km/h speed limit sign.

This alternative sign was introduced in the Road Traffic (Speed Limit – Traffic Sign) (Local Roads) Regulations 2014 – SI No. 488 of 2014).



=



Rural Speed Limit



Current sign



Recommended Rural Speed Limit sign

Figure 7.11 – Extract from 2013 Speed Limit Review Report

The 'Rural Speed Limit' is an alternative to and has the same meaning as the existing 80 km/h sign. It must be accompanied by supplementary plate P080 'Slow / Go Mall'. The location of these signs must be recorded by the MapRoad Speed Limits App.



The default limit on Local roads is 80 km/h. In exceptional circumstances and should a Local Road be constructed to a higher standard, the application of a *Special Speed Limit* of 100 km/h on that section may be appropriate. Should this be the case then the criteria in section 7.2.2.1 should be followed.

For National Roads, if a *Special Speed Limit* of 80km/h is deemed to be the appropriate speed limit, speed limit signs at the interfaces with the Regional and Local Road network (with similar 80km/h speed limits) are not necessary. As such all of the speed limit signs should be identified, removed and possibly replaced with warning signs to suit the particular road layout. This would eliminate many of the visually inappropriate 80km/h signs on the interfaces of certain Regional and Local Roads.

7.2.3 New and Improved Roads



Figure 7.12 – New Single Carriageway Road

'NEW' ROADS	
Default Speed Limit	
	
National	Regional & Local

As all new and improved roads are constructed to an appropriate design standard the Speed Limit to apply to those roads should be consistent with that standard. For rural roads outside the 60 km/h Speed Limit the NRA Design Manual for Roads and Bridges (DMRB) applies. This divides roads into different types which are to be used as appropriate and depending on circumstances. These are set out in the following table with design speeds and appropriate Speed Limits: -

Design Speed	Type Of Road	Description	Edge Treatment	Total Paved Width	Speed Limit
85	Type 3	Single (6.0m) Carriageway	0.5m x 2 hard strips	7m	80
100	Type 2	Single (7.0m) Carriageway	0.5m x 2 hard strips	8m	100
100	Type 1	Single (7.3m) Carriageway	2.5m x 2 hard shoulders	12.3	100
100	Type 3	Dual (7.0m + 3.5m) Primarily for retro fit projects	1.0m x 2 hard strips	8m + 4m	100
100	Type 2 Dual	Dual 2 Lane Carriageways (2 x 7.0m)	0.5m x 2 hard strips	7.5m x 2	100
100 (120)	Type 1 Dual	Dual 2 Lane Carriageways (2 x 7.0m)	2.5m x 2 hard shoulders	9.5m x 2	100 (120)
120	Standard Motorway	2 Lane (7.0m) (D2M)	2.5m x 2 hard shoulders	9.5m x 2	120
120	Wide Motorway	2 Lane (7.5m) (D2M)	3.0m x 2 hard shoulders	10.5m x 2	120






Table 7.2 – NRA DMRB Design Standards – Road Types

Such road types are designed to meet a range of criteria in order to meet the requirement for the Design Speed. These are set out in detail in the DMRB. See Appendix F.

7.3 Urban Roads



Figure 7.13 – Various Urban Roads

URBAN ROADS	
Default Limit	
	
Applies to roads in Urban areas	
SSL Options	
   	

7.3.1 General

The Road Traffic Act defines a built-up area as the area of a city, a borough or a town within the meaning of the Local Government Act 2001. Although Town and City Councils were abolished in 2014, this definition remains (See Chapter 1). In such areas the default speed limit on all roads, other than motorways, is the built-up area speed limit of 50 km/h.

Most towns and urban areas do not fall within this definition and in the case of many, even very large towns an urban Special Speed Limit has to be applied through bye-laws. This is the case in relation to large towns that do not fall within the definition of a 'built up area', urban areas adjoining a built-up area as well as small towns, villages and other small population settlements.

The extent of urbanisation does not follow administrative boundaries with urbanisation often spreading outside the traditional boundaries of the cities and towns with the extension of the built-up area speed limit to such areas having to be facilitated by Special Speed Limit bye-

laws. It should be noted that in some instances an urban area may not extend out as far as the administrative (built-up area) boundary thus resulting in the need to increase the speed limit from the 'built up area' limit to a level equivalent to a rural speed limit.

Urban areas, including those outside of legally defined 'built-up areas', feature a range of different road types, some of which have a specific purpose while others service a multiplicity of purposes.

In urban areas in particular, the balance of functions in relation to 'Movement' or 'Place' needs to be considered. This is set out in the Design Manual for Urban Roads and Streets (DMURS). This balance can be assessed by quantifying the number of pedestrians, cyclists or other vulnerable road users. Consideration of any change to the default speed limit of 50 km/h for roads in such areas must be informed by such factors.

For all urban areas, where the Speed Limit is 60 km/h or less, the principal manual that sets out road/street design requirements is the Design Manual for Urban Roads and Streets (DMURS). DMURS is mandatory for use for all urban roads except for Motorways. In addition reference should also be made to the Traffic Management Guidelines.

The various road types, other than motorways, that are found in urban areas and the various situations where special speed limits may be applied are;

- Single carriageway Arterials and Links (section 7.3.1.)
- Dual carriageway Arterials and Links (section 7.3.1.2.)
- Local residential streets (Section 7.3.1.3.)
- Major roads through small villages (section 7.3.1.4.)

A key factor for setting appropriate speed limits in built up or urban areas is that the roads or streets should be 'self-regulating' or 'self-explaining'. As such speed limits should be set appropriately to reflect the mean and 85th percentile speed of traffic with traffic management measures being implemented as appropriate. The determination of speed limits in urban areas can be divided into two parts as follows: -

Part 1 assessment – Speed Limit Matrix

Speed limits in urban areas need to be selected to ensure that they are appropriate and consistent with the physical characteristics, function and context of the network. The following table (matrix), table 7.3.1, sets out a speed limit selection matrix that links these as well as having regard to the role for pedestrians and vehicles. This table should be used for the setting of speed limits for urban road networks. This speed limit selection matrix indicates the links between place, movement and speed that needs to be taken into account in order to achieve effective and balanced solutions.

		<div></div> Pedestrian Priority	<div></div> Vehicle Priority	
Function		Urban Centers / Commercial Centers	Suburban and Housing Areas	Out of Town Business / Industrial Areas
	Arterial	40* - 50	40* – 50	50 – 60
	Link	30 – 40*	30 – 50	50 – 60
	Local	30	30	30 – 50
		Context		

* The use of 40 km/h shall only be considered in circumstances as prescribed section 7.3.2.

Table 7.3 – Recommended Speed Limits for Urban Areas (km/h)

Appendix F contains extracts from DMURS, which sets out, defines and describes the movement function and place context.

Part 2 assessment – Other Factors

In using the table there are many other factors that also have an impact and may also need to be considered in determining the appropriate speed limit;

- Geometry of the road, including;
 - width, level of setback for verges, footways and boundaries,
 - Amount of development accessing directly onto the road,
 - The frequency of junctions and crossing points,
 - Forward visibility,
- The sense of enclosure created by the built form and/or tree canopy,
- The presence of on street parking,
- Surface materials,
- Collision history,
- Level of use by pedestrians/cyclists and vulnerable road users,
- AADT,
- Mean speeds and 85th percentile speeds.

7.3.1.1 *Dual carriageways*

In urban areas dual carriageways are often National or Regional Roads and are characterised by higher traffic volumes. Such roads are also characterised by their role in relation to movement. Depending on circumstances speed limits from 50 km/h to 80 km/h may be considered as follows;

1. A 60 km/h speed limit may be appropriate if the following conditions apply:
 - Considerable frontage development with limited direct access,
 - Development is set back from the road,
 - Limited signal controlled junctions and/or roundabouts,
 - Pedestrian crossings and narrow medians
2. Where an urban dual carriageway is constructed to a higher standard a *Special Speed Limit* of 80 km/h may be appropriate if the following conditions apply:
 - There is little or no direct access,
 - Development is segregated from the road,
 - Junctions are very limited and are signal controlled and/or roundabouts,
 - Pedestrian / vulnerable road users are segregated
3. Where the above speed limits are not appropriate a 50 km/h speed limit should apply.

If considering a lower *Special Speed Limit* of 40 km/h or 30 km/h then the criteria set in sections 7.3.3 and 7.3.2 respectively should be met.

7.3.1.2 *Single carriageways (Arterial & Link)*

These roads will generally function as a means of distributing traffic through urban areas. Where business premises and shops front directly onto the road the default speed limit of 50 km/h will normally be appropriate.

Where the road has been constructed to a high standard with limited access a speed limit of 60 km/h may be considered. A speed limit of 60 km/h may also be applicable to situations where the roadway is wider than and where development is well set back from the road, junctions are limited and are signal controlled and/or roundabouts and measures are in place to ensure the safety of vulnerable road users.

If considering a lower *Special Speed Limit* of 40 km/h or 30 km/h then the criteria set in sections 7.3.3 and 7.3.2 respectively should be met.

7.3.2 Special Speed Limit of 30 km/h



Figure 7.14 – 30 km/h Special Speed Limit



The Road Traffic Act 2004 provides that Local Authorities may apply a *Special Speed Limit* of 30 km/h. As is the case with the application of the *Special Speed Limit* of 120 km/h and 40 km/h, the use of the *Special Speed Limit* of 30 km/h must be in accordance with the relevant criteria set down in guidelines issued by the Minister for Transport. This *Special Speed Limit* can be deployed in three separate sets of circumstances;

- On a permanent basis in certain locations,
- As a temporary speed limit for limited periods,
- At road works sites.

This particular section relates exclusively to the use of the speed limit on a permanent basis. The deployment of *Special Speed Limits* on a temporary basis and at road works is addressed in Chapter 8 of these Guidelines. The use of relatively low speed limits has become a feature of traffic and speed management policy in many countries. Experience with such speed limits has clearly established that their introduction without appropriate Engineering / Traffic Management measures will not succeed.

A. Requirements for the application of the 30 km/h speed limit

Central to the consideration for the use of the speed limit is that its success should not be dependent on the use of an unreasonable level of enforcement. A 30 km/h speed limit should be considered on urban roads/streets where the needs of vulnerable road users are deemed to take precedence over those of motorists but where access is allowed for vehicles.

B. Locations

The use of 30 km/h speed limits on a permanent basis is appropriate for locations where there is a current or expected concentration of vulnerable road users. In addition their general application is;

- Normally applied to a zone or area but may sometimes be applied in respect of a single road,
- Roads in urban centres with no strategic or distributor function,
- On housing estate roads and local residential roads with no strategic or distributor function (see section 7.3.2.1),
- Ramps to motorways or dual carriageways with low radii curves,
- With the exception of ramps to motorways or dual carriageways, the area should not include any road that has a distributor function – i.e. all of the roads in the area should have a traffic function that is limited to the area itself.

The 30 km/h speed limit should only be applied to National Roads in exceptional circumstances and with the prior written consent of the National Roads Authority.

7.3.2.1. *Local Residential and Housing Estate Roads and ‘Slow Zones’*

There is no standard definition of what constitutes a housing estate however for the purposes of this document a housing estate is considered to be a self-contained grouping of houses with single or multiple entry points for vehicles. In addition such areas often have green areas or play areas associated with them.

Road authorities should give serious consideration to the lowering of the speed limit from 50 km/h to 30 km/h within housing estate areas and should distinguish between roads within estates in the following categories:

1. Roads which are through roads within estates and which have very little direct frontage housing and are not immediately adjacent to play areas. These roads would generally have a speed limit of 50 km/h but may be reduced where the road authority deems it to be appropriate.
2. Roads which have direct frontage housing or are immediately adjacent to play areas should have speed limits of 30 km/h. The level of signage provided will depend on prevailing speeds.
 - (i) Where the 85th percentile speed is already less than or equal to 30 km/h minimal signage will be required. A speed limit plate of 450 mm diameter would be appropriate placed on a pole on the left hand side of the road at the entry point(s).

- (ii) Where the 85th percentile speed is greater than 30 km/h then additional warning signs may be required in combination with the 30 km/h sign. These should be placed on a pole on the left hand side of the road at the entry point(s). The 30 km/h plate should normally have a diameter of 450 mm except where the local authority decides that increased prominence is required. Where that occurs the size of the speed limit plate (on the combination sign) may be increased to 600 mm and/or a sign may be erected on both sides of the road at the entry point(s).
3. In addition to the above and where a speed limit of 30 km/h is being implemented local authorities and community groups should consider the implementation of 'Slow Zones'.

'Slow Zones' should be developed and implemented as a Local Authority supported community based approach to reduce the speed limit to 30 km/h and to add safety measures within a select area in order to change driver behaviour. The ultimate goal of a 'Slow Zone' is to lower the incidence and severity of crashes and to enhance quality of life.

'Slow Zones' should be established in self-contained areas that consist of Local Roads. Gateways should announce the entry and exit from a 'Slow Zone'. These are a set of signs and markings at an intersection to alert drivers to the reduced speed limit.

The zone itself should be self-enforcing, reduced-speed area with speed bumps, markings or other traffic calming treatments as required. Slow Zones should be implemented in areas with low traffic volumes and minimal through traffic.

When leaving a 30 km/h speed limit or 'Slow Zones' appropriate speed limit signs need to be posted on the reverse side of the entry signage. For exit to high speed roads, i.e. where the speed limit is greater than 60 km/h, appropriate warning signs need to be considered.

Once the signs are in place local authorities should seek to identify if the new speed limits are being observed. Temporary in-situ or portable speed measurement devices can be used by authorities to collect the required information.

Where the measures set out in 2(ii) are not sufficient to achieve an 85th percentile speed of 30 km/h then further measures should be considered and implemented to achieve the necessary reduction. Suitable measures for consideration include;

- Closure of a through road to traffic by way of a road closure at a particular point with continued through access for pedestrians and cyclists. A network level analysis should be considered to ensure that problems do not arise elsewhere.
- Entry treatment
- Build outs and/or increased on-street parking
- Pinch points

- Chicanes
- Ramps or speed cushions
- Speed tables

The various signage options are illustrated below. Full details and records of these signs including locations etc. should be maintained on the MapRoad Road Management System.




30 km/h sign

Combination of 30 km/h sign Slow Zone sign.

Figure 7.15 – Local Residential and Housing Estate Roads and ‘Slow Zones’ Signage Options

7.3.3. Special Speed Limit of 40 km/h

The Road Traffic Act 2010 (amends section 9(2) of the 2000 act) provides that Local Authorities may apply a special speed limit of 40 km/h. As is the case with the application of the *Special Speed Limit* of 120 km/h, the use of the *Special Speed Limit* of 40 km/h must be in accordance with the relevant criteria set down in guidelines issued by the Minister for Transport.

SSL – 40 km/h

Applies to roads in urban centres, access ramps

This *Special Speed Limit* should only be applied in certain circumstances where the default 50 km/h has been deemed to be unsuitable.

A. *Requirements for the application of the 40 km/h speed limit*

Central to the consideration for the use of the speed limit is that its success should not be dependent on the use of an unreasonable level of enforcement. Therefore the speed limit should be self-enforcing. A 40 km/h speed limit should only be considered on roads/streets where:

- There is a high concentration of vulnerable road users interacting with the road and their safety is deemed to be compromised.
- On ramps to motorways or dual carriageways with low radii curves
- The existing mean speed of vehicles should not exceed 50 km/h. If it exceeds this speed then environmental/engineering measures must be provided to reach this target before the new limit is applied.

B. Locations

The default built-up area speed limit remains 50 km/h. The use of 40 km/h speed limits should be limited to roads in urban centres where the default speed limit is deemed too high or on ramps to motorways or dual carriageways with low radii curves.

In determining areas suitable for the use of the 40 km/h speed limit the Local Authority must first consider:

Urban Centres	The level of concentration of vulnerable road users, especially the number of children
	The evidence of road collisions in which vulnerable road users were involved
	Mean speed and 85th percentile speed
Motorway/Dual Carriageway	Mean speed and 85th percentile speed

C. Specific site considerations

- The 40 km/h speed limit should be applied to a single road but may sometimes be applied to an area
- The 40 km/h speed limit should only be applied to National Roads in exceptional circumstances and only with the prior written consent of the National Roads Authority
- In urban areas 40 km/h speed limit roads would normally have a distributor function where the main function of the road is to facilitate vehicular traffic.
- High concentrations of vulnerable road users both using and crossing the 40km/h speed limit road at numerous crossing points

7.3.4. *Villages and Towns*

Fear of traffic can affect people's quality of life in towns and villages and it is evident that villages should have comparable speed limits to similar roads in urban areas. In addition, these roads will have continuous development fronting directly onto the road, therefore 50 km/h should be the norm in village and town urban areas. For the purpose of applying a village speed limit of 50 km/h, a definition of a village can be based what had been listed in the County Development Plan or on the following simple criteria relating to frontage development and distance;

- 40 or more houses (on one or both sides of the road) and
- a minimum length of 600 metres.

If there are just fewer than 40 houses, Local Authorities should make extra allowance for any other key buildings, such as a church, shop or school.

The above features should give an appropriate adequate visual message to drivers to reduce their speed. However, many drivers are unlikely to reduce their speed to a 50 km/h limit if it is over a very short stretch of road, particularly if the end of the limit can be seen at the entry point. Such sections of road should have the appropriate signage in place.

Local Authorities may lower the minimum length from 600 metres to 400 metres when the level of development density over this shorter length is between 28 and 40 houses and, in exceptional circumstances, to 300 metres where the level of density exceeds 20. Shorter lengths are not permitted. See Table 7.4 for examples.

Where there are outlying houses beyond the village boundary or roads with high approach speeds local authority engineers should also consider other speed management measures to support the message of the speed limit and help encourage compliance so that no undue enforcement difficulties are created. See section 7.2.2.4.

If there are high approach speeds to a village, or the start of the village is not obvious, village gateway treatments can also be an effective way to slow drivers down, particularly where the road width is sufficient to enable the construction of a standard traffic calming gateway with a central island.

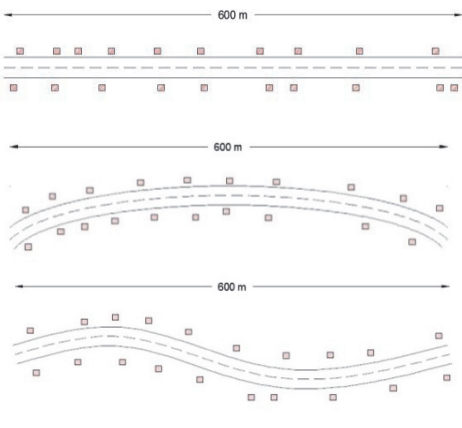
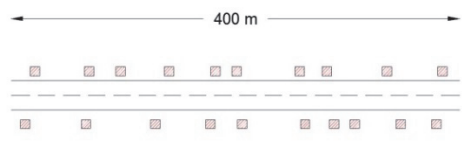
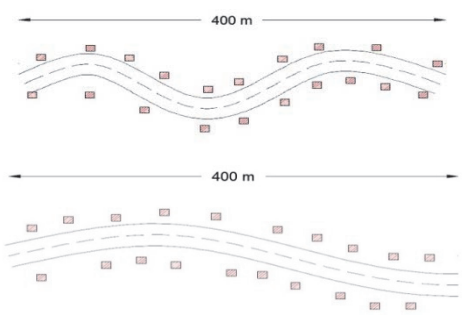
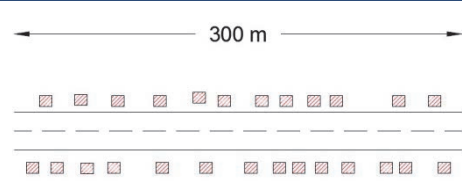
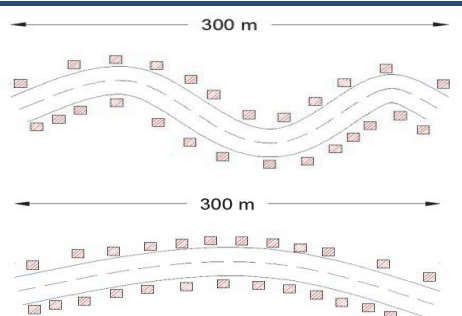
Level	Length (m)	Development density (on one or both sides of road)*	Is the end of limit visible from start of Speed Limit?	Permitted?	Example
L1	600	40	Either Yes or No	Yes	
L2	400	28	Y	Yes, if other key buildings exist	
			N	Yes	
L3	300	20	Y	Exceptional Circumstances Only	
			N		
*If borderline, with respect to development density, consider other key buildings.					

Table 7.4 – Village Speed Limit Length Examples

In situations where the above criteria for a village are not met and there is a lesser degree of development, or where engineering measures are not practicable or cost-effective to achieve a 50 km/h limit, but a reduction from the 100 km/h or 80 km/h speed limit is considered appropriate, local authority engineers should consider the alternative lower *Special Speed Limit* of 60 km/h.

It may also be appropriate in some larger villages to consider 30 km/h Speed Limits or zones. Such limits should not, however, be considered on roads with a strategic function or on main traffic routes. For roads with a strategic function, provision is made for the use of 40 km/h Speed Limit in certain situations (see table 7.3.1). Where it is determined that a *Special Speed Limit* should apply, the criteria set in section 7.3.1 should be met.

7.4. *Special Speed Limits on separate carriageways/lanes*



Figure 7.16 – *Special Speed Limit on Separate Lanes*

The 2004 Road Traffic Act allows the deployment of different *Special Speed Limits* on different carriageways of motorways and dual carriageways. It is envisaged that the most frequent application of this provision will be on dual carriageways in or near urban areas, with a lower speed limit on the approach to the centre than on the mainline carriageway. The circumstances where this provision may be applied are very limited.

Examples of use are where bus lanes are installed on National Roads in rural areas, where there is a bus lane on an urban dual carriageway or where there are long acceleration lanes, deceleration lanes, lane drop or entry/exit ramps.

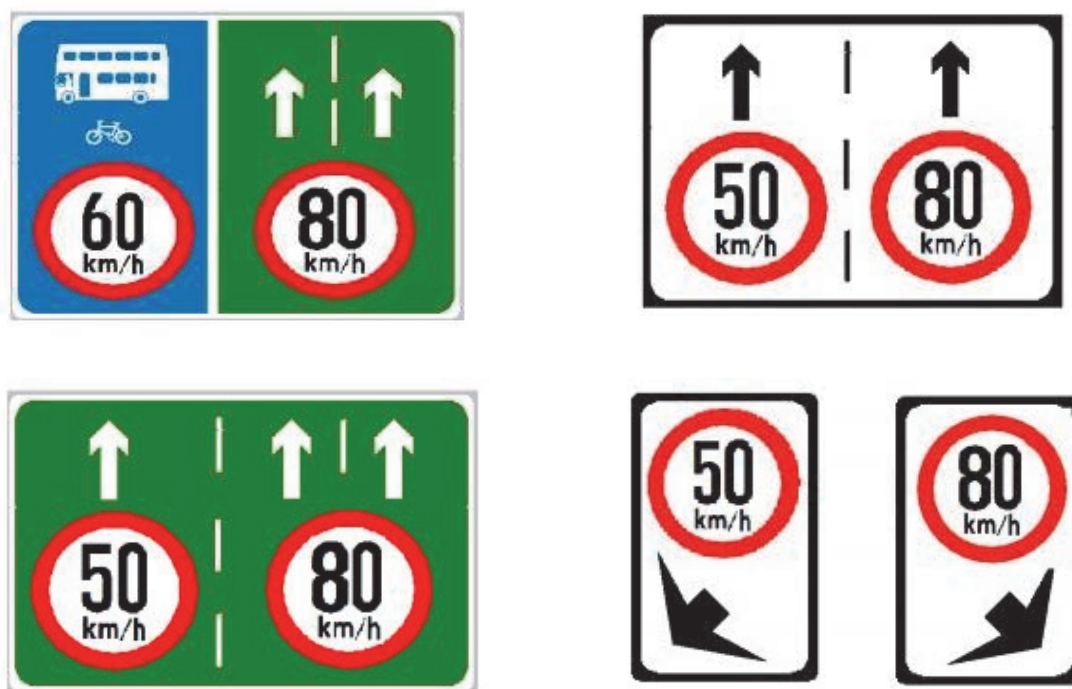
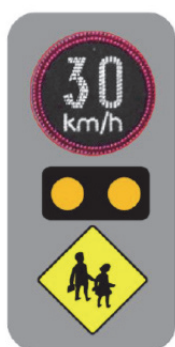


Figure 7.17 – Special Speed Limit on Separate Lanes – Sign Types

When different Speed Limits on separate lanes of a carriageway are applied, the limits should be signed at start and finish, with intermediate repeaters as necessary.

7.5 Special Speed Limits at Selected/Restricted Times

Section 9(5) of the Road Traffic Act 2004 introduced a provision allowing Local Authorities to deploy *Special Speed Limits* at specified restricted times (Periodic Speed Limit) to address road safety issues that arise at particular times only. These speed limits should be signed using electronic signage that automatically activates from the time of and for the duration for the Periodic Speed Limit.



