

# Development of a rural road hierarchy for speed management

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## **Part A - Context**

### **1. Background**

1.1. This project stems from a commitment by the Government to consider the development of a rural road hierarchy for speed management purposes. A requirement of the Transport Act 2000 is that a report to Parliament on this issue is to be produced by the Secretary of State no later than the end of November 2001. This legislation is explicit in requiring the Secretary of State to:

review the operation in relation to rural roads of the provisions made by and under-

Part VI of the Road Traffic Regulation Act 1984 (speed limits) and Schedule 9 to that Act (orders) so far as relating to orders under that Part.

The review shall in particular include consideration of whether (and if so how) the law should be amended to facilitate the introduction of rural road hierarchies.

A rural road hierarchy is a system under which rural roads are categorised by a local traffic authority (by reference to the ways in which they are used) for the purpose of subjecting different categories of rural roads to different speed limits.

1.2. The consultants, Babbie Ross Silcock, part of Babbie Group Ltd were appointed in May 2001 to progress research in this area. The brief to which the consultants worked had two objectives:

- To deliver a report by the end of September 2001 to the Department for Transport, Local Government and the Regions (DTLR) giving the recommendations for actions arising from the working groups conclusions.
- To provide advice to DTLR on the procedures and process required for developing and implementing an additional hierarchy of rural roads for speed management purposes, as the basis for further work.

1.3. This is a somewhat broader brief than solely to meet the specific requirements of the legislation. In particular if a hierarchy is to be successful it must lead to appropriate vehicle speeds, not simply setting speed limits. A speed limit is seen as one tool, which can be used in speed management. This is discussed further below.

1.4. Importantly, the brief has a focus on casualty reduction as the aim of the hierarchy. It is also realised that there are very important social and economic issues, which should be considered in the development of a rural road hierarchy, but due to the scope of the present study, these have not been considered in this current report. As is highlighted at the end of this report, it is strongly recommended that in the further development of the hierarchy such issues be examined.

1.5. The brief also required us to convene a small working group of interested parties to:

" develop a template for the hierarchy and a protocol for assigning roads to a position within the hierarchy."

1.6. This working group<sup>[1]</sup> was convened and acted as an advisory body to the consultancy team and DTLR to give the views of various interested organisations. Members of the group provided feedback from their organisations and any other related bodies. The goal, as required by the brief, was to establish, and agree with interested parties, the issues relevant to the development of a rural road hierarchy.

1.7. Meetings of the Working Group took place on 26<sup>th</sup> June, 31<sup>st</sup> July, and 24<sup>th</sup> September. In addition, a report (*Interim Report No 2, Draft 1*) was produced, based on the results of discussions from the earlier Working Group meetings, together with other comments received from interested organisations. The report was circulated to all Working Group members and a number of other interested bodies, as listed in Appendix 1.

1.8. This report brings together the information gathered during the Working Group meetings, and comments received on *Interim Report No 2, Draft 1*.

[1] Members represented: Highways Agency, Scottish Executive, Society of Chief officers of Transportation in Scotland (SCOTS), National Assembly for Wales, CSS, Countryside Agency, Slower Speeds Initiative, Motorists Forum, Association of Chief Police officers (ACPO), and the Institution of Highways and Transportation (IHT).

## 2. Introduction

2.1. The Government's road safety strategy "Tomorrows roads: safer for everyone" (DETR 2000a) has as a key component of its speed strategy the development of a new hierarchy to assist speed management, particularly in rural areas. There is strong support from community-based groups and road safety professionals for the development of such a hierarchy, with some organisations having already produced position papers or reports (see for example ICE, 1996; IHT, 1999; CPRE, 2001).

2.2. The primary objective of the new rural road hierarchy is to reduce casualties, and this is to be achieved by producing a framework for reducing vehicle speeds in locations where current speeds are inappropriately high. The Government's speed review (DETR 2000b) highlights numerous research reports showing that lower speeds result in fewer collisions of lesser severity.

2.3. The rate of traffic growth in rural areas is greater than in urban areas and accident severity is generally higher in rural areas. It would be sensible to address the problems in rural areas now rather than later, and this should be done on a strategic basis, rather than continue with piecemeal measures.

