



**Research Paper**  
**[insert ref number]**

**[Insert Day and Month and year]**

# **SPEEDING ON RURAL ROADS - PROPOSALS FOR A 45MPH LIMIT ON RURAL ROADS**

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This paper looks at whether there are any proposals in Northern Ireland to reduce the speed limit on rural roads to 45mph; and considers examples of speed management in Europe.

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## SUMMARY OF KEY POINTS

- In January 2009 the Department for Regional Development published (draft) *Setting Local Speed Limits in Northern Ireland*.
- Local traffic managers were encouraged to adopt a two-tier hierarchical approach that differentiates between single carriageway roads with a strategic or local access function.
- A Speed Assessment Framework has recently been developed to help achieve the balance between safety and mobility objectives.
- Vehicle-activated signs are encouraged to highlight isolated hazards, junctions and bends in rural areas.
- For isolated hazards, warning signs, carriageway markings, junction improvements and lighting can be an effective substitute to changing the speed limit.
- The Royal Society for the Prevention of Accidents (RoSPA) believes that a blanket reduction of the national speed limit on all single carriageway roads from 60 mph to 50 mph is unnecessary.
- Other European countries are basing the speed limits of their rural roads on the function of the road.
- It is believed that there should be a focus on improving cyclist and pedestrian facilities.
- Credibility – research suggests that if a limit is not credible, drivers will be more inclined to choose their own speed.
- In some Scandinavian countries a database of digital road maps will, at some point, be able to inform all drivers of potential hazards.
- Lack of harmony of speed limits in European countries appears to be a key issue.
- The technology for in-vehicle speed limiters is potentially available, but their introduction has been delayed, mainly because it does not have public support.

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## **1. RURAL SPEED MANAGEMENT IN NORTHERN IRELAND:**

The national speed limit on the rural road network is 60 mph on single carriageway roads and 70 mph on dual carriageways, unless otherwise marked.

### **Setting Appropriate Limits in Northern Ireland:**

The *Roads Service*, on behalf of *the Department for Regional Development* sets 'local speed limits' in situations where local needs and considerations deem it desirable for drivers to adopt a speed which is different from the national speed limit. Local speed limits can be reduced or increased, depending upon the conditions and evidence.

The majority of drivers do not reach or exceed the 60 mph limit on many single carriageway roads as it is often difficult to do so because of the characteristics and environment of the road network, especially in the more remote rural areas.

### **Accidents on Rural Roads:**

In 2007, some 58% of serious road casualties and 79% of road deaths in Northern Ireland occurred on rural roads.

According to the *Roads Service* 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.

### **Two-tier Approach:**

Building upon the *Institution of Highways and Transportation's* rural safety management guidelines (IHT, 1999), local traffic managers are encouraged to adopt a two-tier hierarchical approach that differentiates between single carriageway roads with a strategic or local access function.

The guidelines suggest that higher speed limits should be restricted to 'upper tier' or high quality strategic single carriageway roads where there are few bends, junctions and accesses.

Lower speed limits are suggested to be appropriate on 'lower tier' single carriageway roads passing through a local community, or having 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 is hilly.

### **Speed Assessment Framework:**

A draft speed assessment framework has been developed by the *Roads Service* to help achieve an appropriate and consistent balance between safety and mobility objectives on single carriageway rural roads.

Under the framework, local traffic managers 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 clear-cut.

High quality rural dual carriageways with segregated junctions and facilities would generally be suitable for 70 mph limits. However, a lower limit would be appropriate if, for example, a collision history indicates that this cannot be achieved safely.

**Villages:**

It is the DRD's and Road Service's policy that, where appropriate, a 30 mph speed limit should be the norm in villages. It is recommended that the minimum length of a village speed limit should be at least 600 metres. However, Local traffic managers may lower this to 400 metres, and in very few exceptional circumstances to 300 metres.

**Vehicle-Activated Signs:**

Traffic managers are also encouraged to consider the use of vehicle-activated signs (VAS), which have proved particularly effective at the approaches to isolated hazards, junctions and bends in rural areas.

Widespread implementation of speed management over the whole minor rural road network would require a costly and environmentally sensitive increase in the level of signing. Traffic managers are therefore encouraged to ensure that a sensible balance is achieved.

The assessment framework differentiates between two tiers of roads based upon their traffic function:

- Upper tier – those with a primarily through traffic function, where mobility is important, typically all A class and important B class roads, and
- Lower tier – those with a local or access function, where quality of life benefits are important, typically the C and unclassified roads and remaining elements of the B class network.

**Isolated Hazards<sup>1</sup>:**

Occasionally it is considered appropriate to use a short length of 40 mph or 50mph speed limit as an intermediate transition between a length of road subject to a national limit and another length on which a lower limit is in force, for example on the outskirts of villages or urban areas with adjoining intermittent development. However, the use of such transitional limits should normally be restricted to sections of road where immediate speed reduction causes real difficulty or is likely to be less effective.