Local Authority Engineers should exercise caution in relation to the use of this provision as the application of a reduced speed limit for a specified period may not be the appropriate response to road safety issues in every instance. While locations such as the approaches to schools when children are arriving at or leaving the school may offer an opportunity to apply this approach, it is important that every location suggested should be robustly investigated. As is the case with speed limits generally, there may be instances and locations where other initiatives may be more appropriate.

Where Special Speed Limits are applied in the vicinity of schools, the times should be in accordance with the table below, except in exceptional circumstances. The times are intentionally ‘tight’ as the lights should only be flashing and the reduced speed limit should only be operational at times when there is activity at the school.

Morning	Start	30 minutes before school starting time	End	at school starting time
Early Collection	Start	Start 5 minutes before collection time	End	15 minutes after collection time
Late Collection	Start	Start 5 minutes before collection time	End	15 minutes after collection time

Table 7.5 – Special Speed Limit Timings at Schools

If the lights are operational and a reduced speed limit is in effect when there is no activity at the school, road users will begin to ignore the speed limit.

There may be instances where the use of Periodic Speed Limits may in fact compromise safety. This can arise if a periodic speed limit is set significantly lower than the default speed limit or the *Special Speed Limit* that normally applies. With that in mind it is recommended that a Periodic Speed Limit should not be applied where it is more than two steps below the speed limit that is in effect. In so doing, the Local Authority may discover that the location in question may benefit from a complete review of the speed limit in the location considered.

Local Authorities should have regard to the following when assessing if it is appropriate to apply a *Special Speed Limit* at specified restricted times at a given location:

- The *Special Speed Limit* is best suited to a situation where there is a pattern in terms of times of operation. For example a school where it may be appropriate to apply such a speed limit for certain times in the morning, at lunch time, and in the evening for week days during the school year (consider collision data). There may however be other locations where a Local Authority may consider the need for such arrangements;
- Arrangements for the deployment of *Special Speed Limits* at selected times must be specifically provided for in speed limit bye-laws (see section 4). Therefore, the arrangements cannot be applied on a random basis;
- Use of *Special Speed Limits* may not serve any purpose in certain urban areas where traffic is continually congested;
- All other safety measures have been investigated or carried out and not considered sufficient or appropriate before applying such Periodic Speed Limits;
- The effectiveness of the *Special Speed Limit* in reducing speeds should be monitored.

7.6. *Special Speed Limits in Special Circumstances*



Figure 7.18 – Special Speed Limit in a Special Circumstance

The Road Traffic Act 2004 provides for the application of speed limits at locations where special circumstances prevail. The purpose of the provision is to allow for a reduction in the speed limit that normally applies where those special circumstances apply and must be set out in bye-laws. It is envisaged that this provision would be used rarely and only in very particular circumstances where issues can be foreseen that clearly give rise to road safety issues.

An example of this would be in a tunnel where it might be necessary to close a lane and traffic must consequentially be slowed.

The deployment of this provision is limited to National Roads and Motorways and it is recommended that the National Roads Authority, who must consent in writing to the use of this provision, be consulted at an early stage in the development of the proposal. Under no circumstances should the use of this provision be pursued in the absence of the necessary bye-laws.

7.7. Summary

Generally, to achieve the appropriate and consistent outcome, i.e. an appropriate speed limit in the given circumstance, the following speed limits are appropriate for the types of carriageways encountered.

Section	Description		Speed Limits
7.1	Motorways and High Speed Dual Carriageways		120 km/h
7.2.1	Rural Roads	Standard Dual Carriageways & 2+1/ 2+2 roads	100 km/h
See section 7.2.2.1		Single Carriageway Roads	100 km/h 80 km/h
7.2.2.2		High Standard Single Carriageways	100 km/h
		At-risk locations	Lower limits can be considered as appropriate
7.3.1.1	Urban Roads (adhering to DMURS) (See Table 7.3.1)	Limited access Dual Carriageways / Single Carriageway Roads	80 km/h 60 km/h
7.3.1.2		Arterial / Link Single Carriageway Roads (See table 7.3.1.)	60 km/h (max)
7.3.1.3		Narrow / Minor Local Road and Housing Estate Roads	30 km/h
7.3.1.4 7.3.1.5		Specific Circumstances Only	40 km/h 30 km/h

Table 7.6 – Summary of Speed Limits by Carriageway Type

It is important to note that this is not intended to be a one size fits all approach, it would be impossible to achieve this with a network as extensive and varied that exists in the Republic of Ireland. Furthermore, this does not negate the need for Local Authorities to appropriately review and manage speed limits in their administrative areas.



8

TEMPORARY SPEED LIMITS AT ROAD WORKS

8

TEMPORARY SPEED LIMITS AT ROAD WORKS

8.1 General

Under the 2004 Act, City and County Managers (Chief Executives) are empowered to make Orders for the purpose of applying special speed limits at road works (extracts included in Appendix E). The following should be noted in relation to the making of Road Works Speed Limit Orders:

- The speed limit must be one of the *Special Speed Limits* set out in Section 9 of the Road Traffic Act 2004, as amended by the Road Traffic Act 2010 and must not be less than 30 km/h;
- There is no legal basis for deploying any road works signs with posted speeds below 30 km/h;
- The Order must specify a limited time period not exceeding one year;
- The Order must specify the precise location at which the *Special Speed Limit* is to be applied and the provision of the relevant regulatory traffic signs must be in strict accordance with those parameters;
- The prior consent of the National Roads Authority is required for temporary speed limits at road works on National Roads.

The deployment of a speed limit of 30 km/h at road works is not subject to the criteria set out in Chapter 7 (section 7.6) of these guidelines (permanent setting of 30 km/h). It will be a matter for each Local Authority to determine the most appropriate method for reducing speed and the guidance document '**Guidance for the Control and Management of Traffic at Road Works**' should be consulted. The conditions to be applied to the permanent deployment of this 30 km/h cannot be imposed where that speed limit is being proposed on a temporary basis.

The use of 30 km/h as a temporary speed limit must be examined in terms of its enforceability and potential success. The examination must consider the following;

- The default speed limit would reflect the road use
- Its position and function within the network
- The relationship between that speed limit, vehicle speed and enforcement considerations.

Considering the above, the deployment of a 30 km/h temporary speed limit should be restricted to sections of roads where the speed limit applying to that road normally is not in excess of 60 km/h, unless an exceptional circumstance can be demonstrated.

The determination of the extent of the road works site is a matter for each Local Authority. It may be appropriate to apply the same speed limit proposed for the section of road where work is proposed to sections of other roads where they have junctions with the road works site.

8.2 Sizes and Spacing of Road Works Speed Limit Signs

Extracted from Traffic Signs Manual








APPROACH SPEED LIMIT	TSM REFERENCE	SIGN SIZE		APPROX REPEATER SPACING	SIGNFACE
NORMAL SIGN	REPEATER SIGN ¹				
120 km/h	RUS 039	900 (1200) ²	-	-	
100 km/h	RUS 040	750 (900) ²	600 (750) ²	500m	
80 ³ km/h	RUS 041	600 (750) ²	450 (600) ²	500m	
60 km/h	RUS 042	600 (750) ²	450 (600) ²	500m	
50 km/h	RUS 043	600 (750) ²	450 (600) ²	500m	
40 km/h	RUS 064	600	450	200 to 500m	
30 km/h	RUS 044	450 (600)	300 (450)	200 to 500m	
<ol style="list-style-type: none"> 1. Repeater speed limit signs shall be at least one step in size below the normal speed limit sign used. 2. The larger bracketed size may be used on dual carriageways and motorways, or where it is considered that greater prominence of the sign is necessary. 3. Sign RUS 041A (Rural Speed Limit Sign) is not permitted for use at road works. 					

Table 8.1 – Road Works Speed Limit Signs

8.3 *Cautionary Speed Plates*

Where it is not appropriate or practicable to impose a mandatory road works speed limit, the use of cautionary speed plates may be signed/deployed.

The speed chosen for the cautionary speed plate must be one of 25, 35, 45, 55, 65 or 75 km/h.

Further details are contained in Chapter 8 of the Traffic Signs Manual as issued by the Department of Transport.

APPENDIX A

SPEED ASSESSMENT FRAMEWORK AND MEAN & 85TH %ILE SPEED

A**1****SPEED ASSESSMENT FRAMEWORK FOR
RURAL SINGLE CARRIAGEWAY ROADS**

This section provides specific technical advice on the setting of speed limits on rural single carriageway roads. Some key points to note are;

- The default speed limit on national roads is 100km/h and on regional and local roads is 80km/h.
- The speed limit on single carriageway rural roads should take into account traffic and road user mix, the road's geometry and general characteristics, its surroundings, and the potential safety and environmental impacts.
- Where it is not possible or obvious to set a speed limit based on the above criteria Local Authorities can adopt this speed assessment framework and adopt a two-tier hierarchical approach that differentiates between single carriageway roads with a strategic function and those with a local access function.

Strategic Function

Higher speed limits should be restricted to 'upper tier' or high quality strategic single carriageway roads where there are few bends, junctions or accesses.

Local Access Function

Lower speed limits would be appropriate on 'lower tier' single carriageway roads passing through a local community, or having a local access or recreational function. They would also be appropriate where there are significant environmental considerations or where there is a high density of bends, junctions or accesses, or the road has frequent and often steep changes in elevation.

A speed assessment framework should help achieve an appropriate and consistent balance between safety and mobility objectives on single carriageway rural roads. Local Authorities are initially encouraged to consider its use on those roads with high collision rates or simply as a way of helping decisions in borderline cases where the choice of the appropriate speed limit is not obvious. The basis for the speed assessment framework procedure is:

- a firm theoretical basis for choosing speed limits for road functions, taking account of safety, mobility and environmental factors
- roads classified into two tiers based on road function
- closer integration of speed limit choice, with more general rural road safety management measures
- driver choice of desired speed to be reflected by mean speed
- local flexibility of choice within a consistent overall procedure.

1.0 Introduction

Road lengths: National Road – approximately 5,400 km
Regional and Local – approximately 93,600 km

Default speed limits: Motorways – 120 km/h
National Road – 100 km/h
Regional and local roads – 80 km/h
Towns and Villages (built-up area) – 50 km/h

In certain cases drivers cannot reach or exceed the speed limit on many single carriageway roads because it is often difficult to do so due to geometric characteristics such as narrow cross-section, bends, junctions and accesses.

Vulnerable Road Users: Pedestrians and cyclists are referred to as vulnerable road users because of their unprotected state. Because riders of motorised two-wheelers (motorcycles, mopeds and light mopeds) are also, to a large extent, unprotected, they are also referred to as vulnerable. Users of motorised two-wheelers are often overlooked in this category because they travel at much higher speeds than pedestrians or cyclists (reference)

There is a need to improve speed management in rural areas and, in particular, to further help drivers understand the underlying risks and tackle the problems caused by inappropriate speed. Local Authorities should particularly intervene on roads where there is a case for encouraging use by, or safeguarding the needs of, vulnerable road users.

Rural Safety Management: Speed limits should be considered as only one part of rural safety management. The following must also be taken into account;

- How the road looks to road users
- The road function
- The traffic mix
- Road and rural characteristics

In the event that speed limits cannot be decided based on these criteria or where a road has high collision figures then road authorities can adopt the rural speed assessment framework. This involves a two-tier (upper and lower) hierarchical approach which differentiates between roads with a strategic or local access function.

Using this approach;

Higher limits – should be restricted to ‘upper tier’ or high quality strategic roads where there are few bends, junctions or accesses.

Lower limits – appropriate on ‘lower tier’ roads with a predominantly local, access or recreational function. May also be appropriate where there are significant environmental considerations such as in any future National Parks, Areas of Outstanding Natural Beauty, or where there is a high density of bends, junctions or accesses, or the road has frequent and often steep changes in elevation.

This guidance: seeks to assist Local Authorities by helping to define the appropriate traffic speed on different types of rural road, taking into account traffic and road user mix, geometry, general characteristics of the road and its surroundings, and the potential safety and environmental impacts.

Collision Rates: Where high, Local Authorities should seek cost-effective improvements to reduce these rates by targeting the particular types of collisions taking place. To help in this process collision data is available from the Road Safety Authority. This is a spatial dataset of all injury related road traffic collisions reported to An Garda Síochána. Collision rates are calculated by the NRA for National Routes. The methodology for calculating collision rates is available from the NRA. Identifying locations where there are above-average collision rates assists road authority engineers in identifying the types of site or route specific intervention measures that might be appropriate to manage speeds and reduce collisions along the route.

Balance: In rural areas every effort should be made to achieve an appropriate balance between speeds, speed limits, road function and design, the differing needs of road users, and other characteristics. This balance may be delivered by introducing one or more speed management measures in conjunction with the new speed limits and/or as part of an overall route safety strategy. The aim should be to align the local speed limit so that the original mean speed driven on the road is at or below the new posted speed limit for that road.

Local authority engineers should also consider the use of vehicle-activated signs (VAS), which have proven to be particularly effective at the approaches to isolated hazards, junctions and bends in rural areas. Overuse of these signs however can lead to over-familiarity by drivers and hence detract from their effectiveness.

2.0 *Single Carriageway Rural Roads and the Speed Assessment Framework*

- 2.1 In the vast majority of instances, the road function, characteristics and environment and actual speeds being driven should enable Local Authority engineers to determine the appropriate speed limit on single carriageway rural roads.
- 2.2 In cases where further guidance is required to aid decision-making, a Speed Assessment Framework has been developed. It is based on the principles of the Speed Assessment Framework developed by TRL (Transport Research Laboratory) for the Department for Transport in the UK. It was produced to help achieve an appropriate and consistent balance between safety and mobility objectives on single carriageway rural roads. The assessment framework is designed to assist decision-makers evaluate, in a clear and transparent way, the advantages and disadvantages of each speed limit option and reach a well-founded conclusion and is based on the presumption that single carriageway rural roads should operate at speeds near to those that give the minimum total costs taking safety, mobility and environmental impact into account.
- 2.3 Mean speeds should be used where the assessment framework is being applied. Local issues in relation to particular routes can be further reflected through final decisions on the acceptable mean speed for each limit, on the importance given to local environmental or social factors, and on the choice of additional engineering or educational measures.
- 2.4 Differentiation of roads by traffic function

		Collision Threshold
Upper tier roads	Roads with a primarily through traffic function, where mobility is important, typically all the national primary and secondary roads, important regional roads and some important local primary roads;	22 injury collisions per 100 million vehicle km (previously 35)
Lower tier roads	Roads with a local or access function, where quality of life benefits are important, typically the local secondary and tertiary roads and remaining elements of the regional road and local primary network.	38 injury collisions per 100 million vehicle km (previously 60)

By way of comparison, the average Irish collision rate for undivided 2-lane national roads is 10 injury collisions per 100 million vehicle kilometres of travel. This analysis was carried out by the NRA and is based on three years of collision data (2005 to 2007) and estimates of 2007 traffic volumes. Previous work by O’Cinneide et al, UCC (2004) established a collision rate for undivided 2-lane national roads at 14 injury collisions per 100 million vehicle kilometres using five years of collision data (1996 to 2000). Similarly the average collision rate for Irish urban national roads has been calculated at 15 injury collisions per 100 million vehicle kilometres by the NRA.

- 2.5 The speed assessment framework operates on the principles that the speed limit choice should be guided by whether the collision rate on a section of road is above or below the respective 35 or 60 injury collision thresholds and is designed to assist local decision making and promote greater consistency.
- 2.6 Initial trials in the UK using the assessment framework proved the practical value of the methodology, resulting in speed limits for upper tier roads which were generally accepted as reasonable by local safety officers in relation to speed, crash risk and road character. In the first instance, local authorities should consider its application to those roads with high collision rates or simply as a way of helping decisions in borderline cases where the choice of the appropriate speed limit is not immediately obvious.
- 2.7 Recommended speed limits for the two tiers subject to meeting local needs and considerations are as follows:

SPEED LIMIT	UPPER TIER ROADS – PREDOMINANT TRAFFIC FLOW FUNCTION	50 km/h
100	High quality strategic national primary and secondary and limited high quality regional roads with few bends, junctions or accesses. When the assessment framework is being used, the collision rate should be below a threshold of 35 injury collisions per 100 million vehicle kilometres.	Should be the norm in built up areas regardless of function
80	Lower quality strategic national primary and secondary roads which may have a relatively high number of bends, junctions or accesses. When the assessment framework is being used, the collision rate should be above a threshold of 35 injury collisions per 100 million vehicle kilometres and/or the mean speed already below 80 km/h.	
60	Where there are high numbers of bends, junctions or accesses, substantial development, where there is a strong environmental or landscape reason, or where the road is used by considerable numbers of vulnerable road users.	
SPEED LIMIT	LOWER TIER ROADS – IMPORTANT ACCESS AND RECREATIONAL FUNCTION	
100	Only the best quality regional and local primary roads with a mixed function (i.e. partial traffic flow and local access) with few bends, junctions or accesses (in the longer term these roads should be assessed using the upper tier criteria).	
80	Appropriate for good quality regional and local roads with a mixed function where there are a relatively high number of bends, junctions or accesses. When the assessment framework is being used, the collision rate should be below a threshold of 60 injury collisions per 100 million vehicle kilometres.	
60	Roads with a predominantly local, access or recreational function, or where the road forms part of a recommended route for vulnerable road users. When the assessment framework is being used, the collision rate should be above 60 injury collisions per 100 million vehicle kilometres.	

It is important to note that the above does not imply that speed limits should automatically be reduced. Indeed, in some cases the assessment may suggest that the existing speed limit may already be inappropriately set or too low, and an increased limit should be considered.

3.0 *Approach to Speed Limit Setting for Single Carriageway Roads in Rural Areas*

- 3.1 Speed limits should be considered as only one part of rural safety management. Where collision rates are high priority should be to seek cost-effective improvements to reduce these rates, targeting the collision types that are over-represented.
- 3.2 If, despite these measures, high collision rates persist, lower speed limits may also be considered. Lower speed limits on their own, without supporting physical measures, driver information and publicity will not necessarily change driver behaviour. Drivers will therefore continue to travel at inappropriate or excessive speeds. This may lead to significant enforcement costs. Every effort should be made to achieve an appropriate balance between speeds, speed limits, road design and other measures. This balance may be delivered by introducing one or more speed management measures in conjunction with special speed limits, and/or as part of an overall route safety strategy.
- 3.3 The assessment framework is designed to assist decision-makers evaluate, in a clear and transparent way, the advantages and disadvantages of each speed limit option and reach a well-founded conclusion and is based on the presumption that single carriageway rural roads should operate at speeds near to those that give the minimum total costs taking safety, mobility and environmental impact into account.
- 3.4 A simple two-tier functional hierarchy should be used, with roads having either primarily a through traffic function (upper tier) or a local access (lower tier) function. Both need to be provided safely. Mobility benefits will be more important for the upper tier than for the lower tier roads, whilst environmental benefits are likely to be of greater importance for the lower tier roads.
- 3.5 There may be many regional and local roads which serve a mixed through-traffic and access function. Where that traffic function is currently being achieved without a high collision rate, these roads should be judged against the criteria for upper tier roads. If, however, for all or parts of these roads there is a substantial potential risk to vulnerable road users, these sections should be assessed against the criteria for lower tier roads.
- 3.6 Decisions on speed limits should take account of other collision reduction measures that might be applied – information such as typical collision rates, and typical proportions of different collision types on different types of rural road. These can be used assist in the determination of whether other site or route-specific measures might be appropriate that would reduce either speeds or collisions along the route.
- 3.7 Mean speed should be used for the assessment. For the majority of roads there is a consistent relationship between mean speed and 85th percentile speed. Where this is not the case, it will usually indicate that drivers have difficulty in deciding the appropriate speed for the road, suggesting that a better match between road design and speed limit is required.

- 3.8 The aim should be to align the speed limit to the prevailing conditions, and that all vehicles are moving at speeds as close to the posted speed limit as possible. An important step in the procedure is to gain agreement with local enforcement agencies that the mean speed of drivers on the road with any new speed limit is acceptable.
- 3.9 The aim of the framework approach is to assist in the consistent application of speed limit policy throughout the country.
- Local issues in relation to particular routes can be reflected in
 - the functional tier to which the road is assigned
 - final decisions on acceptable mean speeds for each limit
 - the importance given to local environmental factors
 - additional measures that could change the appropriate speed limit regime recommended.
- 3.10 Research (Finch et al., 1993, Taylor et al., 2000) shows that for every 1 mph reduction in average speed the accident frequency reduces by 5%.

The monetary cost of an accident has been estimated (LIFE SAVERS NOT REVENUE RAISERS - SAFETY CAMERAS IN IRELAND: A COST BENEFIT ANALYSIS - Derek Rafferty Department of Economics, University of Dublin, Trinity College 2014) as follows;

- Fatal €2,706,000
- Serious Injury €310,039
- Minor Injury €28,388
- Damage only €3,190

However, speed limits on their own only have a limited effect on actual speeds. According to the OECD/ECMT (2006) meta-analyses shows that lowering the limit by 10km/h decreases speed by 3 to 4 km/h. In places where speed limits have been changed and no other action taken, the change in average speed is only about 25% of the change of the speed limit. Changes in speed limits must also therefore be accompanied by appropriate enforcement, infrastructure and information measures (European Transport Safety Council 2010).

4.0 Selection procedure

- 4.1 Within routes, separate assessments can be made for individual sections of road of 600 metres or more for which a separate speed limit might be considered appropriate. When this is completed, the final choice of appropriate speed limit for individual sections might need to be adjusted to provide consistency over the route as a whole.
- 4.2 A flow chart of the decision making process for selecting speed limits for rural single carriageway roads is given in Figure 1. It includes the following steps:

Step 1	Consider whether the level of development requires special treatment.
Step 2	Consider which functional tier is appropriate for the road.
Step 3	Measure the current mean speed and calculate the collision rate as all injury collisions per 100 million vehicle km (Collision rate = (Total No. of collisions / Total vehicle km of travel) X 10 ⁸ , where vehicle kilometres of travel is a function of AADT and the length of road under consideration.
Step 4	Check the collision rates against acceptable thresholds
Step 5	If the collision rate is high, check the proportions of different crash types and consider whether site or route treatment is appropriate before deciding speed limit.
Step 6	If a speed limit lower than the current one is indicated, estimate the mean speed and collision rate and the influence on social factors and vulnerable road users that would result from implementing the new limit.
Step 7	Check that these values are acceptable; if not, consider whether further measures are necessary to bring speed and collision rates into balance.

- 4.3 For mean speeds to be acceptable, they should be no higher than the posted limit after it has been implemented. Research shows that, for a typical distribution of vehicle speeds on single carriageway rural roads, the 85th percentile speed is about 10 km/h above the mean speed for roads with an 80 km/h limit, and about 13km/h above mean speed on roads with a 100 km/h limit. Setting acceptable mean speeds at or below the limit is therefore consistent with current enforcement thresholds.
- 4.4 The choice of speed limit within each tier should take account of the following;
- whether the collision rate is below the appropriate threshold of injury collisions per 100 million vehicle kilometres
 - whether there is substantial development
 - whether the road forms part of a recognised route for vulnerable road users.
- 4.5 The bands of appropriate collision rates by speed and speed limit are illustrated in Figures 2 and 3. If walking, cycling, equestrians or environmental factors are particularly important on the road section, consideration should be given to using the lower limit, even if the collision rate is below the threshold shown.

4.6 The influence of development should be taken into account through the following factors;

- If the road section qualifies for built up area status then the advice given in the guidelines should be followed.
- If the section does not meet the definition for a village, but the level of development is at least half the density implied (over a minimum of 600 metres), a speed limit of 60 km/h should be considered.

Other factors that would strengthen the case for a 60 km/h limit are;

- a high incidence of bends or junctions
- high collision rates
- specific development in terms of schools, public houses and use by vulnerable road users.