2.4. At present, the speed limits (for cars and motorcycles) on the majority of non-motorway rural roads are set at the national limit of 60 or 70 mph. Over the years, some of these roads will have had lower limits imposed for various reasons, and it is to be expected that there are many instances where the national speed limit is inappropriate for the prevailing conditions. The national limit of 60 mph for single carriageway rural roads covers a range of road types, from major inter-urban routes to quiet country lanes, but there is no guidance to distinguish between such roads for speed management purposes. In addition, very little is known about the speeds driven on such roads, although it is clear that on many minor roads subject to a 60 mph limit, actual speeds are generally much lower.

2.5. The current speed limit system results in a great deal of confusion for motorists. Recent research commissioned by the AA Foundation for Road Safety Research found there was confusion about the maximum speed on single carriageway rural roads, and indeed that speed limits other than 30 mph and 70 mph were not well understood (Silcock, Smith, Knox and Beuret, 2000). The study also highlights criticisms and claims of an inconsistent application of speed limits, and surveys suggested that this was one factor leading to the abuse of speed limits.

2.6. This study also concluded that the road environment has a major influence on the speed that people choose to drive. In situations where low limits were imposed (30 or 40 mph), but where the roads were wide, straight, with good forward visibility and with little frontage activity, the highest proportion of speeding drivers were found.

2.7. This finding demonstrates that, in some situations where speed limits are lowered, there is not necessarily a corresponding lowering in vehicle speeds. The Government's speed review (DETR, 2000b) maintains that speed limits on their own have little effect on vehicle speeds (p19). In some situations, additional traffic calming is required to encourage drivers to lower their speeds.

2.8. In rural areas, such calming measures, and indeed often signs themselves, are said to detract from the rural environment. It is realised that guidance is required on measures which work in reducing speeds, and which are acceptable for use in rural areas.

2.9. On national speed limit roads, lower limits apply to larger vehicles and those towing trailers or caravans. These different limits are not widely known by the general motoring public, and the 40 mph limit on single carriageways for goods vehicles exceeding 7.5 tons maximum laden weight is widely abused (by up to 75% of HGVs - DETR 2000b).

2.10. Some roads have the function of linking towns, and are the main trade routes for goods vehicles. Others are primarily for local access to and from properties, and may be used more extensively by pedestrians, cyclists and equestrians. Some will cater for both through and local traffic.

2.11. The existing categorisation of roads as A, B, and Unclassified is not, as currently used, a suitable system for defining rural roads for speed management purposes. It was developed many years ago as a hierarchy based on factors such as route directness; relative national importance; and ownership, responsibility and associated funding decisions. There will inevitably be large differences across the country regarding factors such as road quality and traffic volume by category of road.

2.12. The Institution of Civil Engineers in their document *Which Way Roads* (ICE, 1996) note that the existing classification has not been updated to meet changing needs, but rather additional systems have been added for a variety of purposes. In addition to the recognised Motorway, A, B and unclassified system, systems exist for Trunk road / non trunk road, principal roads, planning categorisation, maintenance, road safety, investment expenditure, street lighting, traffic routing category, winter maintenance, and the New Roads and Streetworks Act (NRSWA).

2.13. An idea of the respective length of the various categories of rural road can be derived using the non built up area definition of a rural road (speed limits over 40mph, excluding motorways). The information shown in Table 1, is extracted from *Transport Statistics Great Britain: 2000 edition* (DETR 2000c). Note that this table is only indicative as to the extent of rural roads, as rural villages (and indeed, other types of rural roads) that have a limit of 40 mph or less are included as built-up areas.

<b>Table 1: Public road length in Great Britain: by road type 1999</b>		
<i>Major Roads</i>	<i>Non Built-up</i>	<i>Built-up</i>
Trunk	10,837 km	1,313 km
A class	22,897 km	13,147 km
<i>Minor Roads</i>		
B class	20,952 km	9,353 km
C class	65,811 km	16,989 km
Unclassified	76,572 km	130,684 km
<b>TOTAL</b>	<b>197,067 km</b>	<b>171,486 km</b>

2.14. The current system as applied in rural areas does not provide consistent information to drivers, leading to confusion for motorists. Inappropriately high speeds have been shown to produce an

increased accident rate. In addition, vulnerable road users feel threatened by high vehicle speeds, and they perceive that higher limits result in higher vehicle speeds.