According to the *Speed Assessment Framework* speed limits should **not** be used to attempt to solve the problem of isolated hazards, for example, a single road junction or reduced forward visibility such as a bend, since speed limits are difficult to enforce over such a short length. Other measures such as warning signs, carriageway markings, junction improvements, and new or improved street lighting, are more likely to be effective. Similarly, the provision of adequate footways can be an effective means of improving pedestrian safety as an alternative to lowering a speed limit over a short distance.

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<sup>1</sup> <http://www.dft.gov.uk/pgr/roadsafety/speedmanagement/dftcircular106/dftcircular106.pdf>

## 2. RECOMMENDED SPEEDS:

### Upper Tier Roads:

- **60 mph:** high quality strategic 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.  
  
**50 mph:** When the collision rate is above a threshold of 35 injury collisions per 100 million vehicle kilometres and/or the mean speed is already below 50 mph. This is likely to be on lower quality strategic roads which may have a relatively high number of bends, junctions or accesses.
- **40 mph:** where there are a high number of bends, junctions / accesses, substantial development, and including where there is a strong environmental or landscape reason, or where the road is used by considerable numbers of vulnerable road users.
- **30 mph:** should be the norm in villages where appropriate.

### Lower Tier Roads

- **60 mph:** only the best quality 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).
- **50 mph:** lower quality 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.
- **40 mph:** 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.
- **30 mph:** should be the norm in villages where appropriate.

## 3. TRIALS OF SPEED ASSESSMENT FRAMEWORK IN GREAT BRITAIN<sup>2</sup>:

The framework has been trialled during development using data from a cross-section of single carriageway rural roads in Great Britain supplied by a number of local traffic authorities. The assessment framework is **still relatively new**. In the first instance, traffic managers 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 clear-cut.

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<sup>2</sup> <http://www.dft.gov.uk/pgr/roadsafety/speedmanagement/dftcircular106/dftcircular106.pdf>

#### **4. THE ROYAL SOCIETY FOR THE PREVENTION OF ACCIDENTS (RESPONSE TO SPEED ASSESSMENT FRAMEWORK): RoSPA:<sup>3</sup>**

RoSPA agrees that a blanket reduction of the national speed limit on all single carriageway roads from 60 mph to 50 mph is **unnecessary**. They argue that many good quality single carriageway roads are suitable for a speed limit of 60 mph. However RoSPA also believes many other single carriageway rural roads, that currently have a speed limit of 60 mph, are completely unsuitable for such high speeds. Some rural roads have a risk of death or serious injury comparable to motorways, whilst others are more than ten times as risky.

RoSPA also points out that when publicising the speed limit changes, the likely presence of other road users needs to be highlighted to drivers such as pedestrians, cyclists and equestrians.

##### **Average Speed Cameras:**

RoSPA supports the use of average speed safety cameras which help to persuade drivers to maintain a safe appropriate speed over longer distances than other types of camera.

#### **5. POLICY OPTIONS FOR RURAL ROAD SAFETY<sup>4</sup>:**

TRL, an independent transport consultancy firm, in their published report "*Rural Road Safety – Policy Options in 2007*" concluded that the rural road safety problem is multi-faceted, with casualties occurring across road types, road user groups and speed limits. Various larger casualty groups have been identified for particular focus, but a wide range of policies need to be pursued.

##### **Rural Road Safety in Sweden and the Netherlands:**

Some other countries, notably Sweden and the Netherlands, are giving greater attention to rural road safety within their national strategies. They are doing this both through creating different visions of how safety on these roads should be considered, and also by trialling innovative measures developed to foster principles underpinning these visions. These principles include clearer separation of road functions, more consistent and more easily recognisable designs for roads within each category, and the reduction of injury severity by ensuring that the protection provided by the road environment is consistent with the vehicle speeds allowed on them.

With this jurisdiction, an unknown but potentially quite large number of fatalities on these roads are associated with non-wearing of seatbelts.

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<sup>3</sup> [http://www.rosipa.com/roadsafety/consultations/2010/speed\\_limit\\_guide\\_2010\\_response.pdf](http://www.rosipa.com/roadsafety/consultations/2010/speed_limit_guide_2010_response.pdf)

<sup>4</sup> [www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme5/rsrr105.pdf](http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme5/rsrr105.pdf)

Another problem largely limited to dual carriageways is the incidence of shunt accidents resulting from unsafe close following.

To make substantive savings in rural road casualties, four policy themes have been identified; these are the:

- Defining of a network of major roads that will operate as high speed roads with more limited access;
- Upgrading of these roads to largely eliminate junction, head-on and run-off fatalities – and to introduce and enforce close following restrictions. The effectiveness of these measures will be limited by the extent to which drivers continue to fail to use seatbelts or drive at excessive speeds;
- Increase of funding for low cost measures on the major roads which do not become part of this network, concentrating on similar type accidents but also on improving pedestrian and cyclist facilities; and
- Defining a network of minor roads with extensive publicity to encourage drivers to travel at speeds of 40 mph over much of this network, concentrating on similar type accidents.

## **6. EUROPEAN TRANSPORT SAFETY COUNCIL --TAKING ROADS' FUNCTIONS INTO ACCOUNT:5**

According to the ETSC, a road's function is fundamental for setting speed limits. It is important to define a hierarchy of roads in accordance with their main function, and set appropriate speed limits for them.