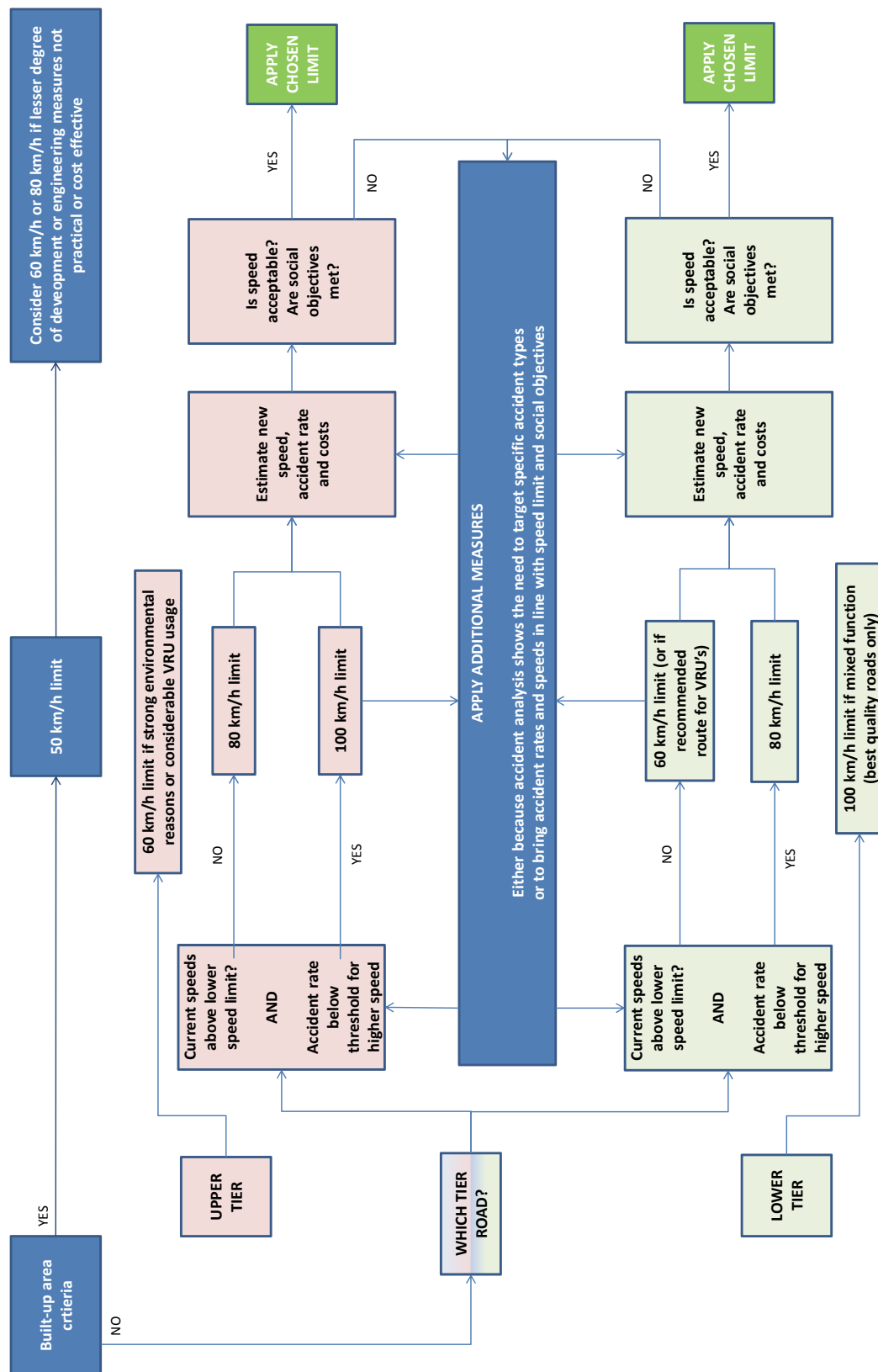


Figure A1 – Speed Assessment Framework – Flowchart

Figure 2: Speed limit zones in terms of mean speed and collision rate for upper tier roads

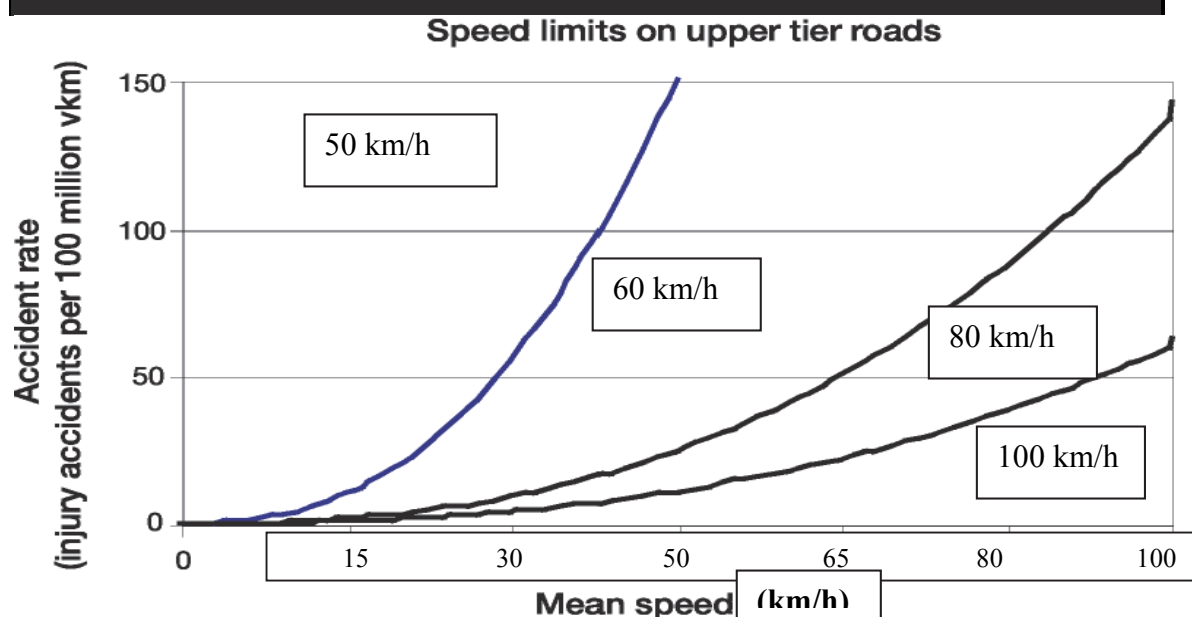
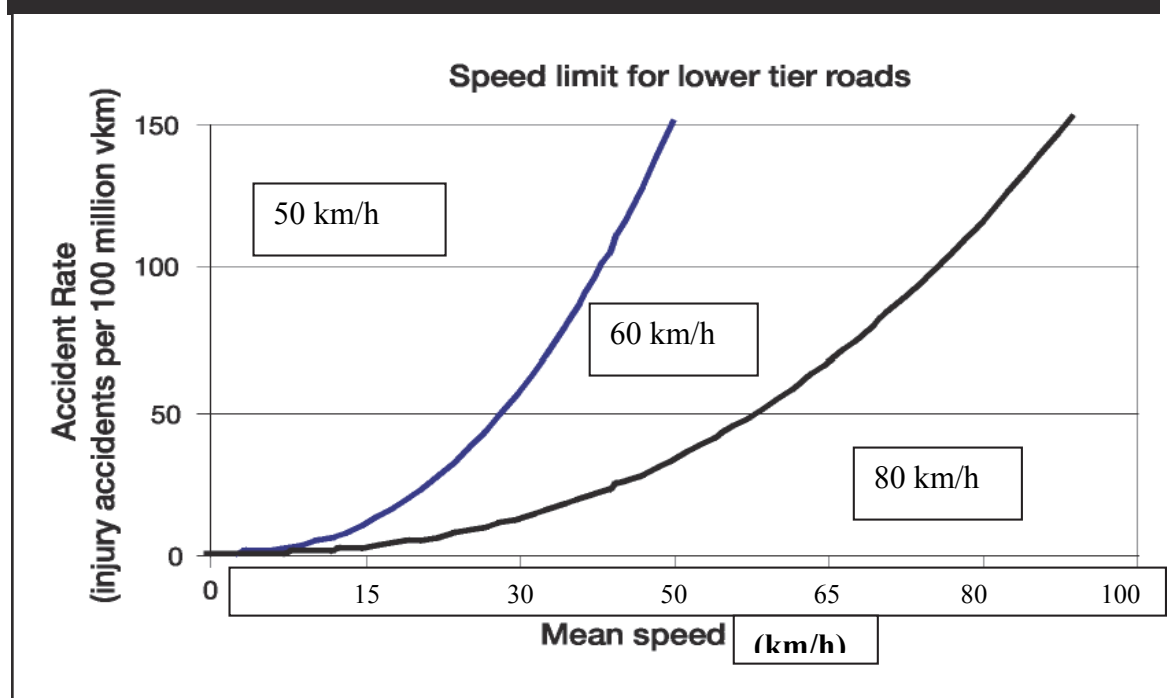


Figure 3: Speed limit zones in terms of mean speed and collision rate for lower tier roads



A**2****MEAN SPEED AND 85thile SPEED**

Throughout this document the measurement of speed as part of the setting and management of speed limits is frequently referred to. The approach taken is to leave it open to use either Mean Speed or 85th percentile Speed as appropriate. The following contains some background and advice is selecting the appropriate measurement.

For the last 10 years the UK and other countries in Europe have been advocating Mean speed rather than 85thile speed for the setting speed limits. This has been underpinned by extensive research that demonstrates the well proven relationship between speed and accident frequency and severity, and reflects what the majority of drivers perceive as an appropriate speed for the road, and is felt to be easier for road users themselves to understand.

85th percentile

Many standards and traffic engineering text books define 85th percentile speed as “The speed at or below which 85% of all vehicles are observed to travel under free flowing conditions past a nominated point”. This is a nationally recognised method of assessing traffic speeds.

This approach proposes that the maximum speed limits posted as the result of a study should be based primarily on the 85th percentile speed, when adequate speed samples can be secured. The 85th percentile speed is a value that is used for establishing regulatory speed zones.

Speed checks should be made as quickly as possible, but it is not necessary to check the speed of every car. In many cases, traffic will be much too heavy for the observer to check all cars.

Use of the 85th percentile speed concept is based on the theory that:

- the large majority of drivers
 - are reasonable and prudent
 - do not want to have a crash
 - desire to reach their destination in the shortest possible time
- a speed at or below which 85 percent of people drive at any given location under good weather and visibility conditions may be considered as the maximum safe speed for that location.

The results of numerous and extensive “before-and-after” studies substantiates the general propriety and value of the 85th percentile criterion.

Statistical techniques show that a normal probability distribution will occur when a random sample of traffic is measured. From the resulting frequency distribution curves, one finds that a certain percentage of drivers drive too fast for the existing conditions and a certain percentage of drivers travel at an unreasonably slow speed compared to the trend of traffic.

Most cumulative speed distribution curves “break” at approximately 15 percent and 85 percent of the total number of observations (see Figure 3-1). Consequently, the motorists observed in the lower 15 percent are considered to be traveling unreasonably slow and those observed above the 85th percentile value are assumed to be exceeding a safe and reasonable speed. Because of the steep slope of the distribution curve below the 85th percentile value, it can readily be seen that posting a speed below the critical value would penalize a large percentage of reasonable drivers.

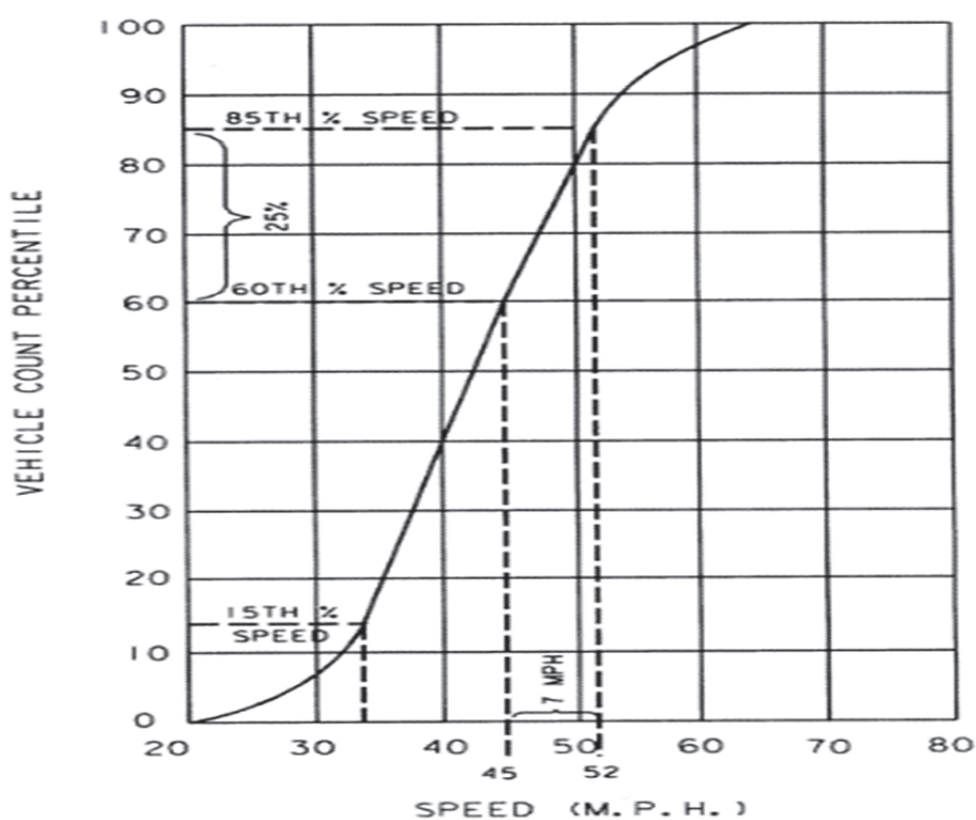


Figure A2.1 – Cumulative speed distribution curve

Experience shows that the 85th percentile speed is the one characteristic of traffic speeds that most closely conforms to a speed limit which is considered safe and reasonable.

Mean Speed

Mean Speed is the parameter that is increasingly used across Europe and is being adopted as opposed to 85th percentile speed. This is a simpler calculation than 85th percentile speed and in most cases results in a lower figure than for 85th percentile speed.

- Time mean speed is measured by taking a reference area on the roadway over a fixed period of time. In practice, it is measured by the use of loop detectors. Loop detectors, when spread over a reference area, can record the signature of vehicles and can track the speed of each vehicle. However, average speed measurements obtained from this method have limitations because instantaneous speeds averaged among several vehicles does not account for the difference in travel time for the vehicles that are traveling at different speeds over the same distance.
- Space mean speed is the speed measured by taking the whole roadway segment into account. Consecutive pictures or video of a roadway segment track the speed of individual vehicles, and then the average speed is calculated. It is considered more accurate than the time mean speed. The data for space calculating mean speed may be taken from satellite pictures, a camera, a GPS enabled App, or a mixture.

Summary

On rural roads there is often a difference of opinion as to what constitutes a reasonable balance between the risk of a collision, journey efficiency and environmental impact. Higher speed is often perceived to bring benefits in terms of shorter travel times for people and goods. However, evidence suggests that when traffic is travelling at constant speeds, even at a lower level, it may result in shorter and more reliable overall journey times, and that journey time savings from higher speed are often overestimated (Stradling et al., 2008).

The objective should be to seek an acceptable balance between costs and benefits, so that speed management policies take account of environmental, economic and social effects as well as the reduction in casualties they are aiming to achieve.

Mean speed and 85th percentile speed (the speed at or below which 85% of vehicles are travelling) are the most commonly used measures of actual traffic speed. Traffic authorities should continue to routinely collect and assess both.

For the majority of roads there is a consistent relationship between mean speed and 85th percentile speed. Where this is not the case, it will usually indicate that drivers have difficulty in deciding the appropriate speed for the road, suggesting that a better match between road design and speed limit is required. In such cases it may be necessary to consider additional measures to reduce the larger than normal difference between mean and 85th percentile speeds or to bring the speed distribution more in line with typical distributions. The aim for local speed limits should be to align the speed limit to the conditions of the road and road environment.

FATALITY RISK (OECD)

The following material is from the OECD reports on Speed Management (2006) and Towards Zero (2008).

Pedestrians, cyclists and moped riders for example have a high risk of severe injury when motor vehicles collide with them, as they are completely unprotected: no steel framework, no seatbelts, and no airbags to absorb part of the energy.

The probability of a pedestrian being killed in a collision with a car increases with the impact speed. Results from on-the-scene investigations of collisions involving pedestrians and cars show that 90% of pedestrians survive being hit by a car at speeds of 30 km/h; whereas only 20% survive at speeds of 50 km/h (see figure A2.2).

The figure also shows that the impact speed at which a pedestrian has a 50 % chance of surviving a collision is around 40-45 km/h. Other studies have found slightly higher survival figures — partly explained by the fact that minor injury accidents involving pedestrians are often not reported, thus creating a statistical bias with the available data — however there is a clear indication that a lower impact speed results in less severity (INRETS, 2005).

In addition, elderly pedestrians are more likely to sustain non-minor and fatal injuries than younger people in the same impact conditions due to their greater physical frailty.

A well-protected occupant of a modern car would, in most cases, not be injured at all at a similar impact speed in a frontal accident. According to WHO (2004), wearing seatbelts in well-designed cars can provide protection to a maximum of 70 km/h in frontal impacts and 50 km/h in side impacts (excluding impacts with obstacles such as trees or poles for which the protection is only effective for lower maximum speeds).

If, on the other hand, the car is struck from the rear, whiplash injuries leading to long-term impairment may occur even at impact speeds of 15-20 km/h (Elvik *et al* 2004).

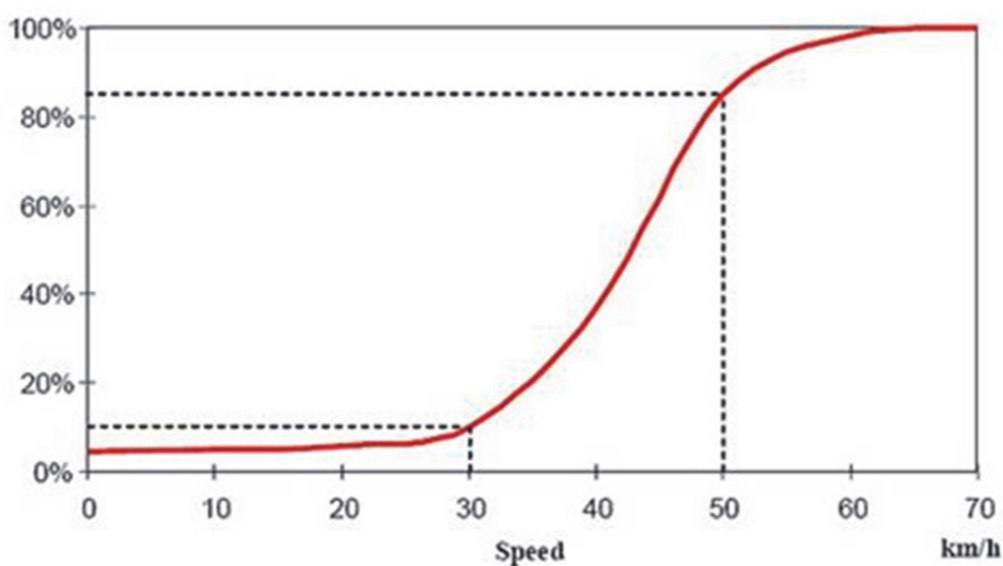


Figure A2.2 – Probability of fatal injury for a pedestrian colliding with a vehicle

Source: Interdisciplinary Working Group for Accident Mechanics (1986); Walz et al. (1983) and Swedish Ministry of Transport (2002).

In addition to the increased risk to vulnerable road users, there is increased risk of serious injury to occupants of light vehicles in collisions with a heavier vehicle (Broughton, 2005). This is because the energy that is released in the collision is absorbed mainly by the lighter vehicle and even small differences in mass can make a significant difference. Current trends in vehicle design are leading to many larger and heavier cars, while light vehicles are continuing to be produced, thus increasing the difference in mass of the new vehicles being manufactured. A mass difference of a factor of 3 is not an exception for vehicles on the road, especially between older and newer cars. The difference in mass between a car and a heavy goods vehicle is even larger and can easily be 20 times greater.

Adopting a safe system approach

A Safe System approach is of the only way to achieve the vision of zero road fatalities and serious injuries and requires that the road system be designed to expect and accommodate human error.

The basic strategy of a Safe System approach is to ensure that in the event of a crash, the impact energies remain below the threshold likely to produce either death or serious injury. This threshold will vary from crash scenario to crash scenario, depending upon the level of protection offered to the road users involved.

For example, the chances of survival for an unprotected pedestrian hit by a vehicle diminish rapidly at speeds greater than 30km/h, whereas for a properly restrained motor vehicle occupant the critical impact speed is 50km/h (for side impact crashes) and 70 km/h (for head-on crashes). See figure below.

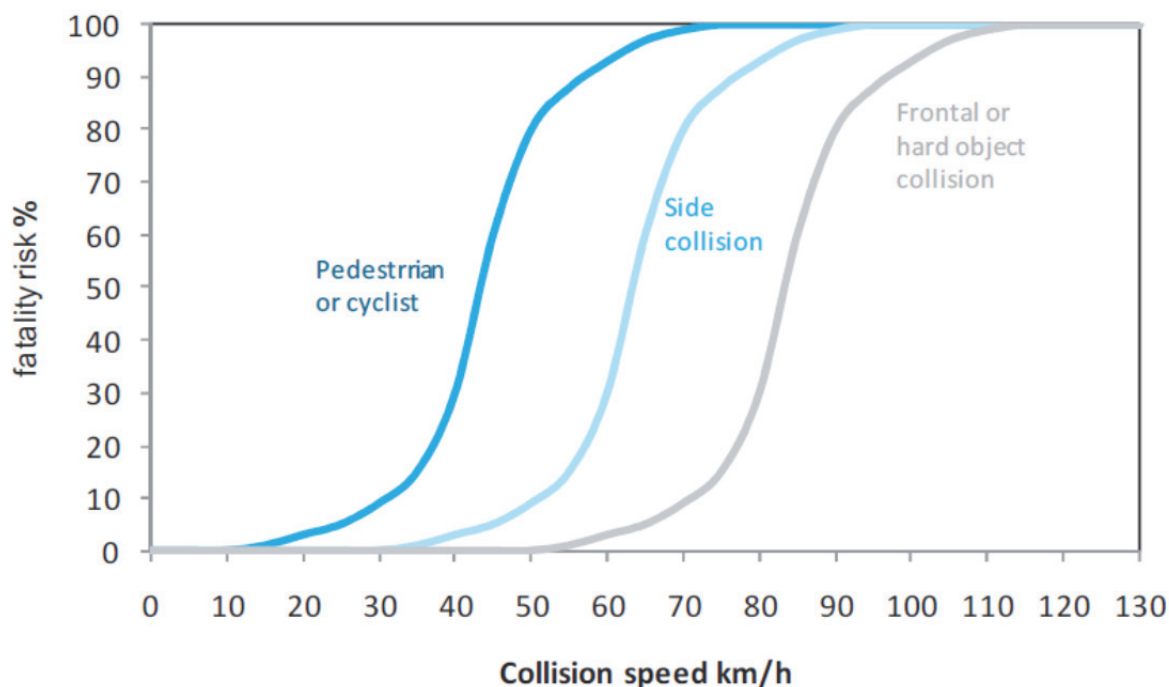


Figure A2.3 – Fatality Risk

Source: Wramborg, P. (2005). *A New Approach to a Safe and Sustainable Road Structure and Street Design for Urban Areas*. Paper presented at Road Safety on Four Continents Conference, Warsaw Poland.

Further information regarding the principle of a Safe System approach can be found in the Road Safety Authority's Road Safety Strategy (2013-2020). This approach presents a holistic approach to road safety, which builds on existing road safety interventions, but reframes the way in which road safety is viewed and managed in the community.

The strategy can be viewed at : <http://www.rsa.ie/en/Utility/About-Us/Our-strategy/>

APPENDIX

B

SPEED LIMIT SIGNS

B**SPEED LIMIT SIGNS****B.1 Default Speed Limits***Extracted from Traffic Signs Manual*






APPROACH SPEED LIMIT	TSM REFERENCE	SIGN SIZE NORMAL SIGN	SIGN SIZE REPEATER SIGN	APPROX REPEATER SPACING	SIGNFACE
120 km/h	RUS 039	900 (1200) ⁴	750 (900) ⁴	5km intervals, but rarely required	
100 km/h	RUS 040	750 (900) ^{3,4}	600 (750) ^{3,4}	3km intervals (where deemed necessary)	
80 km/h	RUS 041	600 (750) ^{3,4}	450 (600) ^{3,4}	2km intervals (where deemed necessary)	
	In the case of a default limit of 80km/h on a Local Tertiary Road, roads with prefix L or LT with 5 digits numbered in the range 10000–99999, the rural speed limit sign below must be used.				
	RUS 041(a)	450	-	-	
50 km/h	RUS 043	600	300 (450) ^{3,4}	500m intervals for special limits only	
<p>2. Repeater Speed Limit signs shall be at least one step in size below the normal Speed Limit Sign. 3. Subject to Note 2, the larger bracketed size may be used on wide single carriageways (roadway > 10m in width) or on dual carriageways and motorways. 4. The larger sizes shall not otherwise be used without the prior approval of the National Roads Authority for National Roads or the Department of Transport, Tourism & Sport for Regional and Local Roads.</p>					
<p>Local Authorities must endeavour to use the correct size signage when erecting or replacing damaged signs to provide consistency and avoid causing driver confusion. EG. If a sign in a gateway (750mm) is damaged and requires replacement, it should be replaced with a 750mm sign, not a 600mm or 900mm sign.</p>					

Table B.1 – Default Speed Limit Signs

B.1.2 Special Speed Limits




APPROACH SPEED LIMIT	TSM REFERENCE	SIGN SIZE		APPROX REPEATER SPACING	SIGNFACE
		NORMAL SIGN	REPEATER SIGN		
60 km/h	RUS 042	600 (750) ^{3,4}	450 (600) ^{3,4}	1km intervals	
40 km/h	RUS 064	600	300	500m	
30 km/h	RUS 044	450 (600)	300	500m (where deemed necessary)	
<p>2. Repeater Speed Limit signs shall be at least one step in size below the normal Speed Limit Sign. 3. Subject to Note 2, the larger bracketed size may be used on wide single carriageways (roadway > 10m in width) or on dual carriageways and motorways. 4. The larger sizes shall not otherwise be without the prior approval of the National Roads Authority for National Roads or the Department of Transport, Tourism & Sport for Regional and Local Roads.</p>					
<p>Local Authorities must endeavour to use the correct size signage when erecting or replacing damaged signs to provide consistency and avoid causing driver confusion. EG. If a sign in a gateway (750mm) is damaged and requires replacement, it should be replaced with a 750mm sign, not a 600mm or 900mm sign.</p>					

Table B.2 – Special Speed Limit Signs

*B.1.3 Extract from Traffic Signs Manual***5.16 Speed Limit Signs**

5.16.1 Speed Limit Signs, RUS 039 to RUS 044 and RUS 064, indicate the maximum allowable speed applying to a road. They consist of a white disc with a red border and black text. The maximum permitted speed, in kilometres per hour, is shown, above the SI notation 'km/h'.