2.15. A new hierarchy for rural speed management, if adopted nationally, could assist drivers by consistent application of speed limits. It could also lead to a reduction in casualties on rural roads, and the fear felt by vulnerable road users.

### **3. Related issues**

3.1. This project to investigate a rural road hierarchy is taking place alongside a number of other projects which will influence speed management strategies. Included amongst these are:

- a speed management assessment framework
- a simplification of the speed limit order making process (particularly in relation to rural villages, and the installation of 30mph limits);
- a review of speed limit signing conventions;
- a review of speed management on minor rural roads; and
- an investigation of self explaining roads.

3.2. The findings from these projects will need to be considered carefully in the further development of the rural road hierarchy.

## 4. Examples of road hierarchies

4.1. The concept and use of a road hierarchy is not new, and a number of documents advocate such a system to meet various needs. For example, the *Guidelines for Urban Safety Management* (Institution of Highways and Transportation 1990) discusses an urban, functional hierarchy for safety purposes. In Scotland, the Roads, Bridges and Traffic in the Countryside Initiative identified the need to investigate the role of rural road hierarchies, and the subsequent *Rural Road Hierarchy and Lorry Routing* (Scottish Office and CoSLA, 1997) identified a process for implementing such a hierarchy on rural roads.

4.2. The *Guidelines for Rural Safety Management* (IHT, 1999) makes specific mention of a rural hierarchy strategy in relation to safety, advocating a strategic approach to rural road safety management with speed limits being consistent and appropriate to the road function. There are recommendations for speed limits on different roads within the hierarchy based on current classifications. For instance, on low capacity class B, class C, and Unclassified roads, a wider use of 40 or 50 mph limits is suggested, because cyclists, equestrians, pedestrians and unexpected oncoming traffic may be encountered on such roads. A route treatment approach is advocated to provide consistency along routes.

4.3. Work recently completed, and soon to be published, by the Transport Research Laboratory (TRL), examines the relationship between speed and accidents on single carriageway rural roads (all of which were subject to the national speed limit). TRL used a set of criteria to define groups of roads according to their geometric and topographic characteristics, or quality. Four groups were chosen, with Group 1 being low quality (very hilly, high bend, junction and access density and low traffic speed) and Group 4 high quality (low bend junction and access density and high traffic speed). Accident frequency was found to be highest on Group 1 roads and roughly a half, a third and a quarter of the Group 1 level on Groups 2, 3, and 4 roads respectively.

4.4. The TRL study concluded that the Groups identified could form the basis for a rural road hierarchy. Such a hierarchy would be strongly linked to the existing road classification, although B Class roads exhibit a wide range of geometry and function and were well distributed across all four Groups. The greatest problem, however, would be those A Class roads that fall into the two lower quality Groups. A class roads tend to have better signing and marking, giving the impression of higher safety to the user. Whilst lower speeds may be more appropriate for safety reasons, the report considers that significant economic impacts would be caused given increased journey times for large traffic volumes, although there is no evidence presented within the report to substantiate this claim.

4.5. In the Netherlands, rural roads are defined by their function as part of the Sustainable Safety approach (see for example Schermers, 1999). There, a three tier hierarchy has been adopted that designates motorways and distributors for through traffic, and access roads as a separate low speed, shared use environment (see Text Box 1).

### Text Box 1: The Dutch Rural Speed Hierarchy

In the 3-tier Dutch system, motorways and distributor roads are for through traffic. Separate speed limit regimes apply to these two types of road due to the difference in road quality (with motorways obviously of a better design standard, and more suited to faster traffic speeds). Speed limits on motorways

are set at either 100 or 120 km/h.

On Distributor roads there is to be segregation between flows of different types of traffic (including parallel routes for slower vehicles such as farm machinery), and the markings differ. This segregation complements the goal of homogeneity, or the realisation that in order to achieve safety there is a need to reduce differences, for example in speed, mass and direction. Speed limits on distributor roads are set at 80 km/h.