At the top of the hierarchy are roads that primarily cater for transport of people and goods over long-distances through rural areas. At the other end are local roads that need to be assigned much lower speed limits.

### **Netherlands:**

Perhaps the best example of putting this into practice comes from the Netherlands, where 'functionality' has been defined as one of the core principles of the *Dutch Sustainable Safety Vision*. The functionality principle is used to define a hierarchy of roads, not only to set appropriate speed limits, but also to put in place infrastructure measures that render roads' functions clear.

In 1998, the Netherlands launched a programme of reclassifying its roads and then modifying them so that every road would have a clear, unambiguous function. An earlier study predicted that this clarification of function for all roads could reduce by more than one third the average number of road traffic injuries per vehicle–kilometer traveled.

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<sup>5</sup> <http://www.etsc.eu/documents/Speed%20Fact%20Sheet%207.pdf>



According to the ETSC roads can be broadly categorised into 3 functions: **‘through’**, **‘distribution’**, or **‘access’** roads.

**‘Through’** roads have rapid and uninterrupted movement (motorways, national roads etc.). ‘Through’ roads are higher-speed roads (motorways, expressways and multilane divided highways) and they should have restricted access; horizontal and vertical curves of large radius; crashworthy shoulders; median barriers; and grade separated junctions with entry and exit ramps. If such features are present, these are the safest of all roads.

**‘Distribution’** roads distribute traffic from different districts or residential areas (regional roads). Rural roads should have periodic lanes for overtaking and for turning across oncoming traffic; median barriers to prevent overtaking in hazardous stretches; lighting at junctions; roundabouts; advisory speed limit signs before sharp bends; regular signs to remind of speed limits; rumble strips; and roadside hazards such as trees and utility poles removed. Transitional roads connecting higher-speed roads with lower-speed roads or moving from higher- to lower-speed stretches (such as rural roads entering villages) should have signs and other design features to encourage drivers to slow down in good time. Rumble strips, speed bumps, visual warnings in the pavement and roundabouts are possibilities.

**‘Access’** roads provide access to final destinations: houses, shops etc. (local roads). Residential access roads should have speed limits of no more than 30 km/h and design features that calm traffic.

At the moment many roads are multifunctional and used by different types of vehicle users with substantial differences in speed, mass of vehicle and degree of protection.

### **Credibility:**

If a limit is not credible, drivers will be more inclined to choose their own speed. If limits are experienced as being incredible too often, it will also harm the trust in the speed limit system as a whole.

### **Growing need for Digital Speed Maps:**

With the gradual introduction of *Intelligent Speed Assistance* (ISA), the matter of including speed limit information in digital road maps (traditionally used for satellite navigation) becomes particularly important.

As such The Swedish Government has issued a directive to build up a nationwide road database containing up-to-date and quality-assured data.

Another example is Finland where there is a national digital database called Digiroad containing precise and accurate data on the location of all roads and streets in Finland (covering a total of 430,000 km)

The Finnish parliament passed at the end of 2003 legislation requiring municipalities to provide data so that the digital map can be updated regularly.

It is also expected that the recent *European Union Intelligent Transport Systems (ITS) Action Plan* and *Directive* will help foster the standardisation of digital speed mapping throughout Europe (ETSC, 2009).

## **7. RECOMMENDATIONS FOR SPEED MANAGEMENT ON EUROPEAN ROADS<sup>6</sup>:**

### **European Research project Managing Speeds of Traffic on European Roads (MASTER):**

It is recommended that target speeds on different kinds of roads are determined on the basis of systematic and comprehensive assessment of all impacts of speed.

It also recommends harmonisation of speed limits in different European countries and development of European guidelines for speed management.

In urban areas rumble strips at approaches to intersections are perhaps the most common physical speed management tool. Because of higher speeds and the danger that physical speed reducing measures can cause accidents, they are seldom used on rural roads.

### **Main Problems in Speed Management:**

Only in Urban Areas are speed limits broadly in harmony since the general speed limit is 50 km/h with a few exceptions of 60km/h. On rural roads with mixed traffic the speed limit ranges from 70 up to 113 km/h for passenger cars. A limit of 80km/h is most common for both passenger cars and trucks. A motorway is the highest road category with fairly standard qualities across Europe. However, speed limits are quite diverse, ranging from 80 to 130 km/h for cars, and in Germany there is no speed limit on some motorway sections.

### **Enforcement:**

The impact of enforcement of actual speeds depends on several factors:

- The actual speed level compared to the speed limit;
- Intensity of enforcement (risk of getting caught);
- Penalty system;
- Publicity.

### **Speed management tools:**

A variety of measures and tools are currently used for speed management, and other efficient and technically feasible solutions such as adaptive in-vehicle speed limiters are potentially available, but their introduction has been delayed mainly because they do not always have wider public support.

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[http://safety.fhwa.dot.gov/speedmgt/ref\\_mats/fhwasa09028/resources/Reccs%20for%20Speed%20Managmenet%20European%20Roads.pdf](http://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa09028/resources/Reccs%20for%20Speed%20Managmenet%20European%20Roads.pdf)