**RUS 039:
120km/h SPEED LIMIT**

5.16.1a The Rural Speed Limit Sign RUS 041A consists of a white disc with a black border and oblique parallel black bars as indicated below. This sign may be used as an alternative to the 80km/h Speed Limit Sign (RUS 041) to indicate a speed limit of 80km/h on Local Tertiary or minor Local Secondary roads where:

- (i) they connect with roads that have a speed limit of 100km/h or greater; or
- (ii) they connect with roads in a built-up area.

Sign RUS 041A shall be only used in conjunction with Supplementary Plate P080.



**RUS 040:
100km/h SPEED LIMIT**

5.16.2 Speed Limit Signs shall show a speed of 120, 100, 80, 60, 50, 40 or 30km/h. No other speed limit shall be shown, unless provided for in the Road Traffic Acts.



**RUS 041:
80km/h SPEED LIMIT**

5.16.3 The appropriate sizes of Speed Limit Signs are shown in Table 5.9.

DEFAULT SPEED LIMITS

5.16.4 The legislative code applying to all speed limits is established in the Road Traffic Act 2004 (no 44 of 2004). The Act provides for speed limits that apply on a default basis to all road types as follows:

- The 'motorway speed limit' of 120km/h;
- The 'national roads speed limit' of 100km/h;
- The 'regional and local roads speed limit' of 80km/h; and
- The 'built-up area speed limit' of 50km/h.



**RUS 041A:
RURAL SPEED LIMIT**



**P 080:
SLOW**

SPECIAL SPEED LIMITS

5.16.5 In addition to the default speed limits, there are circumstances where different limits may be introduced.

5.16.6 County and City Councils have powers under the Road Traffic Act 2004 to make bye-laws to apply Special Speed Limits on public roads, generally for safety or capacity reasons, and to make orders for Special Speed Limits at Roadworks. However, speed limits on national roads are subject to the consent of the National Roads Authority. The range of Special Speed Limits that may be applied through bye-laws are as follows:

- 120km/h in respect of a dual carriageway on a national road;
- 100km/h in respect of a motorway, a non-urban regional or local road, or a road in a built-up area;
- 80km/h in respect of a motorway, a national road or a road in a built-up area;
- 60km/h;
- 50km/h in respect of any road other than a road in a built-up area;
- 40km/h; and
- 30km/h.

5.16.7 Advice on the use of special speed limits and speed limits for roadworks, and the procedure for making the necessary bye-laws, is given in the Department of Transport's Guidelines for the Application of Special Speed Limits. Special Speed Limits of 120km/h and 30km/h can only be applied in association with these statutory guidelines. The same Speed Limit signs are used for Special Speed Limits.

ROADWORKS SPEED LIMITS

5.16.8 City and County Managers have powers under the Road Traffic Act 2004 to make a Road Works Speed Limit Order for the purpose of applying a speed limit to a part of a road where roadworks are being carried out. The procedure for making the necessary Order is given in the Department of Transport's Guidelines for the Application of Special Speed Limits. Further information on speed limits at roadworks is given in Chapter 8. The same Speed Limit signs are used for Special Speed Limits at roadworks.



**RUS 042:
60km/h SPEED LIMIT**



**RUS 043:
50km/h SPEED LIMIT**



**RUS 064:
40km/h SPEED LIMIT**



**RUS 044:
30km/h SPEED LIMIT**

SITING OF SPEED LIMIT SIGNS

- 5.16.9 The terminal Speed Limit signs at the start and end of a speed limit must normally be erected on both sides of the road at the location described in the relevant bye-law or Road Works Speed Limit Order, but may be provided on one side only if site conditions preclude this. The bye-law or Order will usually describe the speed limit as applying either to a complete road or from a point a specified distance from some feature. The person responsible for drafting the bye-law or Order should, therefore, ensure that the location described provides visibility for approaching drivers.
- 5.16.10 Where terminal Speed Limit signs are not at a site with good visibility, consideration should be given to providing a repeater Speed Limit sign soon after the start of the speed limit for the benefit of those who have not seen the first sign. As it is a repeater sign, its position can be chosen to provide good visibility. In such circumstances this repeater sign should be the same size as the sign at the start. It is especially important to provide such a repeater sign where a lower speed is imposed.
- 5.16.11 Speed limits often change at road junctions and similar locations where the driver is required to take in a lot of information – traffic signs, road markings, traffic signals, conflicting traffic movements, pedestrians, etc. Even where the recommended visibility to a Speed Limit sign has been provided, drivers may not notice the sign due to other calls on their concentration. Therefore, consideration should be given to providing a repeater Speed Limit sign soon after the start of the speed limit as described above.

REPEATER SPEED LIMIT SIGNS

- 5.16.12 In general, the provision of repeater Speed Limit signs at regular intervals is important where a Special Speed Limit of 60, 80 or 100km/h is applied to a road in order to lower the speed limit on that road, or where the speed limit is less than a motorist might normally expect to apply on such a road. The recommended minimum sizes and spacings for repeater Speed Limit signs are given in Table 5.9.

120km/h Speed Limit

- 5.16.13 Repeater signs are not normally required on motorways and high quality dual carriageways with a 120km/h speed limit.

100km/h Speed Limit

- 5.16.14 Where a speed limit of 100km/h is applied on a dual carriageway with a high standard of alignment, or where a Special Speed Limit of 100km/h is applied to a motorway, it is important to use repeater signs at intervals of about 3km.
- 5.16.15 Repeater signs may be provided on a 100km/h national road after it intersects a road with a lower speed limit. Similarly, where a Special Speed Limit of 100km/h is applied to a regional or local road, repeater signs may be required after it intersects a road with a lower speed limit. However, care should be taken not to site such signs immediately before a school, bend or other hazard, where their provision may encourage drivers entering the higher speed limit to increase their speed inappropriately.

80km/h Speed Limit

- 5.16.16 Where a Special Speed Limit of 80km/h is applied to a motorway or national road, it is recommended that repeater signs be provided at intervals of about 2km.

5.16.17 Repeater signs should only be required in limited circumstances on regional and local roads with an 80km/h speed limit; e.g. where there might be an ambiguity or where they would be important for information purposes. Where warranted, a spacing of about 2km is recommended.

60km/h Speed Limit

5.16.18 Where a Special Speed Limit of 60km/h is applied to a motorway or to an appreciable length of a non-motorway road, it is recommended that repeater signs be provided at intervals of about 1km.

50km/h Speed Limit

5.16.19 Where a Special Speed Limit of 50km/h is applied to a motorway, it is important to use repeater signs at intervals of about 500m.

5.16.20 On regional and local roads in built-up areas with a 50km/h speed limit, repeater signs should not normally be used. However, they may be advisable on dual carriageways, where a higher speed limit might otherwise be expected.

ROADWORKS SPEED LIMITS

5.16.21 Where a Roadworks Speed Limit is applied on any class of road, it is particularly important to display that speed limit on repeater signs at regular intervals.

PERIODIC SPEED LIMITS

5.16.22 County and City Councils also have powers under the Road Traffic Act 2004 to make bye-laws to introduce Special Speed Limits which are imposed for a specified period or periods during any day or during specified days. The Periodic Speed Limit Sign, RUS 045, is available for this purpose. The sign is similar to the normal Speed Limit Sign except the numerals and text are white on a black background.



On



Off

**RUS 045:
PERIODIC SPEED LIMIT**

Required Variant:	Speed displayed shall be 30, 40, 50, 60, 80, 100 or 120.
-------------------	--

5.16.23 A typical use for the Periodic Speed Limit Sign would be to slow traffic outside a school during periods when the children are arriving or leaving.

5.16.24 The speed shown on the sign may be any of the speeds listed in Paragraph 5.16.2, but 30 and 50km/h are likely to be those most often used.

5.16.25 Advice on the use of Periodic Speed Limits and the procedure for making the necessary bye-laws is given in the Department of Transport's Guidelines for the Application of Special Speed Limits.

5.16.26 Sign RUS 045 shall be internally illuminated and the roundel shall be 600mm or 750mm in diameter. At periods when the speed limit is not in operation, the sign shall show a blank black disc. A manual or automatic device is required to light and turn off the sign at the appropriate times.

5.16.27 The sign may be mounted on its own, or on a grey backing board as part of an assembly in combination with appropriate warning or information signs. For example, the sign may be erected on a grey backing board with Sign W 141, School Ahead, and Signal S 102, Flashing Amber Signals, as illustrated in Figure 5.3. See also Chapters 3, 6 and 9.

5.16.28 This sign or combination of signs may be provided on one or both sides of the road at the entry point of the section of road defined in the relevant bye-law. At the end of the defined section of road, permanent signs shall be provided indicating the applicable speed limit beyond the Periodic Speed Limit. These can normally be mounted on the rear of the Periodic Speed Limit signs.



Figure 5.3:
Periodic Speed Limit Sign in
Combination with Other Signs

SPEED LIMITS FOR SPECIFIC LANES

5.16.29 Special Speed Limits may be applied to specific lanes or parts of a road, rather than the whole width of the road

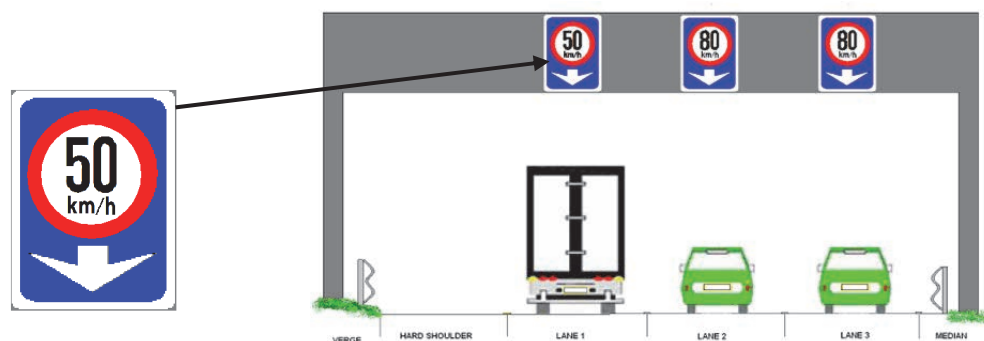
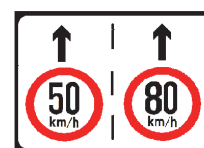


Figure 5.4: Speed Limits for Specific Lanes (Gantry-mounted)



5.16.30 The preferred arrangement for displaying speed limits for specific lanes is to mount standard Speed Limit signs on gantries, such that the appropriate Speed Limit sign is centred over each lane. A Speed Limit sign should be shown over every lane, even if two or more are subject to the same speed limit. The signs should be mounted centrally above the lane to which they relate, on backing boards of a colour appropriate to the route (blue for motorway, green for national road, white for other roads), and accompanied by Lane Designation Arrows (see Chapter 2) as shown in Figure 5.4.

2 Lanes – Roadside Mounting



3 Lanes – Roadside Mounting

5.16.33 Where a service road runs parallel to the main carriageway, separated by a narrow kerbed margin and subject to a different speed limit, a Speed Limit sign and an indicative directional arrow may be incorporated into a rectangular panel to indicate the prevailing speed limit applicable to each carriageway.



Service Road & Main Carriageway

5.16.31 As an alternative, where gantries are not viable, the signs apply to no more than three lanes and the different speed limit applies to the leftmost lane only. Speed Limit signs RUS 039 to RUS 044 may be incorporated into lane-specific signs as shown in Figure 5.5. These are suitable for conventional roadside mounting or for high-level mounting (such as mast arms which do not span all lanes), and should be erected on both sides of the carriageway.

5.16.32 The colour of the backing boards shall be varied to suit the class of road on which they are sited, and dashed lines and arrows shall be incorporated to indicate the individual lanes to which the speed limit applies. Where a bus lane is subject to a different speed limit from the main carriageway, this shall be indicated by the appropriate speed roundel and symbols on a blue background, and a solid white line shall indicate segregation from the traffic lanes.

Figure 5.5: Speed Limits for Specific Lanes

VARIABLE AND TUNNEL SPEED LIMITS

5.16.34 In certain circumstances, such as in tunnels or on very congested motorways, it may be advantageous to apply a Special Speed Limit which can be varied from time to time to suit traffic conditions. Two signs are available to display variable speed limits: one for use in tunnels where space is restricted and the other for use elsewhere. More information is available in Chapter 3.

5.16.35 Advice on the use of Special Speed Limits and the procedure for making the necessary bye-laws is given in the Department of Transport's Guidelines for the Application of Special Speed Limits.

Road Tunnel Speed Limit

5.16.36 The Road Tunnel Speed Limit Sign, RVMS 100, shall only be erected in tunnels and on the approaches to and exits from tunnels. This sign consists of a black square which, when illuminated, displays a red roundel containing a number in yellow or white on a black background to indicate the speed limit applying. The standard size of the sign is for the outer diameter of the roundel to be 500mm, but diameters of 475mm, 600mm or 750mm may also be used.

5.16.37 Sign RVMS 100 shall be provided with a Supplementary Plate P 054, to denote that the speed is in km/h. The plate may be positioned above or below the sign.

5.16.38 Sign RVMS 100 shall be illuminated and extinguished as required by the Road Authority or its agent. Where these signs are displayed, Speed Limit Signs, RUS 039 to RUS 045, will not normally be required.

Variable Speed Limit

5.16.39 At locations other than tunnels, the Variable Speed Limit Sign, RVMS 102, may be used where authorised. When not in use, the sign shall display a blank black disc.

5.16.40 Sign RVMS 102 may be 450mm, 600mm, 750mm, 900mm or 1200mm in diameter



**RVMS 100:
Road Tunnel Speed Limit**

Required Variant:	Speed displayed shall be 30, 40, 50, 60 or 80.
Requirement:	Supplementary Plate P 054 shall be added.



P 054: km/h

5.16.41 Sign RVMS 102 shall be illuminated and extinguished as required by the Road Authority or its agent. Where these signs are displayed, Speed Limit Signs, RUS 039 to RUS 044, will not normally be required.



**RVMS 102:
VARIABLE SPEED LIMIT**

Required Variant:	Speed displayed shall be 30, 40, 50, 60, 80, 100 or 120.
-------------------	--

Appendix 5A: Schedule of Regulatory Signs (extract)

Regulatory Signs		
Sign Number	Name	See Section
RUS 039	Speed Limit – 120km/h	5.16
RUS 040	Speed Limit – 100km/h	5.16
RUS 041	Speed Limit – 80km/h	5.16
RUS 041A	Rural Speed Limit	5.16
RUS 042	Speed Limit – 60km/h	5.16
RUS 043	Speed Limit – 50km/h	5.16
RUS 044	Speed Limit – 30km/h	5.16
RUS 045	Periodic Speed Limit	5.16
RUS 064	Speed Limit – 40km/h	5.16
RVMS 100	Road Tunnel Speed Limit	5.16 (5.22)
RVMS 102	Variable Speed Limit	5.16

Supplementary Plates		
Plate Number	Name	See Section
P 054	km/h	5.16, 5.22
P 080	Slow /Go Mall	5.16

Appendix 5B: Summary of Regulatory Signs (extract)

					
RUS 039 120km/h Speed Limit	RUS 040 100km/h Speed Limit	RUS 041 80km/h Speed Limit	RUS 041A Rural Speed Limit	RUS 042 60km/h Speed Limit	RUS 043 50km/h Speed Limit
					
RUS 064 40km/h Speed Limit	RUS 044 30km/h Speed Limit	RUS 045 Periodic Speed Limit	RVMS 100 Road Tunnel Speed Limit	RVMS 102 Variable Speed Limit	



B.2 – The Rural Speed Limit Sign

B2.1 Introduction

The System of Irish Speed Limits was reviewed in 2003/4 prior to the switch to metric units of measure in 2005. As part of that process the General Speed Limit was discontinued in favour of separate Default Speed Limits for different classes of road. While that transition was delivered smoothly and significant progress on road safety has been made since then, issues have arisen in relation to speed limits, the signs and their deployment, which are causing a degree of confusion for road users.

The two key issues arising are inconsistency and inappropriateness.

Some are long-standing issues however others have arisen since the metrication of speed limits. Notwithstanding the provision of updated Guidelines for the Application of Special Speed Limits there is a general lack of consistency from one Local Authority area to the next. This gives rise to anomalies whereby drivers can encounter differing speed limits on the same route from one county to the next and also anomalies whereby drivers encounter locations where the nature, design and layout of the road does not change but the speed limit does.

Arising from the 2004 legislation Local Authorities were required to place numerical speed limit signs on all roads.

B2.2 Issues specific to Local Roads

All Local Roads should cater for HGV vehicles used in the agricultural sector. Local Roads are roads with a default speed limit of 80km/h which can be further split into three groups carrying the same default speed limit;


Local Road	Description	Designator/ Prefix	Number Range
Local Primary	Intended to primarily carry non-HGV traffic along alternative routes or serve as link roads between Regional roads and Towns/Villages.	L or LP	1000 – 4999
Local Secondary	Generally link roads between the Local Primary and Regional road network providing through road access to rural locations. Roads in Housing estates are also classified as Local Secondary Roads.	L or LS	5000 – 9999
Local Tertiary	Generally the remainder of the Public Road network with roads with very low traffic volumes including cul-de-sac's.	L or LT	10000 – 99999

Many Local tertiary roads are colloquially referred to as 'boreens'. During metrification many of these roads were deemed too minor to assess resulting in the default speed limit of 80 km/h being applied. This led to the widespread deployment of 80 km/h signs on roads that are extremely narrow tracks where it is not possible to drive at the posted speed limit. This suggests that a lower speed limit should be applied or an alternative sign that does not have a number should be deployed.

Generally, these roads have not presented significant problems in terms of safety or in terms of enforcement, however, the 80km/h signs posted on these roads does present an on-going problem that can affect the credibility of the speed limit system overall as generally road users perceive the numerical sign as an indicator of the 'safe driving speed'.

While the 2013 Speed Limits Review does not specifically assign the term 'boreen' to a specific road type or classification the following should be noted;

- By their very nature Local Tertiary roads mainly make up this category
- Certain other roads of **differing** classifications may also be considered 'boreens' if of a similar characteristic to a local tertiary road where the posted default speed limit of 80km/h is inappropriate.
- It is the responsibility of Local Authorities to identify these roads in their areas
- Consistency in the assessment of roads and the subsequent deployment of the Rural Speed Limit Sign is paramount to preserve the integrity of this sign and the speed limit system as a whole. It is unacceptable to present the road user with conflicting information and signage for two roads of similar characteristic regardless of their classification.

APPROACH SPEED LIMIT	TSM REFERENCE	SIGN SIZE		APPROX REPEATER SPACING	SIGNFACE
		NORMAL SIGN	REPEATER SIGN		
	In the case of a default limit of 80km/h on a Local Tertiary Road, roads with prefix L or LT with 5 digits numbered in the range 10000–99999 , the rural speed limit sign below must be used.				
	RUS 041(a)	450	-	-	

B2.3 Examples of Use

- A. The example below (figure B.1) is a local tertiary road with the default Local Road speed limit applied. The 80km/h sign face must be replaced with rural speed limit sign as shown. This sign is accompanied by the 'Go Mall SLOW' supplementary place. The sign must be placed on the left hand side of the road only.



Figure B.1 – Rural Speed Limit Sign

- B. The example below (Figure B.2) shows a local tertiary road with the default Local Road speed limit applied and signs erected on both sides of the road.



Figure B.1 – Rural Speed Limit Sign



Figure B.3 – View from National Road



The initial view of this road from the junction suggests a road of sufficient standard for 80km/h to be displayed (Figure A2.3 above)

Further inspection however reveals the road to be a very narrow local tertiary road (Figure B.4, left)

It is crucial to the deployment of these signs that the stretch of road immediately following the junction is assessed for suitability, not only the view from the major road.

Figure B.4 – Further Inspection

Having assessed the road beyond the junction the following treatment is required;

- 80km/h sign face on the left hand side of the road to be removed
- Pole to be left in place
- Rural Speed Limit sign and supplementary place to be erected on existing pole
- 80km/h sign and pole on the right hand side of the road must be removed entirely.

Depiction of treatment is shown in Figure B.5 below.

NB: *left hand side of road and right hand side of road stated above are referenced from the view of the sign from the junction.*



Figure B.5 – Rural Speed Limit Sign in Place (Impression)

It is likely that there will be a Local Primary or Secondary road in close proximity to Local Tertiaries where the 80km/h sign does not need to be replaced with the rural speed limit sign.

Notwithstanding education and publicity initiatives by the Department of Transport Tourism and Sport and the Road Safety Authority, to preserve the confidence of the public in the speed limit system as a whole and to avoid widespread confusion, Local Authorities should publicise and explain the use of the rural speed limit sign in their areas in local papers, their website, leaflet drops in schools, community centres etc.

A large blue square with a black border. Inside the square, the word "APPENDIX" is written in white, uppercase, sans-serif font on the left. To the right of the word is a large, white, stylized letter "C".

APPENDIX

A horizontal blue bar with a black border. Inside the bar, the text "POSITIONING OF SPEED LIMIT SIGNS & REPEATER SIGNS" is written in white, uppercase, sans-serif font.

POSITIONING OF SPEED LIMIT SIGNS & REPEATER SIGNS

C

POSITIONING OF SPEED LIMIT SIGNS & REPEATER SIGNS

Incorporating DOT Circular RST 02/2011

C1 Overview of positioning of signs

Positioning of speed limit signs at different speed limit road interfaces and examples of inappropriate locations of speed limit signs

C1.1 General

The Road Traffic Bill 2004 introduced the following:

- A new national roads speed limit of 100 kilometres per hour in respect of all national roads, other than national roads with special speed limits and those in built-up areas
- A new regional and local roads speed limit of 80 kilometres per hour in respect of all regional and local roads, other than such roads with special speed limits and those in built-up areas

In order to indicate to motorists where these new default speed limits apply it was proposed to provide speed limit signs at the interface of national and non-national roads (other than those with special speed limits and those in built-up areas) as set out below and shown in Figure C.1

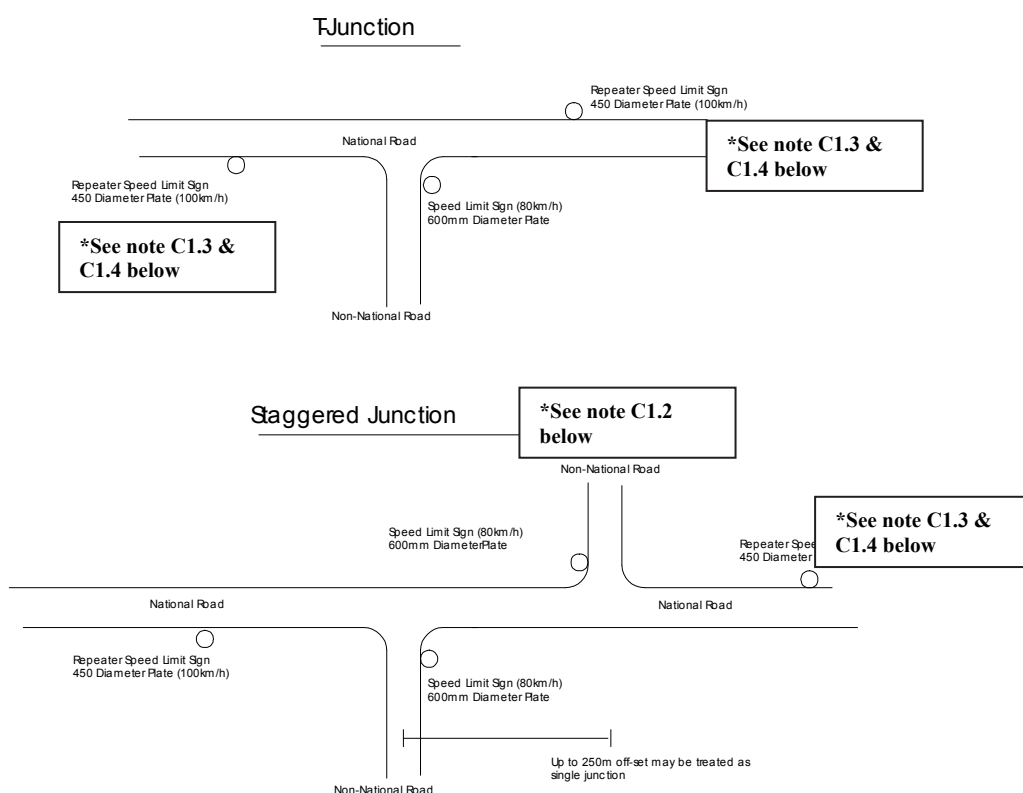


Figure C.1 - Speed Limit Sign Positions at 100km/h road and lower speed limit road interfaces

- When you turn from a national road onto the regional or local road one 80km/h sign (600mm diameter) will be mounted on a new post on the left hand side of the regional or local road (See C1.2 below).
- Other than in the circumstances outlined in sections 5 to 7 below, two 100 km/h repeater signs (450mm diameter), one each side of the junction will be mounted on new posts on the left hand side of the 100 km/h road.