Access Roads are those that have access to properties. On such roads, users share the road space, and to indicate this environment, there is no centre line. Speed limits on access roads are set at 60 km/h.

To identify changes between the three tiers of road class, there are gateways at all transition points in the hierarchy.

Complementing the functions and homogenous use of roads is the principle of predictability. This is intended to ensure that there are no uncertainties in the road environment, including the characteristics of the road, or the behaviour of other road users.

4.6. It needs to be stressed that there are vast differences between the rural environment in the Netherlands, and that in the UK. Many of the distributor roads in the UK are also used for access, and there is a greater coverage of motorways in the Netherlands. Therefore, the direct application of the Dutch system here would not be suitable. However, there may be important lessons which can be learnt from the Dutch experience, particularly for the implementation of the hierarchy (such as the problems encountered and how they were overcome, timescales, costs, and the need for consultation). A detailed review of the Dutch approach would be important in the future development of the rural speed hierarchy.

4.7. In the development of a road hierarchy for speed management, other forms of road hierarchies need to be taken into consideration. Whilst this does not mean that the new speed hierarchy will necessarily be governed by those hierarchies that already exist, it must coexist with them. This is particularly important with respect to the functional hierarchy implicit in current road classifications.

## Part B - Consensus Views from the Working Group

### 5. Road users' expectations

5.1. The expectations in terms of vehicle speed differ between various groups of road users. Drivers' expectations on A class roads are probably different from those on Unclassified roads, as suggested in the *Guidelines for Rural Safety Management* (IHT, 1999). Local residents (particularly as pedestrians, cyclists and equestrians) expect to, and should be able to, live and move around in an environment that is safe. However, when travelling beyond the local area as motorists, these same road users will expect to be able to reach their destinations in a timely fashion.

5.2. The working group felt that drivers' expectations of the operating speed and speed limits which would prevail on a road are closely correlated with its current classification, especially for A roads and self-evidently for Motorways. This would be particularly important when planning longer journeys; perhaps less so for local trips. It will therefore be difficult to introduce a hierarchy solely for speed management purposes that was inconsistent with the existing road classification system. There was a general consensus that, in the longer term, the speed management strategy adopted, including speed limits, should be consistent with this classification. A corollary of this is that, in situations where the desired speeds are below drivers' expectations for, say an A road, then re-classification would need to be considered.

5.3. Conflicting expectations and the practicalities for key players must also be taken into account, and this is particularly so for those who will need to implement and enforce the new hierarchy. Drivers would need to know what was expected of them and the legal restrictions in place on any given road. However, limited signing and markings are preferred, as an over abundance of these will not only have a negative impact on the visual environment, but will also prove costly for local authorities. Any new speed limits should be largely self-enforcing so as not to over burden Police resources. However, traffic calming measures are not always welcomed in rural areas, and currently there are few measures available for use at higher speeds.

5.4. From a review of relevant published documents, discussions at the working group, and receiving views from groups representing a wide variety of road users and practitioners, we have established the following key points in defining a template for the rural road hierarchy:

- The hierarchy must be functional, relating to what roads are used for and by whom. Where this conflicts with current classification then it is implied that the classification should be changed.
- Balance is a key word in this process. There is a requirement to balance the needs of all road users. This includes the needs of local residents, pedestrians, cyclists and equestrians with the needs of those wishing to travel as through traffic.
- There is a need for consistency in the way in which the hierarchy is applied. This does not necessarily imply a common speed along a single route, but as changes occur in the function of a route, the desired position within the speed management hierarchy will also change.
- The hierarchy should be largely self-enforcing <sup>[2]</sup>, and to achieve this it is important for the designated speed environment to be obvious to road users, as well as acceptable to them.
- We need to consider the timescale for implementation of the hierarchy, and to consider the costs involved.

- The speed management hierarchy is primarily about existing roads, as these form the vast majority of the network, but will also relate to new roads.
- A small number of tiers within the hierarchy is desirable, in order to make the system simple, robust and easily understood by drivers. Three is the preferred number.
- Although technically it is not essential for the speed management hierarchy to be based on speed limits, in practice, few would understand it if it was not.
- Roads should be subject to periodic review to cater for changing conditions.

[\[2\]](#) Self enforcing in this context refers to the drivers choice of speed being no greater than the designated speed limit. This results from a combination of the road environment, its geometric and topographic characteristics, presence of other road users, and any traffic calming or enforcement measures such as cameras.

## 6. Proposed template for a speed management hierarchy

6.1. The proposed number of speed management tiers for rural roads (excluding motorways) is three, as listed below. This is broadly consistent with IHT and CPRE publications, and reflects the views of the working group.

6.2. Tier 1: through routes of national or regional importance, giving priority to the safe and efficient movement of vehicles. Acceptable speeds could be based on retention of current speed limits (60 mph for single, 70 mph for dual, carriageways, 30 in villages). In exceptional cases (for example due to poor road geometry or topography) a lower speed limit may be appropriate, although it is probable that lower speeds would be self-imposed in most cases.

6.3. Tier 2: mixed use roads that cater primarily for motorised traffic, with limited numbers of vulnerable road users and occasional access to properties such as farms rather than frequent access to residences. A slower speed environment than for Tier 1 should be sought: a suggested maximum of 50 mph, and of 30 mph in villages. Where there are vulnerable road users, ideally physical separation should prevail, with special facilities at isolated locations. Junction treatments may be required, as these are a major source of accidents on such roads.

6.4. Tier 3: local roads that are primarily for access, particularly roads through villages, and where vulnerable road users are to be expected, and where these users are not fully catered for by way of physical separation or protection. Maximum speeds could be 40 mph, and 30 mph or less in villages. In particular cases, for example villages with restricted carriageway widths and Quiet Lanes these should be very low speed environments with a maximum of 20 mph.

6.5. On grounds of simplicity and ease of understanding, it is proposed that these relate to current road classifications as follows:

- Tier 1 roads are A roads
- Tier 2 roads are B roads
- Tier 3 are not classified.

6.6. This means that some roads will require re-classification. If an authority wishes to retain further informal classifications for other purposes - for example funding allocations for maintenance purposes - this is not relevant to speed management and public understanding.

6.7. In practical terms this implies a comprehensive review of the rural road network on a route basis. Inevitably there will be situations where sections of the route require engineering or enforcement measures to ensure that the designated maximum speeds prevail, but the goal should be to define the hierarchy such that it is as self-enforcing as possible.

6.8. Table 2 illustrates the type of structure which could apply. The suggested speed limits are indicative rather than prescriptive. Without knowing more about current vehicle speeds on these roads, it is difficult to determine appropriate speeds.

6.9. The function of the road will primarily determine its tier within the hierarchy, while the quality of the road will help guide other issues such as appropriate signs, markings and provision for vulnerable road users.



## 7. Protocol for assigning roads within the hierarchy

7.1. A variety of mechanisms could be used to formalise this allocation of roads to differing tiers within the hierarchy, and in assigning the appropriate speed:

- A flow chart approach - as in the IHT Urban Safety Management Guidelines or the Dutch approach; or
- A points scoring system; or
- A 'look-up' table, based on a priority order of criteria.

Speed limit	Tier 1 Through traffic and distribution	Tier 2 Mixed use	Tier 3 Local Use
Road class	A	B	other
70 mph	Dual carriageways only		
60 mph	High quality single carriageways <sup>[1]</sup>		
50 mph	Poor quality single carriageways <sup>[2]</sup>	Roads with open aspect and limited presence of vulnerable users	
40 mph	Exceptional town or village with wide roads and good provision for vulnerable users	Poor quality roads with frequent access points and junctions	Between villages and open aspect roads
30 mph	Towns and villages	Towns and villages	Villages with adequate footways. Poor quality roads with vulnerable users
20 mph		Exceptional use in villages with restricted layouts and many vulnerable users	Quiet Lanes Villages without footways and narrow roads

7.2. A flow chart approach has the advantage of clarity, but may be inflexible. It can also be used to identify the physical measures or enforcement activity which may be needed to ensure that the speed limits for that level in the hierarchy are not exceeded.