C1.2 Location of Sign on regional or local road

It is recommended that the new 80 km/h sign on the regional or local road be placed as close as practicable to the junction with the national road. Where there is a radius joining the two roads it should be past the tangent point on the minor road. Alternatively where there is no clear radius as occurs with many local roads, the sign could be positioned close to the intersection point of the hedgerows/fence lines of the two roads. In either event the sign should not be positioned in locations where it would be obscured by vegetation or other signs.

In most cases it should not be necessary to locate the sign at a distance of more than 50 metres from the road junction. In exceptional circumstances it may be necessary to position the 80 km/h sign on the right hand side as one turns from the national road onto the regional or local road. In those circumstances **it is vital that the speed limit sign does not obscure a stop or yield sign** for traffic travelling in the opposite direction. Consideration could be given to attaching the speed limit sign to the rear of the stop or yield sign in such exceptional circumstances. In these cases, care should be taken not to obscure the shape of the stop or yield sign.

C1.3 Location of Signs on national roads

Considerable care should be taken when locating speed limit signs on national roads. It is important that speed limit signs are not located on lengths of road where the road alignment is insufficient to allow vehicles to travel safely at the posted speed limit. Such situations can give mixed signals to the driver. In such cases the speed limit sign should be omitted (unless specific circumstances dictate otherwise) and rely instead on the next appropriately located repeater sign (See also point 7 below).

Flexibility is therefore available to road authorities when locating the two 100 km/h repeater signs on the national road. The normal range for placement of these signs would be a distance of 20 to 100 metres from the road junction

Diagram 1 indicates that a staggered junction can be signed so that the repeater sign on each side of the national road is located so that it will serve traffic exiting from both minor roads (no repeater sign is located on the national road between the two minor roads). In order to avoid a multiplicity of repeater signs it is suggested that junctions within 250 metres of each other be treated as one junction for the purpose of providing repeater speed limit signs on

the national road (the minor roads could be on opposite sides of the national road or on the same side).

The guiding principle is that motorists should be advised within a reasonable distance by way of repeater sign that they are on a road with a higher speed limit (See C1.7 regarding poorly aligned national roads).

C1.4 Mounting of Signs on national roads

Generally the repeater signs on national roads will be mounted on newly erected posts. However there will be instances where it is possible to attach repeater signs to existing street furniture e.g. lamp standards or posts provided for warning or information signs. These alternatives should be utilised where possible (See point C1.7 regarding poorly aligned national roads).

C1.5 Non-public roads

No interface speed limit signage is required where a non-public road meets a national road

C1.6 Local Tertiary Roads

- The 80km/h sign (600mm diameter) should be provided on the left hand side of the regional or local road. If the interfacing road is also 80km/h it is not necessary to show the 80km/h again on the tertiary road particularly if it is clear the tertiary road is not capable of being driven at 80km/h.
- It is suggested that the two 100 km/h repeater signs need not be provided on the national road after a junction with a local tertiary road.

C1.7 Poorly aligned national roads

It is important to ensure that the provision of the 100 km/h repeater signs on national roads do not conflict with other road safety messages. In the case of junctions located on poorly aligned sections of national road (eg locations containing a series of bends preceded by warning signs or on sections of road where 'SLOW' signs/markings or road narrows signs have been installed, etc) the 100km/h national road repeater signs should be omitted and rely, instead, on the repeater signs at junctions located outside the sections to which the warning/information road signs apply. In general, the 100 km/h repeater speed limit signs should only be located in areas where it is possible to drive safely at that speed.

If the 80km/h sign is intended to alert drivers to the lower general speed limit applicable to regional and local roads (i.e at a junction with a 100km/h speed limit road), this sign should be provided at national/non-national road junctions even in cases where the 100km/h national road repeater signs are to be omitted.

C1.8 Examples of inappropriate locations of speed limit signs

The transition to metric speed limits occurred in early 2005 and was successful. However, it is apparent that there are improvements that can be made to some existing poor practices and inappropriate locations of speed limit signs that are currently in place and have materialised since the introduction of metrication.

1. Speed limit signs shown at interface with other similar speed limit roads.

When moving from an 80km/h road onto another 80km/h road it is not necessary (unless for particular circumstances) to re-sign the speed limit at the interface of the two roads. This situation is becoming more noticeable due to the significant number of old national roads which are now bypassed and have become regional/local roads with a default speed limit of 80km/h. The speed limit signs at the junctions of these new regional/local roads and the local road network should now be rationalised.

In these cases it may be more appropriate to remove the speed limit signs and/or replace these speed limit signs with warning signs suitable to the prevailing road condition. For example,

- W053 Series of sharp bends OR
- W071 Road Narrows on Both Sides OR
- W140 Pedestrians in lieu of the speed limit signs.

This rationalization would go some way to reducing the number of 80km/h signs on poor local roads which have caused some frustration for the driver (Figure C.2)



Figure C.2 – 80 km/h signs on poor quality local road

2. Speed limit signs displayed on sections of road not capable of being driven at the posted speed limit.

Very often speed limit signs appear on stretches of road which are incapable of being driven at that speed and sends mixed signals to the driver. For example:

Signs appear in locations such as just in advance of and within bad bends where it is clear the road cannot be driven at these speeds and the road user should be slowing down – figure C.3 below. These signs could have been placed by contract at certain set spacing's without consideration for practicality of location.



Figure C.3 – Repeater sign on bend with chevrons and series of bends ahead sign

The provision of a 100km/h speed limit sign on a poorly aligned stretch of national road (e.g. locations containing a series of bends or road narrowing where warning signs markings are warranted) immediately after a junction with a lower speed limit road - figure C.4. In such cases it is appropriate to omit the 100km/h national road repeater sign and rely on the repeater signs located directly outside the sections to which the warning information road signs apply.



Figure C.4 – Repeater sign poorly aligned section of road

3. Speed limit signs displayed on sections of road where a speed limit change is approaching and speeds should be reducing.

For example on the approach to a town on a 100km/h road repeater signs should not be located within close proximity of the 60km/h speed limit (or 50km/h as the case may be). These signs should be rationalised and possibly replaced with warning signs or cautionary speed limit ahead signs as contained in the traffic signs manual.

4. Speed limit signs displayed in advance of a junction of a road with a different speed limit.

For example, on a regional road just in advance of the junction with a national road the speed limit of 100km/h for the national road should not be shown on the regional road – Figure C.5. Also, the speed limit sign of 80km/h for a regional road should also not be shown on the approach to the junction. These signs should be rationalized and possibly replaced with junction ahead warning signs. Care should be taken not to obscure any other signage such as yield or stop signs.



Figure C.5 – Speed limit signs in advance of junctions

5. Speed limit signs located on short links.

It is not necessary to show speed limit signs on short links where a vehicle would be incapable of getting close to the speed limit – Figure C.6. The road authority engineer should use their own discretion and judgement in these instances.



Figure C.6 – Speed limits signs on short links

C2 *Experience to date of repeater signs*

For a number of years many reports in various forms of media pointed to the fact that there were many sections of the National route carrying signage advising motorists of the legal speed limit applying to the section of road. Many reports pointed to frustration at the fact that signage was displaying a speed limit that “*can’t be reached*”. Many of these signs were in fact identified as repeater signs.

Notwithstanding the provisions and guidance provided by Department of Transport Circular RST 02/2011, it was clear that many of these signs were sited inappropriately.

The Road Safety Section of the National Roads Authority commenced a review of these signs, carried out by Kildare County Council National Roads Office and, in summary, 688 signs were removed from the National routes.

Repeater signs are not in themselves inappropriate, the surrounding road environment and road furniture etc are what make some repeater signs inappropriate. Examples of these are the following that occur within 250m of a repeater sign;

- a sharp bend
- traffic calming scheme signs,
- a rural school,
- a narrow bridge.
- a ‘bend ahead’ sign
- signage associated with poor alignment (road narrows, chevrons, bend ahead sign, etc)
- road markings associated with poor alignment (Bend ahead, SLOW etc)
- Blind crest curve and vertical alignment issues.
- Approach to a ‘road narrows’ sign
- Proximity to a change of speed limit.

Figures C.7 – C.10 on the following page illustrates examples of the above.

It is important that Local Authorities continue to monitor the location of these repeater signs and remove any that are deemed to be inappropriate.



Figure C.7 - In advance of a roundabout



Figure C.9 - On bend with chevrons/after series of sharp bends sign



*Figure C.8
Mounted on sharp bend to left sign*

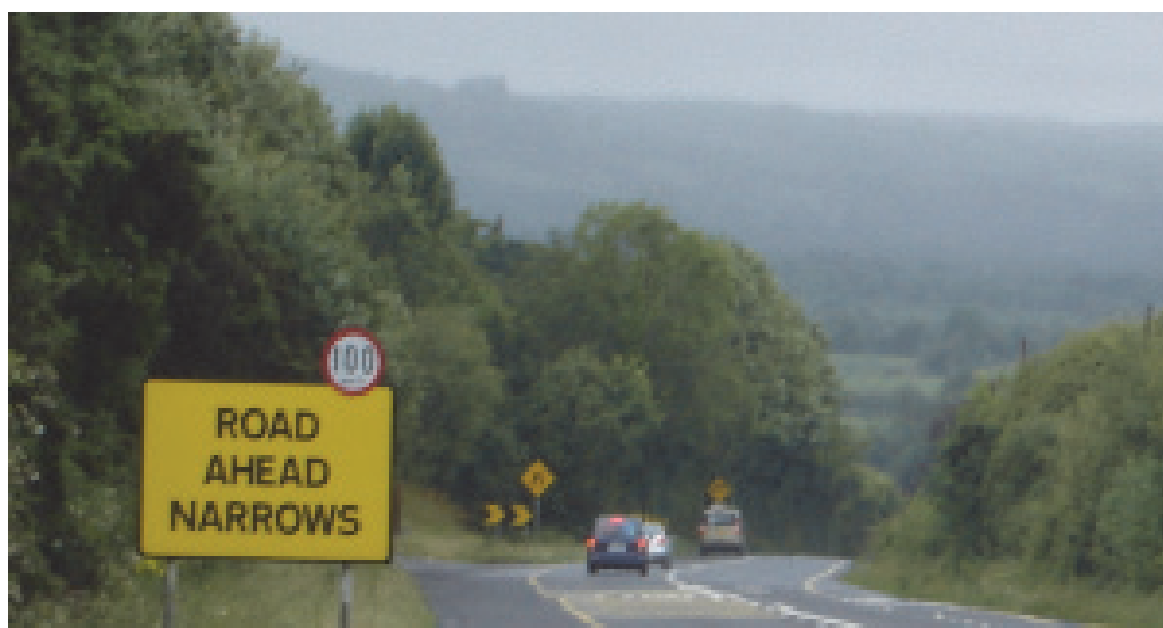


Figure C.10 - On road narrows sign, in advance of chevrons with bar markings and SLOW on carriageway

APPENDIX

D

MAPROAD PMS SPEED LIMITS APPLICATION

D**MAPROAD PMS SPEED LIMITS APPLICATION****D1 Overview****Pavement Management System**

A Pavement Management System (PMS) has been developed for the Local Government Management Agency. It is called MapRoad PMS and is used by Local Authorities to achieve a standardised approach to the management of more than 91,000 km of Irish roads.

It is a computer-based system that focuses, among other things, on the planning and recording of road improvement and maintenance programmes.

It also includes a mobile app that allows road pavements to be assessed and road condition ratings to be applied.

Speed Limits Application

The MapRoad PMS Speed Limits App, developed by Compass Informatics, is an Android based app that allows Local Authorities to map speed limit sign details in their areas. This information is automatically uploaded to their MapRoad PMS via the app. Once uploaded, the Pavement Management System allows the user to create and modify speed limit sections and zones.

A user guide for the installation and operation of the app is outlined on the following pages.

Detailed information on the Speed Limit APP can be found at:

<http://www.maproadpms.ie/mobile.html>

D2 MapRoad PMS Speed Limit App – User Guide

(Courtesy of Compass Informatics 26th March 2014)

App Version: The current version of the Speed Limits App is 1.2.2 (7th November 2014)
Installation: Please browse to the link below on your Samsung Galaxy 10.1 tablet (Tab 2/Tab3/Tab4) or your Android smart phone.

<http://compass.ie/download/MapRoad/SpeedLimitsApp/Compass.SpeedLimits.apk>

The Samsung Galaxy 10.1 tablets will have version 3.x or 4.x of Android installed which is fine. If using a smart phone please make sure the Android version is 2.3 or higher. A modern up-to-date smart phone will provide a better user experience. Please note that the mapping is only displayed on the tablet. Please make sure the GPS in your smart phone or tablet is enabled.

Once the apk file has been downloaded, simply select it to install and then open.

If you have any issues with the download or installation of the Speed Limits APP please log a ticket with

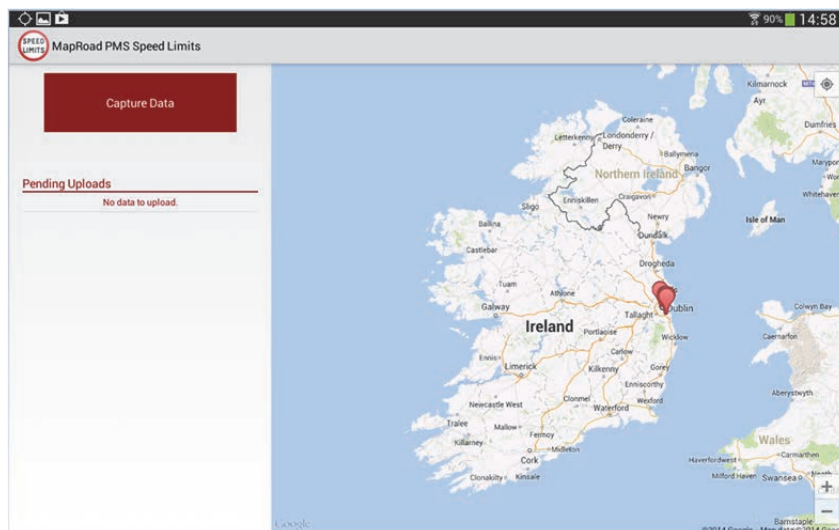
<http://support.maproadpms.ie>

Overview:

When you open the Speed Limits App for the very first time you will be asked to choose your Local Authority from a drop down list and then to enter an Access code. It's very important to enter this code correctly as it is required to successfully upload data from the App.

If you do not have the Access Code for your local authority please contact the MapRoad PMS administrator or log a ticket using the support address above.

When you open the Speed Limits App you will be presented (briefly) with a splash screen and then a Health and Safety information note. Please read this note and then click OK to close the window. You will then be presented with the Home Page of the Speed Limits App.



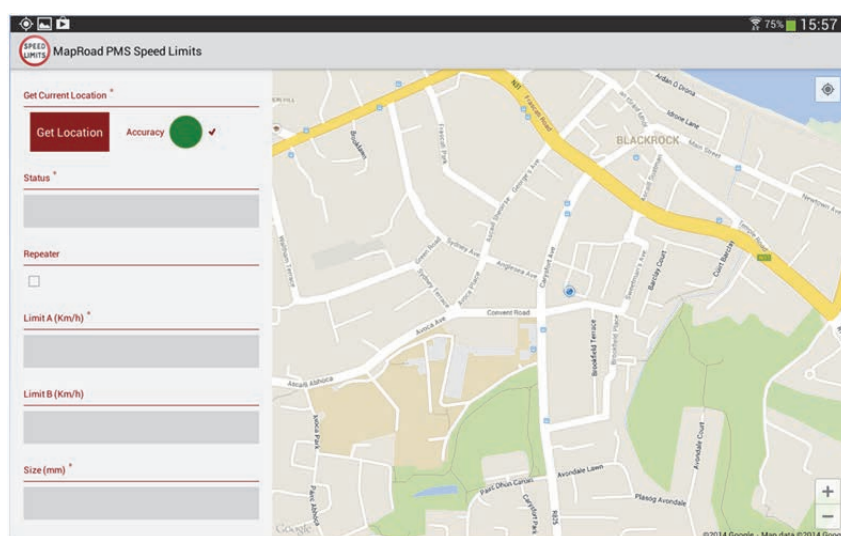
If you are using the Speed Limits App on a tablet you will see a red **Capture Data** button and **Pending Uploads** area on the left and a map of Ireland on the right. You can zoom in and out on the map by using the + and - tools in the bottom right corner or you can *pinch* in and out using your fingers. Pressing the *locate* button in the top right corner will zoom the map to the current location. Rotating the tablet to portrait mode causes the map to disappear and you are presented with the Capture Data button and the Pending Uploads area. It is recommended to use the tablet in landscape mode.

If the App is used on a smart phone you will only be presented with the **Capture Data** button and the **Pending Uploads** area.

The **Pending Uploads** area displays the records that are waiting to be uploaded. The records will remain in this location until a 3G or WiFi network connection becomes available. Once a network is available the records in question will be automatically uploaded and as a result no records will be visible within the Pending Uploads area.

Data Capture

Click the red **Capture Data** button to begin the data capture process. A new page will be displayed which will allow the user to capture the required speed limit signs information.



Click the red **Get Location** button to capture the location of the speed limit sign. The best approach is to stand close to the sign and click the **Get Location** button. Make sure the **Accuracy** circle is green in colour. This indicates that your current GPS accuracy is less than 10m. A check mark will appear to the right of the Accuracy circle once you have captured the location. If the circle is red or yellow then the GPS accuracy is not good enough.

Red indicates a GPS accuracy of greater than 20m and yellow indicated a GPS accuracy of greater than 15m. You can press the **Get Location** button many times until you are happy with the location.

- Now choose an option from the **Status** drop down list e.g. Standard, Roadworks, Proposed etc. This field is mandatory. Mandatory fields are marked by an asterix above the field name e.g. Status *.
- If the sign is a repeater then select the **Repeater** check box.
- Now select a speed from the **Limit A** drop down list e.g. 30, 60, 120 etc. All speeds are in Kilometres per hour (Km/h).

If the speed limit sign has a second speed limit use the **Limit B** drop down list to capture this information. This field is optional. Now choose the size of the sign from the Size drop down list e.g. 300, 600, 900. All sizes are in millimetres (mm). This field is mandatory and must be completed.

The Description field is optional but is a good way to capture some notes that might be useful. Just click on the field and enter text using the virtual keyboard that will appear. Once finished close the virtual keyboard by using the back button (on Samsung phones and Samsung Tab 3 tablets) or by clicking the down arrow ∇ key in the bottom left corner on Tab 2 tablets.

It is assumed that all speed signs are bracketed. However if a sign is cap-mounted please place **CM** in the description field.

The **Non-TSM Compliant** checkbox is optional and can be selected if the speed limit sign does not conform to the standards set out in the TSM manual.

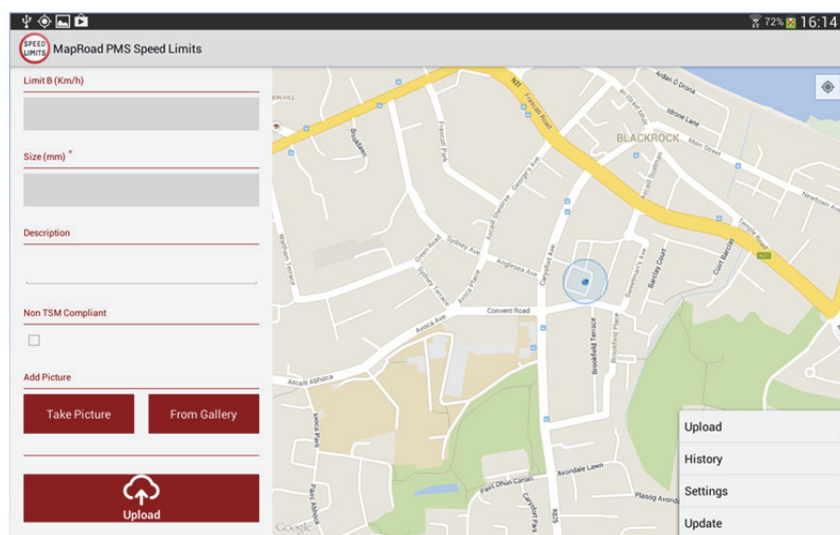
You must add at least one photo of the speed limit sign and you can add a maximum of three photos. Clicking on the **Take Picture** button will allow you to use the camera on your smart phone or tablet to take the photo. Take the photo (in landscape or portrait mode)

click save and it will then appear in the list under the **Take Picture** button. If you wish to delete the image then click on the delete icon (dustbin icon) to the right of the image. Please note the image will be deleted from the record you upload. However the image will remain on your device but can be deleted at a later date.

If you click on the **From Gallery** button you will be able to select images/photos which are located on your phone/tablet. Once you have selected the required information and added the required photos click on the red **Upload** button. This will upload the speed limits sign data to your version of the Pavement Management System (PMS) i.e. if you work for Galway County Council then the records you capture in the field using the Speed Limits App will get uploaded to the Galway CoCo PMS application.

Options Menu

The **Options** menu provides the user with four options which are described below in more detail.



Select the **Upload** option if you wish to manually upload records. This is normally not required if you have a working 3G or WiFi network connection i.e. records will get automatically uploaded once the App detects a valid network. The **History** option will present the user with a list of records that have already been uploaded. Clicking on a record will display the attributes of that record and on a tablet will display the location of the speed limit sign using a red marker on the map. Click the back button to exit the History page.

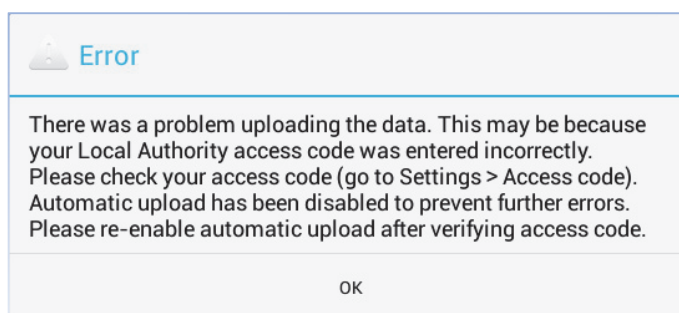
The **Settings** option will open a page where the user can chose the following;

Automatic upload: This option is selected by default and means that records will automatically be uploaded in the field or back in the office once a valid 3G or WiFi network is detected. If you unselect this option then records will not be automatically uploaded and you will have to select the **Upload** option from time to time to force the upload of data. It is recommended that no change is made to this option.

Pictures folder: This option will allow a user to define where pictures (taken while using the App) are stored. Use the **Up Arrow** (see image below) to select a location

and then use the Options menu again to select the **Create folder** option. Enter a name for the folder and click **OK**. Then select the newly created folder and click the Confirm button. The path to the new folder will now be displayed on the Settings page. It is recommended to use the default storage location for pictures.

Access code: A valid **Access code** is required to upload data from a smart phone or tablet to the Pavement Management System (PMS). This option will allow a user to review and edit the code in case it was entered incorrectly. Each Local Authority will be provided with a unique code. The code must be correct in order to upload data from the Speed Limits App. If the **Access code** was entered incorrectly then the App will present a detailed error message to the user.