7.3. A points scoring system would require an agreed list of criteria, against which points would be scored. The total number of points scored would determine the tier to which a road is allocated. A set of criteria would need to be agreed and a scoring system developed. The scoring system could be

weighted, to allow sensitivity testing. It should be noted that, by attaching high, and to some extent low, numbers of points to particular criteria, the outcome can be pre-determined.

7.4. For a look up table approach, a similar set of criteria to the points system would need to be agreed. However they could be used in a more deterministic way, with certain criteria having the effect of automatically allocating a section of road to a particular level - irrespective of the other criteria. This would need careful consideration as there will always be exceptions. Whilst this approach is straightforward for the top and bottom levels of the hierarchy, it may be less helpful with the allocation of roads in the 'grey' area between these two levels.

7.5. It was clear that a simple, unambiguous protocol was essential, whilst allowing local flexibility for unusual situations. It must be remembered that one of the aims of the protocol is to ensure consistency, therefore a degree of rigour is needed to provide this, otherwise there is a risk that the new hierarchy will not be accepted or understood by road users.

7.6. However, there was no clear view on which system of protocol was of preference from either the working group or wider discussion. Further development of the protocol should be linked to work on the new speed management assessment framework.

7.7. What was clear from the responses on this issue is that the protocol for assigning roads within the template should have weightings to allow roads of certain descriptions to over-ride other considerations, and automatically be designated to certain levels within the hierarchy.

7.8. Consideration needs to be made of the mechanism for coordination across local authority boundaries in the application of the protocol.

7.9. Inevitably, there will be circumstances where a section of road does not naturally fit well within the criteria. These will be the locations where intervention is needed, either to upgrade the road section, or to control speeds.

[\[1\]](#) Quality refers here to geometric and topographic characteristics, and not the quality of the environment.

[\[2\]](#) This category of Tier 1 road should be looked at as a temporary measure. It is the intention that such roads be upgraded if they are to remain in this tier, or that they be made Tier 2 roads.

## 8. Implementation

8.1. The initial view from practitioners is that the three tier system proposed could present various practical problems during implementation. It was felt by the working group that these perceived problems may be due to lack of information at this stage of the template development. There is a very strong case to test the proposals in some form of practical trial to determine whether perceived problems will become real.

8.2. There is a general view that assignment to the top and bottom tiers of the hierarchy will be easier to achieve compared with the middle ground. This is the experience from the implementation of the Dutch system.

8.3. More problematic is the implementation of the middle tier. This group of roads involving mixed use may be large, and will take more time and resources. Some respondents felt that all roads should be categorised and the hierarchy implemented within a short space of time, while others felt that an incremental approach should be taken.

8.4. There was a general concern amongst respondents as to how the designated speeds would be communicated to motorists, particularly on tiers with a number of differing speed categories. It is felt that speed limits are the most straightforward way of achieving this. As highlighted earlier, work to be conducted in connection with speed limit signs and markings will need to directly address this issue.

8.5. There are two broad avenues which can be pursued in implementing the hierarchy. One is the re-engineering of roads to upgrade those allocated to a high speed level, and to calm those that have been allocated to the low speed categories. Additional enforcement would also be needed to reinforce these levels at critical locations.

8.6. The second avenue, looking to the future, is to use Intelligent Speed Adaptation (ISA), which may be technically and politically feasible 10 to 15 years from now <sup>[3]</sup>. An approach that starts down the conventional engineering route, first addressing the stress points in the network, does not preclude the ISA route in the future.

<sup>[3]</sup> ISA in this context refers to the external provision of additional information to the driver about the appropriate speed to drive and / or the prevailing limit. This would require an accurate GPS system, linked to a comprehensive map of speed limits.

## Part C - Legal Issues And Recommendations

### 9. Legal Implications

9.1. The previous sections highlight the conclusions of the Working Group, and it is our role here to highlight the legal implications of these.

9.2. Under current legislation, national speed limits apply to all roads, unless signs show otherwise. These limits can be found in the Highway Code (DETR, 1999). Different limits can apply to different classes of vehicles (for example heavy vehicles), and it is the responsibility of drivers to be aware of the speed limit that applies to their type of vehicle. The national 30 mph limit for built up areas applies where a system of streetlighting exists (not more than 183 metres apart, or 185 metres in Scotland).