Upload on WiFi only: Choose this option if you only want to upload records while on WiFi. Choosing this option will mean that records will not be automatically uploaded from the field using the 3G connection. Once the user's smart phone or tablet connects to a WiFi connection the records will get automatically uploaded.

The **Update** option is used to check for updates to the Speed Limits App. If changes are made to the App then these can be downloaded and install automatically by selecting this option.

The Options menu on the Tab 2 tablet is accessible in the top right corner (three dots). In Tab 3 tablets the Options menu is located under the screen to the left of the select button.

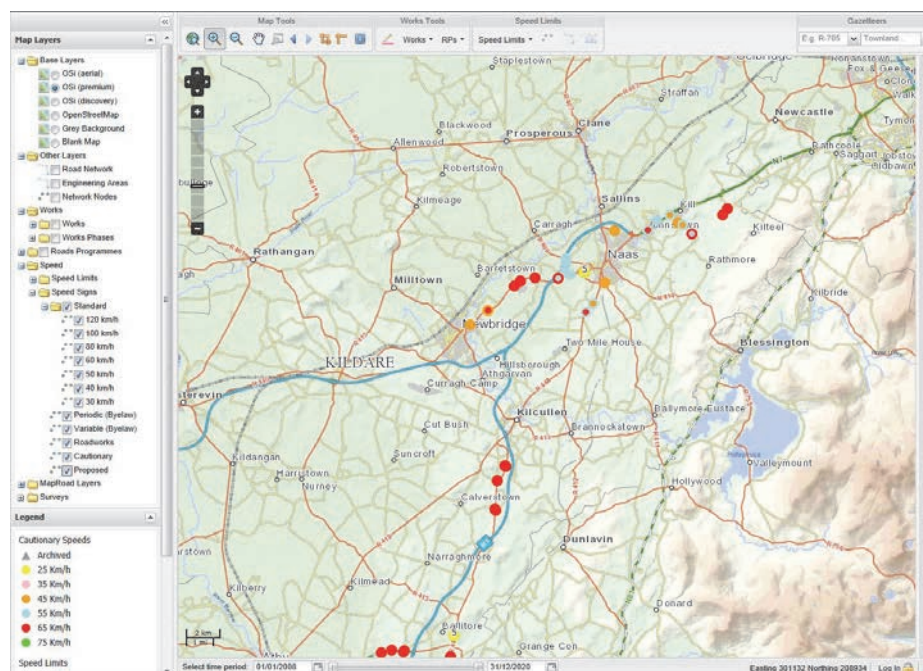
Editing / Deleting. Please note, you cannot edit or delete a record on the tablet. However you can make such edits within the centralised version of the Pavement Management System. The centralised version of PMS is known as v2.6.

Support

For assistance with installing or using the Speed Limits App please log a ticket with the MapRoad PMS Ticket Tracker system: <http://support.maproadpms.ie>

D3 - MAPROAD PMS BROWSER

Entering Speed Limits data to PMS



D3.1 Introduction

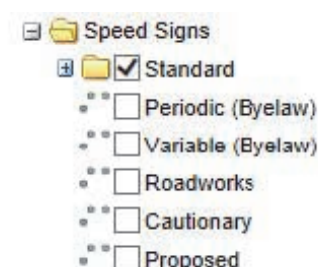
There are two components to the PMS system for capturing speed limit information; speed limit signs and speed limits along the road network.



An Android APP has been developed to assist with capturing the signpost locations and the latter is entered through the PMS browser.

D3.2 Speed Limit Signs

While the MapRoad Mobile APP is the primary method of recording speed signs, the PMS Browser can also be used for entering location as well as for repositioning and removing information.




To turn on the layer for speed signs use the Map Layers control on the left hand side of the screen. If you open the **Speed Sign** folder you will be presented with a list of different types of speed limit. For now we will only be concerned with the **Standard** set of speed signs.

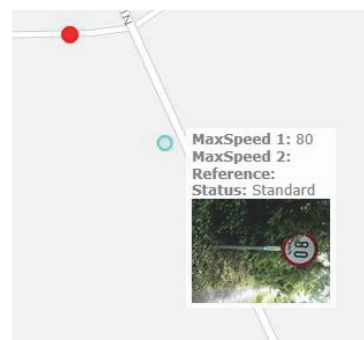
There are other categories such as Variable and Cautionary but these are just included for future-proofing. The main focus is to allow for the capture of standard speed signs across the road network. Indeed in the first phase of this release the focus is on recording the speed signs for the 80km/hr signs where local tertiary roads interface with the national road network which generally have a limit of 100km/hr.

If you open the Standard folder the list of valid speed limits is displayed. By selecting any (or all) of these the corresponding signs will be turned on in the map window.

In the section below the list of layers, the Legend section illustrates which colour represents which speed limit value.

D3.2.1 *Get data on a sign location*

Once the locations are displayed in the map you can float over a point with the mouse pointer and summary information will be displayed as a tooltip. If there is a photograph this will be displayed as thumbnail. To get more detailed information use the Information button on the toolbar and  select the point on the map.



This form is displayed >

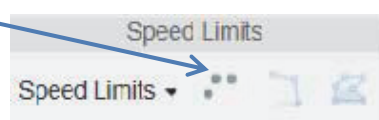
Status: Standard / Variable/ Proposed etc.
 Limit A: Higher limit value
 Limit B: Lower limit value (if different)
 Ref No. for administrative purposes
 Size of disc in millimetres
 Is it a repeater
 When was the enforcement date
 Is this the location of an old (removed) sign
 Any additional information

You can also view a picture image if one is associated with this location. Open the Files section at the bottom of the form and double-click on any entry.

D3.2.2 *Adding a sign location*

To locate a speed limit signpost through the PMS do the following:

- 1 Zoom to the general location
- 2 Ensure you are logged in and that your user credentials allow you to make changes to the system
- 3 From the menu bar select **Speed Limits -> Add new Speed Sign**
- 4 On the Speed Limit Sign form, enter the information. At a minimum you must enter the Status (usually standard) and one speed limit value.
- 5 From the Menu bar select the button under Speed Limits for locating a point feature
- 6 Minimise the data entry form if necessary
- 7 Now locate the sign on the map. You should place the sign where it is on the ground and not on the road centreline
- 8 Press the Create Sign button on the data entry form



D3.2.3 *Move a sign location*

In order to relocate a sign do the following

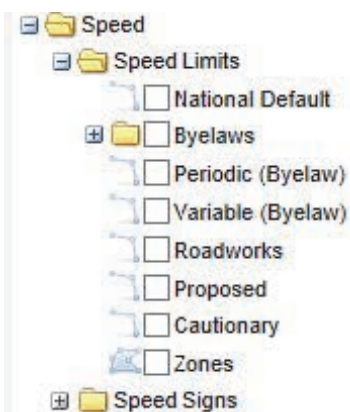
- 1 Use the Information button (i) to select the signpost to be moved
- 2 Use the Locate Signpost Tool as in Fig 4 above
- 3 Select the new location for the signpost. The symbol will be moved to this new location
- 4 Press the Update Sign button on the form

D3.2.4 *Remove a sign*

- 1 Use the Information button (i) to select the signpost to be moved
- 2 Press the Delete Sign button on the form

D3.3 *Speed Limits*

The other speed data set is the speed limits that apply along the road network. These are defined as sections or stretches and each one has a speed limit value (as with signs). The colour coding is the same as for signs and the user enters the information in a similar manner to Works. As there is a national default defined by the road classification, there is no need to enter speed limit extents for all roads. The system is implemented with a default of 80km/h and 100km/h for regional/local and national respectively. The user will then overlay the actual (correct limit on top of this base layer. As time goes by and limits change the user simply repeats the overlaying exercise.



Opening up the Speed Limits folder from the Layers window will list the different status of speed limits that apply. It is assumed that the most amount of data entry to occur will be for the Byelaws and so this list is further split up into the valid limit values. This is done for display purposes so that the user can select say, 60km/hr and see all of these zones within the map window.

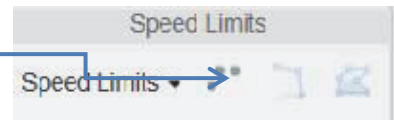
By selecting the National Default, the map will display either 80 or 100km/hr based on the road classification. In order to see special speed limits the user will select the Byelaws folder and choose which values they want to see on the map.

D3.3.1 *Create a Speed Limit section*

First ensure you are logged in for editing and then zoom to the desired location.

- Turn on the Road Network layer
- Turn on the Speed Limits layers (or at a minimum the ones you require)
- On the Speed Limits menu select Add New Speed Limit
- Enter detail on the form as required. Only the status and speed limit value are required.

- To locate the start and end points of the section that applies for this limit value select the polyline tool from the toolbar
- On the map locate the start point and then the endpoint for the section. Ensure you select a point on the road centreline. You may need to minimise the data entry for to complete this step.



- Return to the data entry form and press the Create Limits button.
- Close the form

D3.3.2 *Modify a speed limit section*

- To alter information use the info tool and select the speed limit section you require making a change to.
- The data entry form will not appear immediately. If you look at the Info tool window to the right of the screen you will see a section for Speed.

Road Information			
Code:	L-6175-0	Length:	2720 m
Name:	Knockaharney to Ballyduff		
Engineering Area:	Templemore-Thurles		
From:	junction with 6174 at Knockaharney		
Via:	Ileigh Church		
To:	junction with 6176 at Ballyduff		
<div> Works Speed Surface </div>			
Date Commenced	Status	Max...	Refer...
14/09/2010	Byelaws	100	

Double-click the entry and the data entry form will appear.

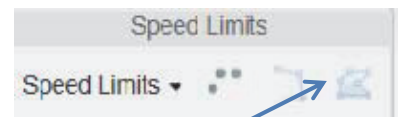
You may change the data as required. In order to reassign the start and endpoints, simply remove the entries towards the bottom of the screen which lists the road segments.

Once removed press the polyline tool on the Speed button pad and locate the start and endpoints for that speed limit.

D3.3.3 *Create a Speed Limit Boundary*

For built up areas there is a tool to identify an area which associates all roads within as being of a set speed limit. First ensure you are logged in for editing and then zoom to the desired location.

- Turn on the Road Network layer
- Turn on the Speed Limits layers (or at a minimum the ones you require)
- On the Speed Limits menu select Add New Speed Zone
- Enter detail on the form as required. Only the status and speed limit value are required.
- To draw the boundary that applies for this limit value, select the polygon tool from the toolbar
- On the map click once for each vertex of the boundary and double-click to complete the region
- Return to the data entry form and press the Create Limits button.
- Close the form



D3.3.4 *Modify the speed limit within a zone*

In the event of a section of road being included in error within a polygon of say 30km/hr, the user can remove it by:

- i. Selecting the road segment with the info tool
- ii. Reviewing the data entry form
- iii. Selecting the road segment and either:
 - a. remove from the list
 - b. alter the chainage of either the start or end point

Segment ID	From	To	Length	Remove
2 L-21202-0	0.00 m	323.53 m	324 m	
3 L-2120-25	0.00 m	627.92 m	628 m	
4 L-2120-5	1104.18 m	3167.37 m	2063 m	
5 L-2121-0	1843.86 m	3313.92 m	1470 m	

D3.3.5 *Ordering of Speed Limit layers*

There is a commencement date associated with each speed limit so that those which have later dates are stacked on top of other data in the mapper. So the user can simply overlay speed limit information on top of previous limits.

APPENDIX

E

LEGISLATIVE PROVISIONS

E**LEGISLATIVE PROVISIONS****E1 Road Traffic Act 2004 (Number 44 of 2004) – Extract: Part 2 Speed Limits**

Ordinary speed limits.

4.—(1) The Minister may make regulations prescribing a speed limit (“ordinary speed limit”) in respect of all public roads, or all public roads with such exceptions as may be specified in the regulations, for any class of mechanically propelled vehicle.

(2) Regulations under this section may prescribe different speed limits for any class of vehicle using particular categories of public roads.

(3) Regulations under this section may make provision for the exemption of a class or classes, including a sub class, of vehicles from a speed limit specified in any such regulations.

Built-up area speed limit.

5.—(1) There is a speed limit (“built-up area speed limit”) of 50 kilometres per hour in respect of all public roads, other than a motorway in built-up areas for all mechanically propelled vehicles.

(2) The built-up area speed limit does not apply to a road or part of it in a built-up area where a special speed limit or a road works speed limit applies to that road or part.

6.—(1) There is a speed limit (“regional and local roads speed limit”) of 80 kilometres per hour in respect of all regional and local roads, other than such roads in built-up areas, for all mechanically propelled vehicles.

Pr.2

Non-urban regional and local roads speed limit.

(2) The regional and local roads speed limit does not apply to a non-urban regional and local road or part of it where a special speed limit or a road works speed limit applies to that road or part.

7.—(1) There is a speed limit (“national roads speed limit”) of 100 kilometres per hour in respect of all national roads, other than national roads in built-up areas, for all mechanically propelled vehicles.

National roads speed limit.

(2) The national roads speed limit does not apply to a national road or part of it where a special speed limit or a road works speed limit applies to that road or part.

8.—(1) There is a speed limit (“motorway speed limit”) of 120 kilometres per hour in respect of all motorways for all mechanically propelled vehicles.

Motorway speed limit.

(2) The motorway speed limit does not apply in respect of any motorway or part of it where a special speed limit or road works speed limit applies to that motorway or part.

9.—(1) A county council or a city council may make bye-laws (“special speed limit bye-laws”) specifying in respect of any specified public road or specified part of a public road or specified carriageway or lane of a public road within its administrative area the speed limit (“special speed limit”) which shall be the speed limit on that road or those roads for mechanically propelled vehicles. Special speed limits.

(2) The special speed limits that may be specified in bye-laws under this section are—

- (a) 30 kilometres per hour, which shall only be applied in respect of a road or roads (other than a motorway) in accordance with guidelines issued by the Minister under this section,
- (b) 50 kilometres per hour, in respect of any road other than a road in a built-up area,
- (c) 60 kilometres per hour,
- (d) 80 kilometres per hour, in respect of a motorway, a national road or a road in a built-up area,
- (e) 100 kilometres per hour, in respect of a motorway, a non-urban regional or local road or a road in a built-up area, and
- (f) 120 kilometres per hour, in respect of a dual carriageway that forms part of a national road that is not a motorway

Pr.2 S.9

(3) Before making special speed limit bye-laws a county council or city council shall give notice to—

- (a) the council of any borough or town in the administrative county concerned of any provision in the proposed bye-laws relating to roads in their respective administrative areas, and
- (b) the Commissioner, and

shall consider any representations made in writing by any such council or the Commissioner where they are received within the period (not being less than one month after the date of service of the notice) specified in the notice.

(4) Whenever a county council or city council having considered any representations under *subsection (3)*, proposes to make bye-laws under this section, the following provisions have effect—

- (a) the council shall publish notice of the proposal at least once in at least 2 daily newspapers published in and circulating in the State or the area to which the bye-laws relate,
- (b) the notice shall include—
 - (i) a statement of the purpose for which the bye-laws are to be made,
 - (ii) an intimation that a copy of draft bye-laws is open for public inspection at the address stated in the notice, and
 - (iii) an intimation that any person may submit to the council objections to the draft bye-laws at any time during the period of 30 days commencing on the date of the first publication of the notice,
- (c) the council shall, during that period of 30 days, keep a copy of the draft bye-laws open for public inspection during ordinary office hours at the address stated in the notice,

(d) any person who objects to the draft bye-laws may submit his or her objection to the council in writing at any time during that period of 30 days and the council shall consider the objections.

(5) In making special speed limit bye-laws under this section a county council or city council may, in the interests of road safety, apply a special speed limit for a specified period or periods during any day or during specified days (such periods and days being indicated in such bye-laws) on a specified road or specified motorway or part of it and such special speed limit shall, notwithstanding any other provision in the said bye-laws relating to any such road or motorway or part of it, be the speed limit for that road for that period or periods only.

(6) Having regard to circumstances that are particular to a specified national road or motorway or any specified part, carriageway or lane of a specified motorway or national road, a county council or city council may, subject to *subsection (7)*, specify in special speed limit bye-laws that a special speed limit applies in respect of that national road or motorway or part, carriageway or lane of it, in lieu of the speed limit that normally applies to the national road or motorway, for any period where the circumstances prevail and are described in the bye-laws. Pr.2 S.9

(7) A county council or city council shall not make bye-laws under this section relating to a national road or a motorway without the prior written consent of the National Roads Authority.

(8) The Minister may make regulations in relation to all or any of the following matters:

- (a) the varying of the speed limits standing specified in *subsection (2)* and that subsection shall have effect in accordance with any such regulations for the time being in force; or
- (b) the exemption of a class or classes of mechanically propelled vehicles from a specified speed limit or from all of the speed limits specified or having effect under this section.

(9) The Minister may issue guidelines relating to the making of bye-laws under this section and may amend or cancel any such guidelines. Where any such guidelines are, for the time being in force, a county council or city council shall have regard to them when making any such bye-laws.

(10) The making of special speed limit bye-laws under this section and the making of representations under *subsection (3)(a)* are reserved functions (within the meaning of the Act of 2001).

(11) Where special speed limit bye-laws apply a special speed limit to a specified public road or specified part of a public road or specified carriageway or lane of a public road, that speed limit does not apply where a road works speed limit order is made in respect of the public road, part, carriageway or lane of it.

(12) A document which purports to be a copy of special speed limit bye-laws, and which has endorsed on it a certificate purporting to be signed by an officer of the county council or city council which made the bye-laws stating that the document is a true copy of the bye-laws and that the bye-laws were in force on a specified day, shall, without proof of the signature of such officer or that he or she was in fact such officer, be evidence, until the contrary is shown, in every court and in all legal proceedings, of the bye-laws and of the fact that they were in force on that date.

10.—(1) The manager of a county or a city council may, where he or she considers it is in the interests of road safety, on a road or motorway or part of a road or motorway where road works are being carried out in the administrative area of the county or city council for which he or she is the manager, by order (“road works speed limit order”) apply to the road or motorway or part of it a special limit (“road works speed limit”) being a speed limit of not less than 30 kilometres per hour, as the speed limit on the road or motorway for mechanically propelled vehicles, in lieu of the speed limit provided or having effect under this Act in respect of the road or motorway or part of it.

Speed limits at road works.

(2) A road works speed limit order is in force for the duration of the road works, subject to no such order having effect for a period of more than 12 months from the date of its making.

Pr.2 S.10

(3) A road works speed limit order shall not be made in respect of a national road or a motorway, without the prior written consent of the National Roads Authority.

(4) Before making a road works speed limit order the manager concerned shall notify the Commissioner in writing of his or her intention to make the order.

(5) The manager shall consider any representations made in writing by the Commissioner received by the manager within one month of the notification.

(6) When a road works speed limit order is made the manager concerned shall publish a notice in one or more newspapers circulating in the county or city council to which the order relates indicating the location where the order will have effect, the period for which it will have effect and the speed limit being applied through the order. The manager shall have regard to any representations that are made to him or her in relation to the road works speed limit order.

(7) A manager may at any time within the period specified in *subsection (2)* revoke or amend a road works speed limit order made by him or her.

(8) A document which purports to be a copy of a road works speed limit order which has endorsed on it a certificate purporting to be signed by the manager making the order or an officer of the local authority concerned designated by the manager stating that the document is a true copy of the order and that the order was in force on a specified day, shall, without proof of the signature of such manager or officer or that he or she was in fact such manager or officer, be evidence, until the contrary is shown, in every court and in all legal proceedings, of the order and of the fact that it was in force on that date.

Offence of exceeding speed limit.

11.—The following section is substituted for section 47 of the Principal Act:

“47.—(1) A person shall not drive a mechanically propelled vehicle at a speed exceeding the speed limit—

(a) that applies in respect of that vehicle, or

(b) that applies to the road on which the vehicle is being driven where that speed limit is lower than that applying to that vehicle.

(2) A person who contravenes subsection (1) is guilty of an offence.

(3) In this section “speed limit” means a limit which is—

- (a) an ordinary speed limit,
- (b) the built-up area speed limit,
- (c) the regional and local roads speed limit,
- (d) the national roads speed limit,
- (e) the motorway speed limit,

E2 Road Traffic Act 2004, as amended, (Number 25 of 2010) – Extract: Special Speed Limits

Special speed limits. 86.—Section 9(2) of the Act of 2004 is amended by substituting for paragraph (a) the following:

“(a) (i) 30 kilometres per hour, and

(ii) 40 kilometres per hour,

in respect of a road or roads in accordance with guidelines issued by the Minister under this section.”.

E3 Road Traffic (Traffic and Parking) Regulations 1997 – Extract: General Obligation

General Obligation
Regarding Speed

7. A vehicle shall not be driven at a speed exceeding that which will enable its driver to bring it to a halt within the distance which the driver can see to be clear.

E4 S.I. No. 10/2005 Road Traffic (Speed Limit Traffic Signs) Regulations 2005

S.I. No. 10 of 2005

Road Traffic (Speed Limit - Traffic Signs) Regulations 2005

I, Martin Cullen, Minister for Transport, in exercise of the powers conferred on me by section 95 (as amended by [section 37](#) of the [Road Traffic Act 1994](#) (No. 7 of 1994)) of the [Road Traffic Act 1961](#) (No. 24 of 1961) and the National Roads and Road Traffic (Transfer of Departmental Administration and Ministerial Functions) Order 2002 ([S.I. No. 298 of 2002](#) (as adapted by the Public Enterprise (Alteration of Name of Department and Title of Minister) Order 2002 ([S.I. No. 305 of 2002](#)))), hereby make the following regulations:

1. (1) These Regulations may be cited as the Road Traffic (Speed Limit - Traffic Signs) Regulations 2005.
- (2) The Road Traffic (Signs) Regulations 1997 to 2004 and these Regulations may be cited together as the Road Traffic (Traffic Signs) Regulations 1997 to 2005 and are to be read as one.

- (3) These Regulations come into operation on 20 January 2005.
2. (1) A speed limit sign, as set out in the Schedule, shall consist of a white disc with a red border containing -
- (a) in black figures, the appropriate speed limit applying, and
 - (b) beneath those figures, in black letters “km/h”.
- (2) The Schedule also sets out -
- (a) the dimensions and designs, and
 - (b) the sign numbers applying to speed limit signs.
- (3) In this Regulation -

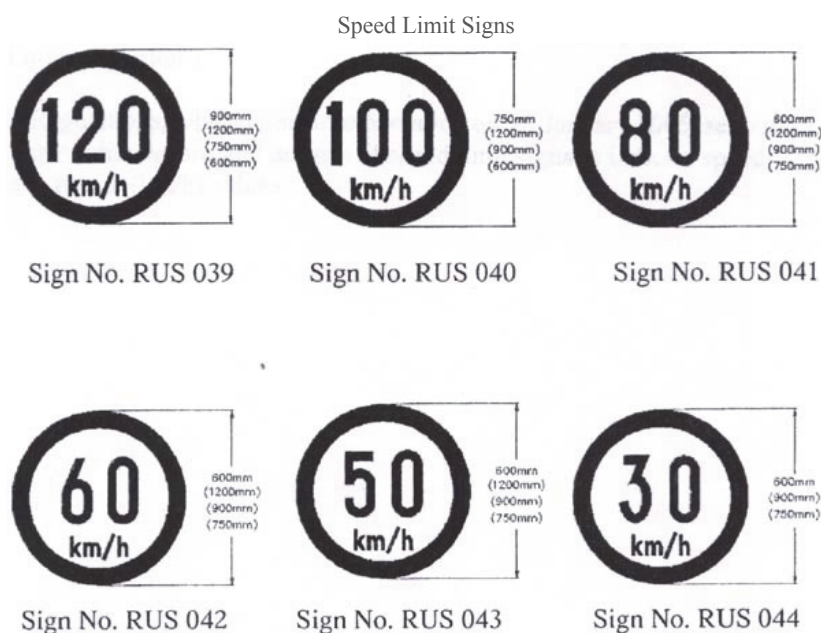
“Schedule” means the Schedule to these Regulations;

“speed limit sign” means a traffic sign indicating a road regulation in respect of a speed limit under Part 2 of the [Road Traffic Act 2004](#) (No. 44 of 2004).

3. Article 7 and the Third Schedule to the Road Traffic (Signs) Regulations 1997 ([S.I. No. 181 of 1997](#)) are revoked.

SCHEDULE

[Regulation 2](#)



Note:

1. The dimensions shown are in millimetres. The standard dimension for the diameter of each sign is shown and the

range of alternative dimensions which may be used are shown in brackets.

2. Where it is desired to repeat the speed limit sign along the length of a road, part carriageway or lane to which the speed limit applies, the diameter of the sign may be reduced to 450mm or to 300mm.
3. A speed limit sign can be mounted on its own or on a backing board or as part of a larger traffic sign or in combination with other regulatory, warning or information traffic signs.

GIVEN under my Official Seal,

12 January 2005.

L.S.

MARTIN CULLEN

Minister for Transport

EXPLANATORY NOTE

(This note is not part of the Instrument and does not purport to be a legal interpretation.)

These Regulations, which come into operation on 20 January 2005, set out the content, dimensions and designs of speed limit signs to indicate speed limits in metric (km/h) values.

E5 *S.I. No. 756 of 2005 Road Traffic (Traffic Signs Periodic Special Speed Limits) Regulations 2005*

S.I. No. 10 of 2005

Road Traffic (Traffic Signs - Periodic Special Speed Limits) Regulations 2005

I, Martin Cullen, Minister for Transport, in exercise of the powers conferred on me by section 95 (as amended by [section 37](#) of the [Road Traffic Act 1994](#) (No. 7 of 1994)) of the [Road Traffic Act 1961](#) (No. 24 of 1961) and the National Roads and Road Traffic (Transfer of Departmental Administration and Ministerial Functions) Order 2002 ([S.I. No. 298 of 2002](#) (as adapted by the Public Enterprise (Alteration of Name of Department and Title of Minister) Order 2002 ([S.I. No. 305 of 2002](#)))), hereby make the following regulations:

1. These Regulations may be cited as the Road Traffic (Traffic Signs - Periodic Special Speed Limits) Regulations 2005.

2. In these Regulations -

“Act of 2004” means Road Traffic Act 2004 (No. 44 of 2004);

“special speed limit sign” means a traffic sign indicating the existence of special speed limit bye-laws made for any of the purposes of section 9(5) of the Act of 2004.

3. A special speed limit sign, in accordance with Regulation 4, may be provided by a county council or a city council to indicate the locations within its administrative area where a special speed limit made for any of the purposes of section 9(5) of the Act of 2004 applies.

4. (1) A special speed limit sign, as set out in the Schedule to these Regulations shall consist of a black disc which when illuminated displays-

(a) a red border enclosing the disc, and

(b) the special speed limit applying in white figures and beneath them in white the letters “km/h”.

(2) The sign, when in operation, must be lighted and extinguished at intervals determined by an automatic or manually operated device.

Schedule

Regulation
4

Special Speed Limit Sign



Sign No. RUS 045

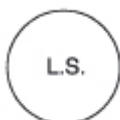
Notes:

1. The dimensions shown are in millimetres. The standard dimension for the diameter of the sign is shown and an alternative dimension that may be used is shown in brackets.
2. The black disc is a blank message roundel that, when illuminated, displays a red border enclosing a black disc with numerals and text, in white, to indicate the special speed limit that applies for the duration of the period during which the sign is illuminated.
3. The special speed limit value of 30 km/h shown in this Schedule for Sign No. RUS 045 is for illustration purposes only. The special speed limits that may be specified in special speed limit bye-laws are set out in section 9(2) of the [Road Traffic Act 2004](#).
4. The sign may be mounted on its own or, on a grey backing board as part of a larger traffic sign in combination with appropriate warning or information traffic signs.

GIVEN under my Official Seal,

30 November 2005.

Martin Cullen



Minister for Transport.

EXPLANATORY NOTE

(This note is not part of the Instrument and does not purport to be a legal interpretation.)

These Regulations (operative from 30 November 2005) set out the content, dimensions and design in respect of a new format of a speed limit traffic sign which may be used to indicate that a periodic special speed limit (section 9(5) of the [Road Traffic Act 2004](#)) is applied.

E6 S.I. No. 331 of 2012 ROAD TRAFFIC (SIGNS) (AMENDMENT) REGULATIONS 2012

Part 5

Speed Limit Signs

Speed limit sign — 40 km/h

17. (1) A speed limit sign, traffic sign number RUS 064 (speed limit sign — 40 km/h) shall consist of a white disc with a red border containing—

- (a) in black, the figures “40”, and
- (b) beneath those figures, in black letters “km/h”.

(2) The dimensions and design of the sign to traffic sign number RUS 064 are set out in Part 3 of Schedule 2.

(3) A speed limit sign, in accordance with paragraph (1), may be provided by a county or a city council to indicate the locations within its administrative area where a special speed limit made under section 9(1) of the Act of 2004 applies or may be provided to indicate the locations where a road works speed limit order made by the manager of a county or city council under section 10 of the Act of 2004 applies.

(4) In this Regulation “speed limit sign” means a traffic sign indicating—

- (a) the existence of special speed limit bye-laws made under section 9(1) of the Act of 2004 applying a special speed limit of 40 kilometres per hour, or
- (b) that a road works speed limit order has been made under section 10 of the Act of 2004 applying a road works speed limit of 40 kilometres per hour.

E7 S.I. No. 488 of 2014 ROAD TRAFFIC (SPEED LIMIT — TRAFFIC SIGN) (LOCAL ROADS) REGULATIONS 2014

Notice of the making of this Statutory Instrument was published in “Iris Oifigiúil” of 31st October, 2014.

I, PASCHAL DONOHOE, Minister for Transport, Tourism and Sport, in exercise of the powers conferred on me by section 95 (as amended by [section 78](#) of the [Road Traffic Act 2010](#) (No. 25 of 2010)) of the [Road Traffic Act 1961](#) (No. 24 of 1961), the National Roads and Road Traffic (Transfer of Departmental Administration and Ministerial Functions) Order 2002 ([S.I. No. 298 of 2002](#)) (as adapted by the Transport (Alteration of Name of Department and Title of Minister) Order 2011 ([S.I. No. 141 of 2011](#))), hereby make the following regulations:

1. (1) These Regulations may be cited as the Road Traffic (Speed Limit — Traffic Signs) (Local Roads) Regulations 2014.

(2) The Road Traffic (Signs) Regulations 1997 to 2013 and these Regulations may be cited together as the Road

Traffic (Signs) Regulations 1997 to 2014.

2. (1) An alternative design for speed limit sign number RUS 041 set out in the Schedule to the Road Traffic (Speed Limit — Traffic Signs) Regulations 2005 ([S.I. No. 10 of 2005](#)) may be provided to indicate—

(a) in respect of a local road, the regional and local roads speed limit of 80 kilometres per hour, or

(b) where special speed limit bye-laws specify the special speed limit of 80 kilometres per hour in respect of a local road or part of a local road in a built-up area, that special speed limit.

(2) The alternative design for speed limit sign RUS 041 referred to in paragraph (1) consists of a white disc with a black border displaying diagonal parallel lines in black, the dimensions and design of which are set out in the Schedule.

SCHEDULE

Regulation 2



Sign No. RUS 041

(alternative design)



GIVEN under my Official Seal,

23 October 2014.

PASCHAL DONOHOE,

Minister for Transport, Tourism and Sport.

EXPLANATORY NOTE.

(This note is not part of the Instrument and does not purport to be a legal interpretation.)

Speed limit sign RUS 041 must be provided on a public road where a speed limit of 80km/h applies. A format for speed limit sign RUS 041 which displays 80 km/h was prescribed in [S.I. No. 10 of 2005](#).

The purpose of these Regulations is to prescribe an alternative format for the regulatory speed limit sign RUS 041. The RUS 041 sign in this new design may be provided, instead of a RUS 041 sign in the other format, on local roads where the default speed limit of 80km/h applies under [section 6](#) of the [Road Traffic Act 2004](#) and at a location where a special speed limit under section 9 of the Act is applied to a local road in a built-up area under speed limit byelaws by a local authority.

Speed limit sign RUS 041 is a regulatory speed limit traffic sign to indicate that an enforceable speed limit of 80km/h applies and this applies to whichever of the two formats is used.

APPENDIX

F

EXTRACTS FROM STANDARDS (DMRB & DMURS)

F

EXTRACTS FROM STANDARDS (DMRB & DMURS)

F1 Extract from National Secondary Road Needs Study

1.4 CROSS SECTION FOR NSR IMPROVEMENT

Analysis of NRA traffic count data indicates that the NSR routes typically cater for traffic volumes in the range of 1,000 to 10,000 veh/day AADT. It is acknowledged, however that where routes form part of the road infrastructure in and around built up areas that higher AADT traffic volumes will apply. Typically these urban/semi-urban parts of the network would carry between 8,000 to 20,000 veh/day AADT.

For the most part, the current National Secondary Road network consists of a network of predominantly rural single carriageways. According to the available data, the geometric layout of the existing network varies considerably and the NSRNS will as a minimum result in the recommendation to upgrade key strategic parts of the network.

The NRA DMRB defines a number of cross sections for national roads and has recently introduced a Type 3 single carriageway cross section for use on low traffic volume roads which will be considered for use on the NSR network. The recommended rural road layouts as defined in the IAN 01/09 are summarised in Table 1.2 and illustrated in Figures 1.2 and 1.3.

DESIGN SPEED (KM/H)	TYPE OF ROAD	CAPACITY (AADT) FOR LEVEL OF SERVICE D	EDGE TREATMENT
85	Type 3 Single (6.0m) Carriageway S2	5,000	0.5m hard strips
100	Type 2 Single (7.0m) Carriageway S2	8,600	0.5m hard strips
100	Type 1 Single (7.3m) Carriageway S2	11,600	2.5m Hard Shoulders
100	Type 3 Dual (7.0m+3.5m) Primarily for retro fit projects	14,000	1m hard strips
120	Type 2 Dual Dual * 2 Lane Carriageways (2 x 7.0m)	20,000	0.5m hard strips
120	Type 1 Dual Dual 2 Lane Carriageways (2 x 7.0m)	38,100	2.5m Hard Shoulders
120	Standard Motorway 2 Lane (7.0m) (D2M)	44,100	2.5m Hard Shoulders
120	Wide Motorway 2 Lane (7.5m) (D2M)	55,500	3m Hard Shoulders

Source: NRA DMRB Design Standard RD 09/07 and Interim Advice Note IAN 01/09

Table 1.2 Recommended Rural Road Layouts

The current default national speed limit for national roads is 100kph and much of the NSR network will be currently operating under this speed limit. The full application of the DMRB standards for a design speed of 100kph to road improvements could result in extensive realignment schemes that could not be justified on environmental and economic grounds because many of the lower traffic volumes on some of the NSRs. Many of these routes are located in rugged, scenic and sensitive terrain and implementation of the full DMRB standards would therefore result in excessively high alignment standards and cause significant negative impacts on the

surrounding areas. It is therefore proposed that the minimum acceptable standard for the NSR network would be defined by the Type 3 Single Carriageway to IAN 01/09 and criteria to be achieved for a Design Speed of 85kph as set out in NRA TD 9/07

Cross Sections - Single Carriageway Cross Sections

Type 1 Single Carriageway Cross Section

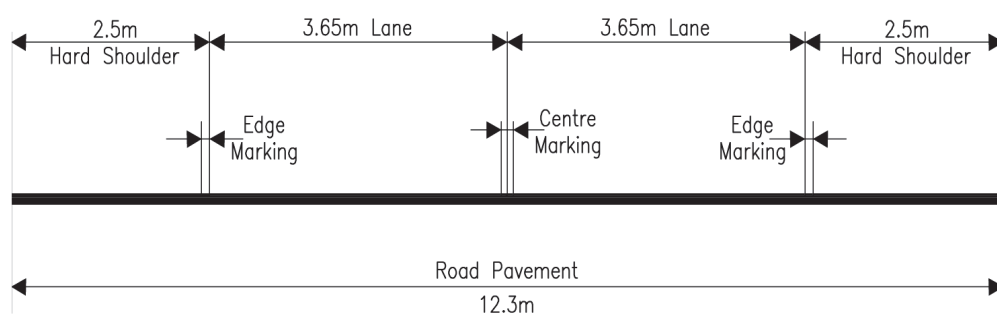


Figure F.1 – Type 1 Single Carriageway Cross Section

Type 2 Single Carriageway Cross Section

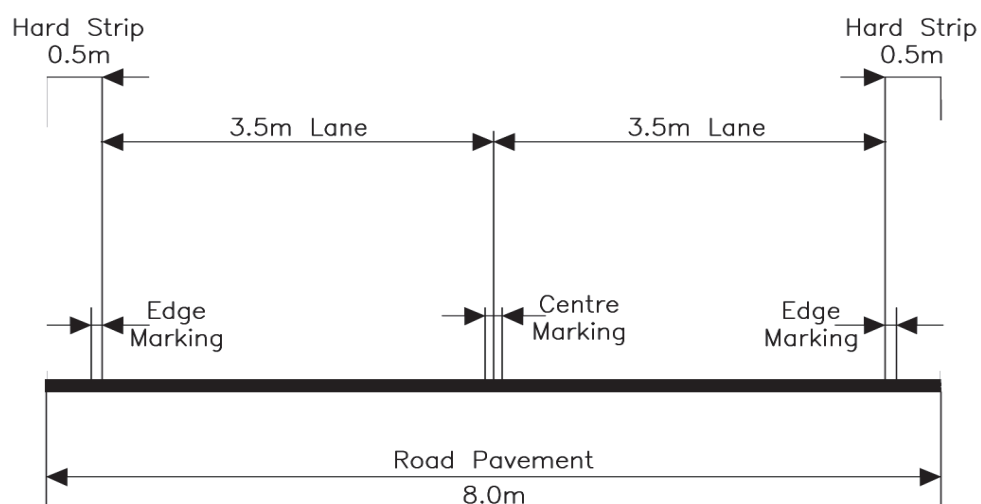


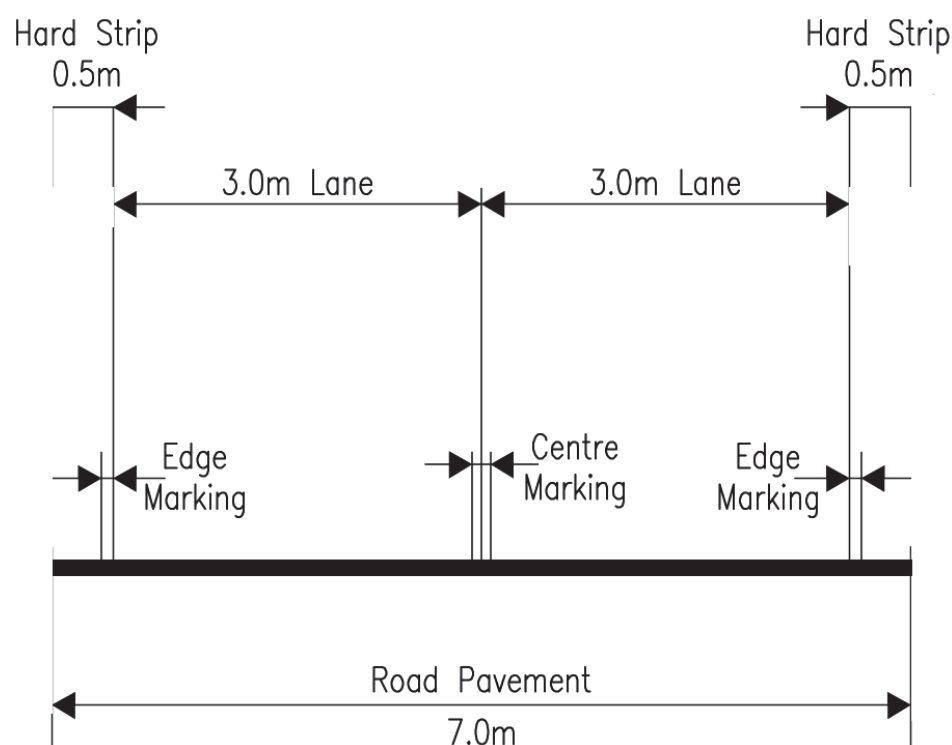
Figure F.2 – Type 2 Single Carriageway Cross Section

Applicable
Design Speed



Appropriate
Speed Limit



Type 3 Single Carriageway Cross Section

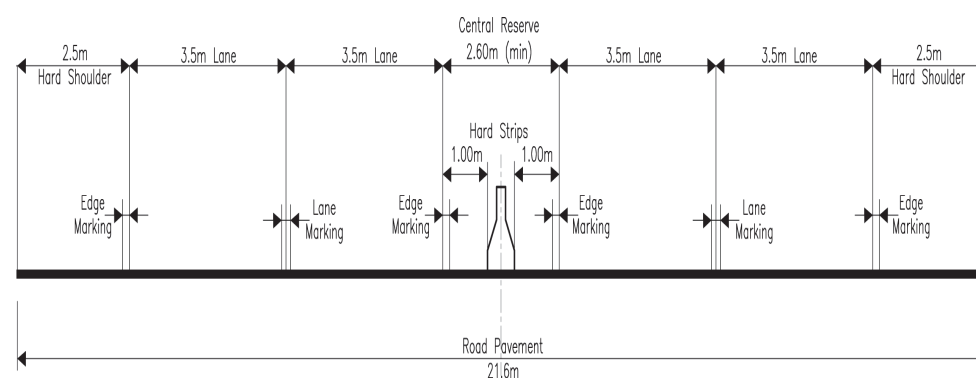
**Applicable
Design Speed**



**Appropriate
Speed Limit**



Figure F.3 – Type 3 Single Carriageway Cross Section

*Cross Sections - Dual Carriageway Cross Sections**Type 1 Dual Carriageway Cross Section*

**Applicable
Design Speed**



**Appropriate
Speed Limit(s)**



Figure F.4 – Type 1 Dual Carriageway Cross Section

Type 2 Dual Carriageway Cross Section

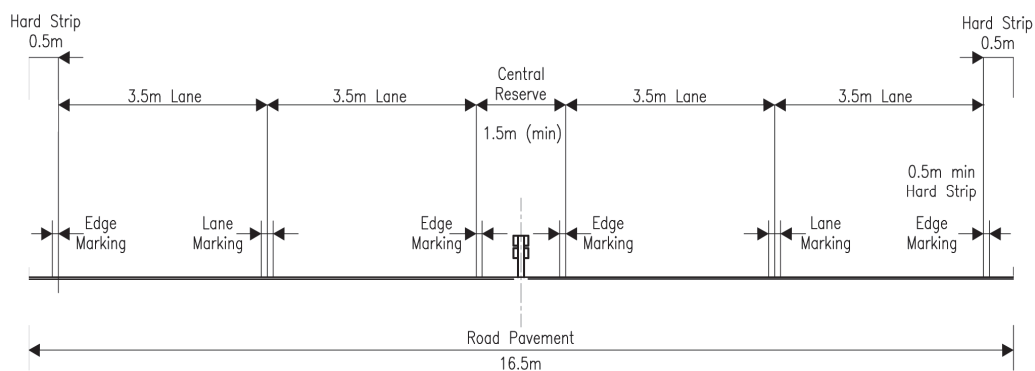


Figure F.5 – Type 2 Dual Carriageway Cross Section

**Applicable
Design Speed**



**Appropriate
Speed Limit(s)**



Type 3 Dual Carriageway Cross Section

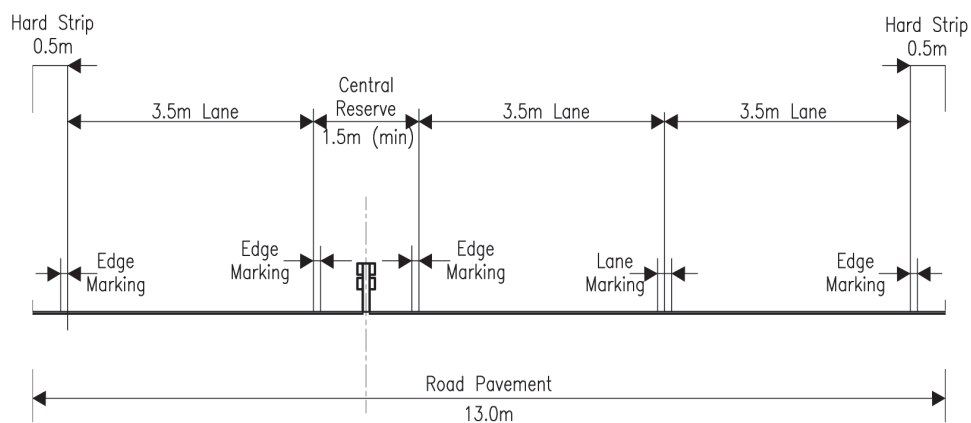


Figure F.6 – Type 3 Dual Carriageway Cross Section

**Applicable
Design Speed**



**Appropriate
Speed Limit(s)**



3.2 Movement and Place

3.2.1 Movement Function

The movement function of a street is generally described using a classification system, such as a street hierarchy. This guide refers to street hierarchy as follows (see Figure 3.3):

- *Arterial Streets*
- *Link Streets*
- *Local Streets*

Table 3.1 illustrates how street/road hierarchies contained within other relevant documents are cross-referenced with the above.

The nature of this street hierarchy is well understood. In general, greater levels of connectivity are required between significant destinations, particularly those generating or attracting large volumes of traffic.

Designers must consider the *Function* of a street/street network. In general, as the movement function increases the street, designers:

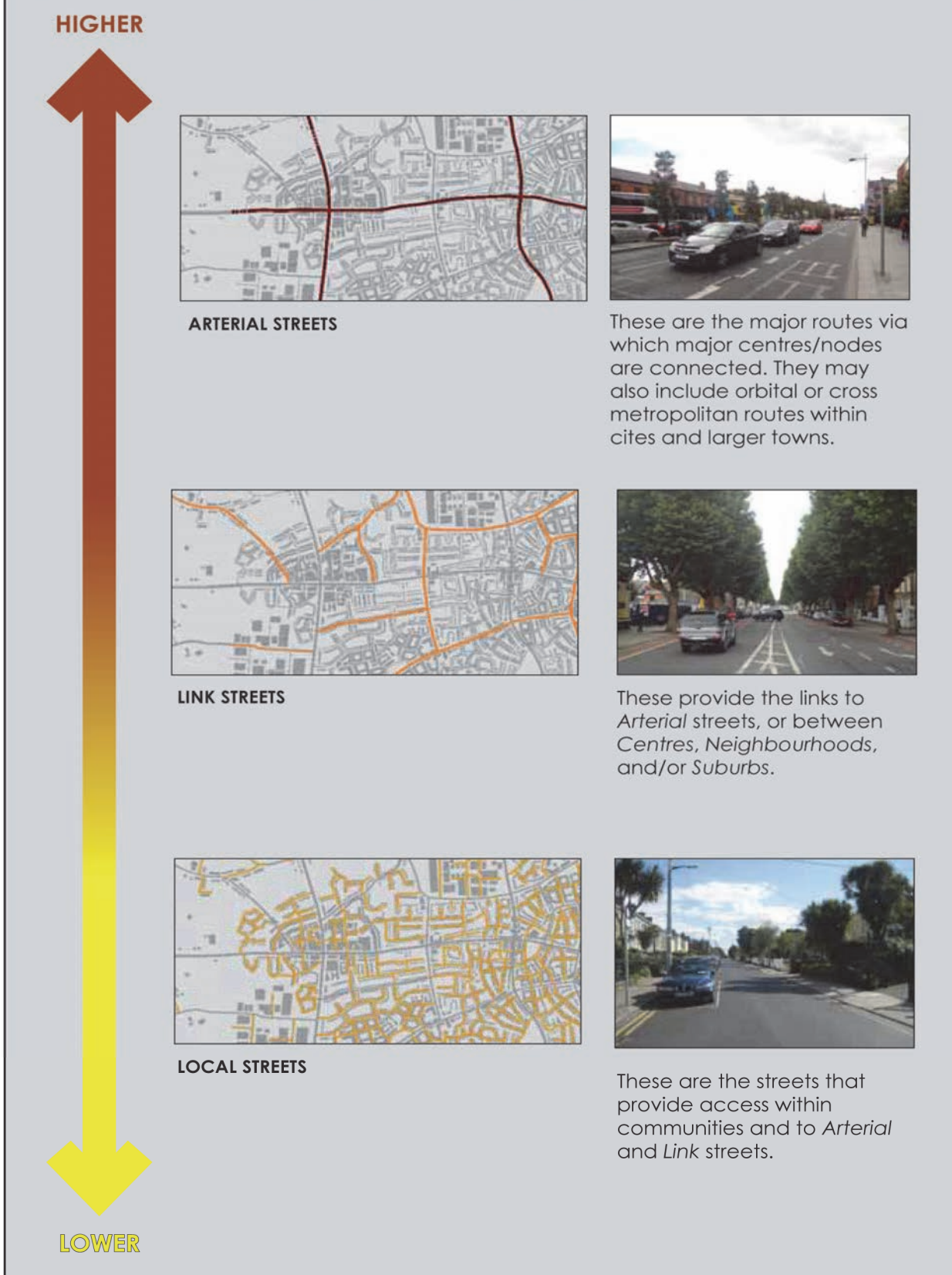
- Should optimise the movement of public transport.
- Should cater for greater numbers of pedestrians and cyclists.
- May need to cater for higher volumes of traffic.

This approach should have regard to settlement size. For example an *Arterial Street* through a city may have to cater for much larger volumes of traffic than that in a village.

DMURS Description	Roads Act/NRA DMRB	Traffic Management Guidelines	National Cycle Manual
Arterial	National	Primary Distributor Roads	Distributor
Link	Regional (see note 1)	District Distributor Local Collector (see Notes 1 and 2)	Local Collector
Local	Local	Access	Access
Notes Note 1: Larger Regional/District Distributors may fall into the category of <i>Arterial</i> where they are the main links between major centres (i.e. towns) or have an orbital function. Note 2: Local Distributors may fall into the category of <i>Local</i> street where they are relatively short in length and simply link a neighbourhood to the broader street network.			

Table 3.1: Terminology used within this Manual compared with other key publications.

Figure 3.3: FUNCTION AND THE IMPORTANCE OF MOVEMENT



3.2.2 Place Context

One of the criticisms of the classification led approach is that the same set of standards are applied along the entire route, regardless of *Context*. Urban roads and streets can traverse many areas with very different characteristics, such as industrial areas, residential areas, mixed use neighbourhoods and city, town and village centres (see Figure 3.4). This clearly requires different design solutions within each of these different contexts.

The Irish urban landscape contains an array of places that have their own unique set of characteristics. Where there are collective similarities between the characteristics of place they can be defined as a particular *Context*. For the purposes of this guide, *Context* is classified as:

- Centre;
- Neighbourhood;
- Suburb; and
- Business Park/Industrial Estate;

In general, place status will be elevated where densities and land use intensity is greater, resulting in higher activity levels (in particular pedestrian activity).

Designers must consider the *Context* of a street/street network. In general, as the place value of a street increases:

- Greater levels of connectivity will be required as accessibility demands will be higher.
- Higher quality design solutions should be implemented that highlight and promote the importance of place.
- Higher levels of pedestrian movement should be catered for and promoted to support vibrant and sustainable places.
- Higher levels of integration between users will be required to calm traffic and increase ease of movement for more vulnerable users.

Figure 3.5 summarises the relationship between place status and context.

In most circumstances the characteristics of a place enable the classification of its *Context* to be readily identifiable. There are places where context will be more ambiguous. In such cases designers should undertake a process of analysis which identifies the characteristics of a place.¹

¹ Further guidance to assist designers in identifying context will be published as downloadable content to accompany this Manual.

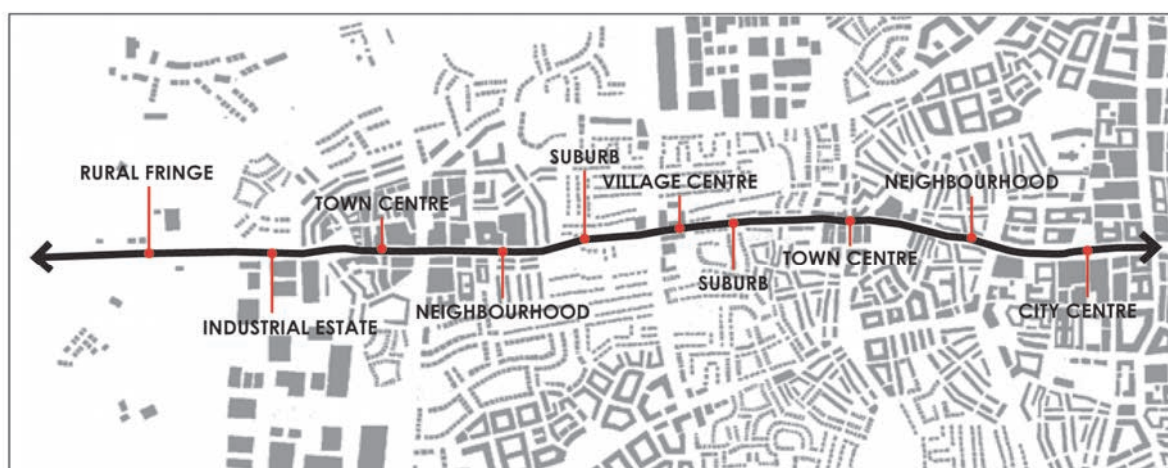


Figure 3.4: A street or road may pass through a number of different contexts along its route. As context changes, the design of streets and roads will need to change accordingly.

Figure 3.5: CONTEXT AND THE PLACE VALUE OF STREETS

HIGHER

**CENTRES**

Centres include areas that are the focus of economic and cultural activity. Many cities, towns and villages are defined by the image of streets within their Centres. Place status is at its highest. Larger City and Town centres may occupy a number of blocks whilst smaller Village centres may only occupy a single street. Pedestrian activity is high as this is where most people are travelling to and once there, will most likely travel on foot. Pedestrian activity is highest in Centre streets that contain a concentration of retail and commercial frontages that directly open onto the street.

**NEIGHBOURHOODS**

Neighbourhoods include new and existing areas which are intensively developed with medium to higher density housing and/or contain a broad mix of uses. These areas generally include older areas that represent the first stages of urban expansions and more recently developed compact communities located towards the peripheries of cities and towns (i.e. those in excess of 35 dwellings per ha). Pedestrian activity ranges from higher to more moderate levels. The highest levels of pedestrian activity occur along major streets which connect destinations, where public transport services run. Such streets may also contain dispersed retail and commercial frontages.

**SUBURBS**

Suburbs predominantly consist of existing lower density housing developed over expansive areas. The place status of streets is harder to define within Suburbs. Many of these areas are attractive living places which are highly valued by residents for their green qualities and sense of tranquillity. However, many areas are criticised for their 'placelessness', due to a lack of connectivity and a high frequency of streets and 'distributor roads' that are devoid of development. Many of these characteristics contribute to lower levels of pedestrian activity.

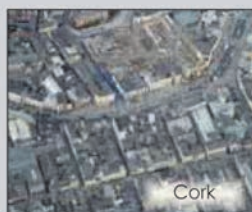
**BUSINESS PARKS/
INDUSTRIAL ESTATES**

Business Parks/Industrial Estates are areas that are primarily focused on (and often purpose built for) providing areas of commercial and industrial activity outside of Centres. Streets within these areas generally have a low place status as buildings have little street presence and they are largely devoid of pedestrian activity. Many of these areas are in a state of transition toward more intensive commercial and residential uses replacing older industrial ones. As this transition occurs, the status of these places will rise. Place status in existing campus style *Business Parks* also tends to be higher and pedestrians can be highly active in these areas during business hours.

LOWER

NOTE: 1. This refers to existing *Shopping Centres* developed to service lower density areas. These generally do not display the characteristics associated with highly valued places due to their inward looking nature and focus on vehicle movement (including extensive areas of surface parking). Their importance as destinations gives them a high place value that needs to be better responded to should these centres undergo significant redevelopment.

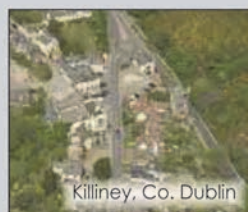
birds eye images from
www.bing.com/maps/



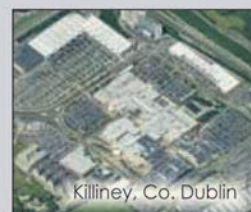
CITY CENTRE



TOWN CENTRE



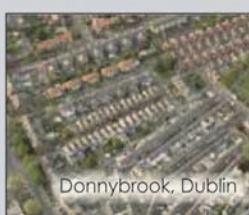
VILLAGE CENTRE



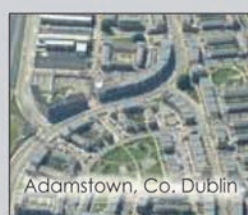
SHOPPING CENTRE¹



MIXED USE CORE



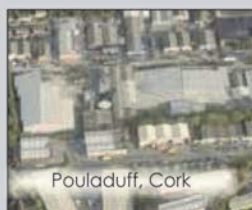
EARLY RESIDENTIAL²



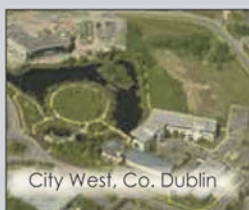
MEDIUM/HIGHER DENSITY



LOW DENSITY RESIDENTIAL³



INDUSTRIAL ESTATE



BUSINESS PARK³

NOTE: 2. Some areas may have densities below 35 dwellings per hectare where sites are long and narrow. From a street design perspective they are compact neighbourhoods due to their narrow frontages (i.e. fine grain) and proximity of dwellings to the street/continuity of the built form (i.e. strong sense of enclosure).

NOTE: 3. The examples listed above are illustrative of existing contexts. Future development or retrofit schemes in any of the contexts indicated above must be subject to national policy on sustainable development as set out in relevant policy documents and to the principles, approaches and standards contained within this Manual.

Transition Areas

There are also those *Contexts* where designers should provide a transition from those roads built to NRA DMRB led standards to those roads and streets described by this Manual. These include (and as further detailed in Section 3.3.4 Wayfinding):

- In *Business Parks/Industrial Estates* undergoing a period of transition toward more intensive forms of commercial and residential development, designers should cater for increased levels of pedestrian activity (see Figure 3.6).
- In the *Rural Fringe* when moving between rural areas and cities, towns and villages (see Figure 3.7).

Managing transitions within *Business Parks/Industrial Estates* presents a series of challenges to designers. As development within these areas intensifies, designers are encouraged to move toward standards that are better suited to densely populated urban areas (i.e. *Centres and/or Neighbourhoods*). However, the implementation of standards which seek to slow vehicular movement and increase pedestrian mobility (such as narrower carriageways or tighter corner radii), may be more difficult to implement due to the manoeuvrability requirements of larger vehicles. Under such circumstances designers may consider additional mitigation measures (as further detailed in Chapters 4 and 5).

Many *Rural Fringe* areas act as transitional *Gateways* between the rural and more urban/suburban forms of development. These areas may be treated as a *Transition Zone* (see Section 3.3.4 Wayfinding). In such circumstances, designers should implement a series of measures aimed at highlighting this transition and slowing drivers. Further advice in this regard is also contained throughout Chapters 4 and 5.



Figure 3.6: Sandyford Industrial Estate, Co. Dublin, is undergoing a process of significant change from an industrial estate to a mixed use area of centre/urban qualities. The new crossing in the foreground is one example of how designers are responding to its rising place value and the needs of pedestrian users.



Figure 3.7: Example of a road that goes through a period of transition between a rural area (top) to that of a town/urbanised area (bottom) (image source: Google Street View).

4.0 Street Design

4.1 Movement, Place and Speed

4.1.1 A Balanced Approach to Speed

Balancing the priorities Context and Function creates a shifting dynamic in street design. The UK Manual for Streets (2007) illustrates this relationship as a simple graph depicting some well known scenarios (see Figure 4.1). Key to the successful implementation of responsive design solutions is the issue of speed, particularly so with regard to pedestrian and cyclist safety, comfort and convenience (see Figure 4.2). Expectations of appropriate speed will vary greatly from person to person and there is little relevant research on this subject.

Intuitively one would expect motorists' tolerance of low-speed journeys to increase in intensively developed areas (i.e. from the Centres, to Neighbourhoods to Suburbs) and according to journey type (i.e. from Local to Link and to Arterial Streets.)

Designer must balance speed management, the values of place and reasonable expectations of appropriate speed according to Context and Function¹. In this regard:

- Within cities, towns and villages in Ireland a default speed limit of 50km/h is applied.
- Speed limits in excess of 50km/h should not be applied on streets where pedestrians are active due to their impact on place and pedestrian safety
- Lower speed limits of 30km/h are a requirement of Smarter Travel (2009) within the central urban areas, where appropriate²
- Where pedestrians and cyclists are present in larger numbers, such as in Centres, lower speed limits should be applied (30-40km/h).
- Where vehicle movement priorities are low, such as on Local streets, lower speed limits should be applied (30km/h)



Figure 4.1: Illustration from the Manual for Streets 2 (2010) depicting the relationship between place and movement in regard to some well-known scenarios

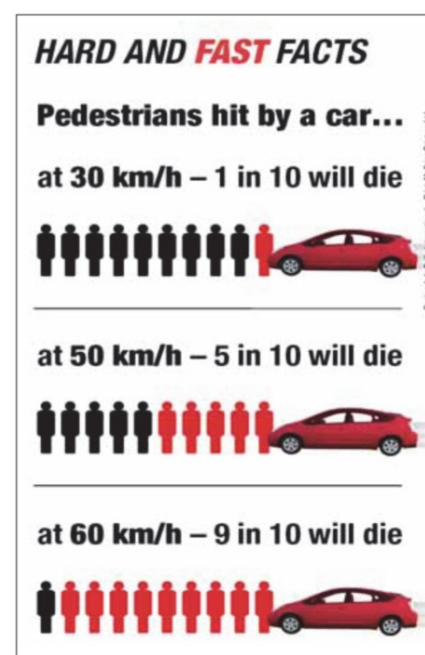


Figure 4.2: Illustration from the Road Safety Authority showing the impact of vehicle speeds on pedestrian fatalities. This is of primary consideration when considering appropriate speeds and levels of pedestrian activity.

¹. Further guidance in regard to Special Speed Limits is available from Section 9 of the Road Traffic Act-Guidelines for the Application of Special Speed Limits (2011) ². Refer to Action 16 of Smarter Travel (2009)

Local Authorities may introduce advisory speed limits of 10-20km/h where it is proposed that vehicles, pedestrians and cyclists share the main carriageway.

Design speed is the maximum speed at which it is envisaged/intended that the majority of vehicles will travel under normal conditions. In this regard:

- In most cases the posted or intended speed limit should be aligned with the design speed.
- In some circumstances, such as where advisory speed limits are posted, the design speed may be lower than the legal speed limit.
- The design speed of a road or street must not be 'updesigned' so that it is higher than the posted speed limit.

When applying these limits designers must also consider how effectively they can be implemented, as the introduction of more moderate and/or lower speed limits out of context and/or without associated speed reduction measures may not succeed.

Table 4.1 illustrates the broader application of design speeds according to Context and Function. Designers should refer to this table when setting speed limits and designing urban streets and urban roads to align speed limits and design speeds.

		PEDESTRIAN PRIORITY		VEHICLE PRIORITY	
FUNCTION	ARTERIAL	30-40 KM/H	40-50 KM/H	40-50 KM/H	50-60 KM/H
	LINK	30 KM/H	30-50 KM/H	30-50 KM/H	50-60 KM/H
	LOCAL	10-30 KM/H	10-30 KM/H	10-30 KM/H	30-50 KM/H
		CENTRE	N'HOOD	SUBURBAN	BUSINESS/ INDUSTRIAL
CONTEXT					
		60-80 KM/H	60-80 KM/H	60 KM/H	RURAL FRINGE

Table 4.1: Design speed selection matrix indicating the links between place, movement and speed that need to be taken into account in order to achieve effective and balanced design solutions.

4.1.2 Self-Regulating Streets

An appropriate design response can successfully balance the functional needs of different users, enhance the sense of place and manage speed in a manner that does not rely on extensive regulatory controls and physically intrusive measures for enforcement. In short, place can be used to manage movement. Such environments are referred to as being self-regulating. Within this self-regulating street environment the design response is closely aligned with the design speed (see Figure 4.3).

Within Ireland, the Dublin Traffic Initiative: Environmental Traffic Planning (1995) was, perhaps, the first strategic document in Ireland to recognise the link between the street environment and driver behaviour. It cited the use of narrow streets and on-street parking as traffic-calming tools. The Adamstown Street Design Guide (2010) draws upon research undertaken in regard to the UK Manual for Streets (2007) to advance this approach. It cited a combination of place-based psychological measures and integrated them with more traditional physical measures in order to create a self-regulating street environment (see Figure 4.4).³

There is no set formula of how a package of psychological and physical measures should be applied. The design team must take into account that:

- Physical and psychological measures are most effective when used in combination⁴
- The more frequently and intensely physical and psychological measures are applied, the lower the operating speed.

Analysis of the Road Safety Authority Free Speed Survey 2008, 2009 and 2011, inclusive showed that where there are few psychological and physical measures, average drivers regularly exceeded the posted speed limit. Conversely where these measures are more frequently and/or more intensely applied, driver speeds were lower and compliance with the posted speed limit was greater (see Figure 4.5).

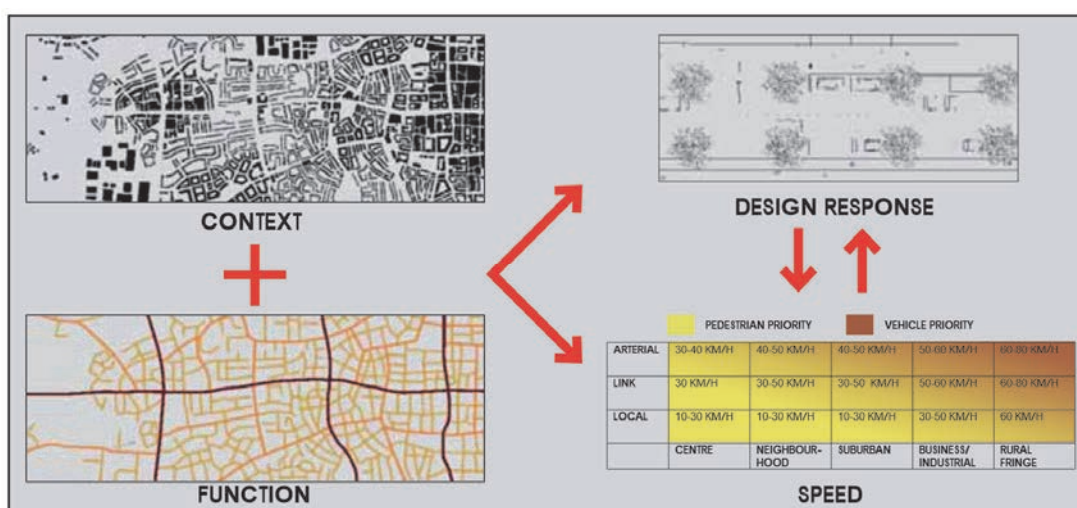


Figure 4.3: Illustration of the links between place, movement and speed that need to be taken into account in order to achieve effective self-regulating street environments

³. Refer also to Section 2.2 'Safe Streets' of the Adamstown Street Design Guide (2010) ⁴. Refer to Psychological Traffic Calming (2005)

Figure 4.4: Extract from the Adamstown Street Design Guide.

Illustration of the psychological and physical, or 'hard' and 'soft', measures that influence driver speeds and may be used to enhance place and manage movement.

Close Proximity of
Buildings (left)



Continuous Street Wall
(right)

Active Ground Floor
Uses (left)



Pedestrian Activity
(right)

Frequent Crossing Points
and Junctions (left)



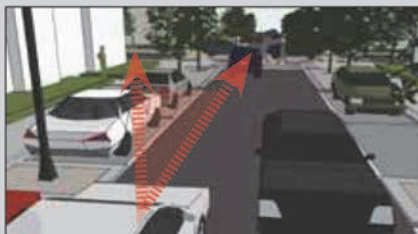
Horizontal and Vertical
Deflections (right)

Narrow Carriageways
(left)



Minimising signage and
road markings (right)

Reduced Visibility Splays
(left)



On-Street Parking (right)

Tighter Corner Radii
(left)



Shared Surfaces (right)

Figure 4.5: Road Safety Authority Free Speed Survey and Street Characteristics

The Road Safety Authority periodically undertakes free speed surveys throughout urban and rural Ireland. In 2008, 2009 and 2011 the speeds of some 9,500 vehicles along 23 streets within metropolitan Dublin were recorded.

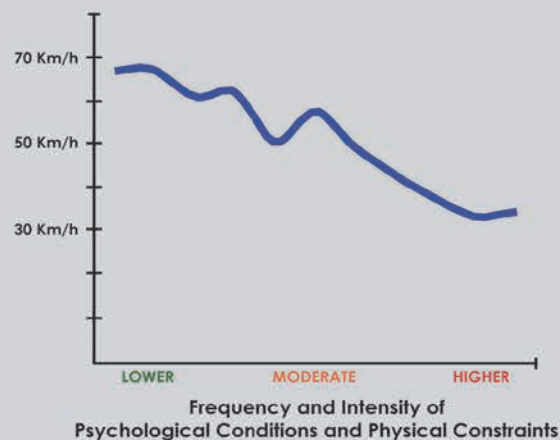
An analysis of the characteristics of the street environment at each of the 23 locations was carried out for the preparation of this Manual. This survey recorded the frequency and intensity of psychological and physical design measures that influence driver behaviour, such as those illustrated in Figure 4.4.

The survey results demonstrated that the individual effectiveness of these measures varied. For example, as would be generally expected, the presence of deflections (such as ramps) had a strong influence on reducing speed. Results also showed that other 'softer' measures, such as a sense of enclosure, surveillance and activity created by a continuous line of development fronting directly onto the street, have a strong influence on lowering speed.

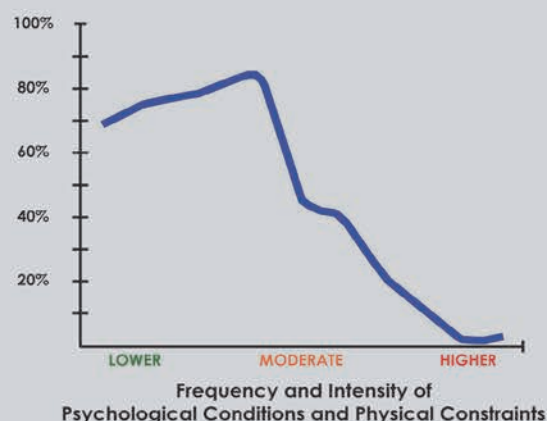
Overall, the results demonstrated a strong trend whereby as the frequency and strength of the psychological and physical design measures increased, the lower the operating speed and the greater the level of compliance with the posted speed limit (see graphs A and B). This trend was generally consistent for all road types including those which did not have ramps.

Figure 4.2 illustrates that an increase in vehicle speeds from 50 km/h to 60 km/h nearly doubles the chance of a pedestrian fatality, should they be struck by a vehicle. Graph C is particularly significant in this regard as it illustrates that where there are limited psychological and physical design measures on streets with a speed limit of 50 km/h most drivers will exceed the speed limit by 10 km/h or more. Conversely where the frequency and strength of these measures are high full, or near full, compliance with the speed limit occurred. In many cases the average operating speed dropped below 40 km/h.

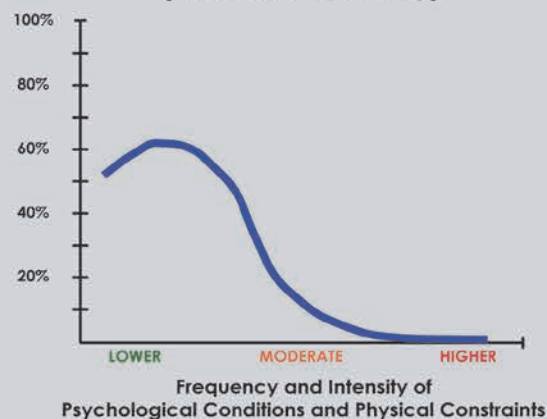
A. AVERAGE OPERATING SPEED



B. % OF DRIVERS EXCEEDING SPEED LIMIT



C. % OF DRIVERS EXCEEDING SPEED LIMIT BY 10 KM/H OR MORE (50 km/h streets only)



In retrofit scenarios, designers must carefully consider the characteristics of the existing street environment prior to implementing self-regulating measures as:

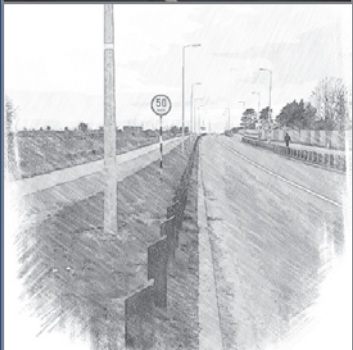
- The measures contained within this Manual should not be implemented in isolation as they may not fully address issues related to inappropriate driver behaviour on existing streets.
- Designers should carry out a detailed analysis to establish the levels of intervention and design measures required in any given scenario (see Figure 4.6).

For example, in many older Centres and Neighbourhoods, measures such as connectivity, enclosure, active street edges and pedestrian activity are generally strong.

In these circumstances the design measures contained within this Manual may be readily applicable. The application of a holistic solution may be more challenging within a more conventional or highly segregated road environments. Under such circumstances a wider package of measures may need to be implemented. This Manual cannot account for every scenario that a designer will encounter. In addition to those examples contained in the ensuing sections, to assist designers in the process of retrofitting it is intended that a series of 'best practice' case studies will be made available as downloadable content.



Figure 4.6: Examples from Youghal, Co. Cork (left), and Dorset Street, Dublin City (right), of retrofitted design responses that are appropriate according to Context and Function. The narrow, enclosed and lightly trafficked nature of the street within Youghal is highly suited to a shared carriageway. The heavily trafficked nature of Dorset Street makes it highly suited to a Boulevard type configuration.



*Department of Transport, Tourism and Sport,
44 Kildare Street,
Dublin 2,
Ireland*

*Web: www.dttas.ie
e-Mail: info@dtas.ie
Tel: LoCall 0761 001 601
or +353 1 670 7444*

MARCH 2015 EDITION