9.3. When a local traffic authority imposes its own speed limit on a road, the authority must clearly sign the new limit, and there is currently a requirement that repeater signs be placed at regular intervals along a road which is subject to a restriction (see Direction 10 within the *Traffic Signs Regulations and General Directions*, HMSO, 1994 for full details). The DTLR sets out good practice in Traffic Advisory Leaflet 1/95, with recommendations as to the distance apart that repeaters should be placed to enable enforcement of the speed limit. The requirement is that for situations where the speed limit is other than the national speed limit, repeater signs need to be placed at regular intervals to remind the driver as to the correct speed that they should be driving.

9.4. The system of national speed limits is reserved, and so is followed by authorities in England, Scotland and Wales. When speed limits are implemented by local traffic authorities, this is done under devolved powers.

9.5. The hierarchy as proposed in this report could be implemented within the framework of current legislation. However, this approach would rely on local traffic authorities making speed limit orders and the extensive use of repeater signs to indicate the prevailing speed limit, resulting in high costs over the road network, and visual intrusion.

9.6. We therefore need to explore options that remove the requirement for use of repeater signs. Two such options exist.

9.7. The first option is to implement the rural road hierarchy under a national speed limit system. In the same way that the current legislation defines speed limits for built-up areas, single carriageways, dual carriageways and motorways, additional classes could be added to allow other speed limits to be defined on rural roads. In effect, single carriageways would be further sub-divided into types of road corresponding to the speed limits available on such roads. To define the type of road, additional information would need to be provided to drivers so that they were able to ascertain beyond reasonable doubt what type of road they were on. This could include a reliance on road markings, or their absence, to convey and define the designated limit. Work is due to commence in a number of speed research areas (see Section 3) that will be able to focus more directly on this issue.

9.8. Clearly there are practical problems to overcome with such methods, particularly related to drivers understanding, and also the visibility of such road markings in the wet or the dark. The understanding issue will certainly require further research. There is some confusion with the present system, and it is likely that the addition of further classes of road will add to this lack of

understanding. This would also apply to the use of the national speed limit sign, which would now cover more than the existing two speed limits (60 and 70), depending on some other defining characteristic, for example particular markings.

9.9. As for visibility of markings in wet or dark conditions, road markings are already used to give mandatory messages in some circumstances (for instance indicating stop and give way lines, and no overtaking), so this may not present undue difficulty.

9.10. Further practical issues will also need to be explored with such an approach, including the need to audit all roads to determine current road markings, and the need to address issues such as current marking requirements (for example hazard warning).

9.11. An advantage of this system is that the change would require an amendment to primary legislation that is reserved, meaning that it would achieve consistency between England, Scotland and Wales.

9.12. A second option is to utilise the order making process to implement the new rural road hierarchy. This would do away with the requirements to change the national limits, although under the current system, there still remains the need to install repeater signs on roads that are subject to a restriction. The only available option to circumvent this problem would be to remove the requirement for use of repeater signs and instead utilise other means to convey the appropriate speeds to drivers. This would retain the current national speed limit system, but would require legislation for any new method of conveying speed limits to drivers. This would mean that the mechanism for change would be devolved, and so there may be less consistency between England, Scotland and Wales.

9.13. Again, additional information would need to be provided to the driver so that they were able to ascertain beyond doubt what type of road they were on. The problems already described with regards to this approach would also remain with this option.

9.14. An on-road trial of the proposed new rural road hierarchy would be problematic if new markings are introduced, due to enforcement issues. Without any change to primary legislation, the Police could not be able to enforce the new speed limits. Also, localised publicity would be required. In addition, all drivers using roads (including those from outside the local area) will need to be informed of the system that applies.

9.15. Before national implementation of this approach, extensive publicity would be required. The costs of this would need to be assessed.

9.16. Reliance on road markings to convey and define the legal limit, rather than the use of repeater signs, would require amendments to primary legislation.

9.17. In Scotland and Wales, the powers to enact speed limit orders is devolved, and it would be up to these authorities to decide if a system as described above is adopted.

9.18. A further option which we have considered is the reduction of the national speed limit on single carriageway roads (amend Schedule 6 of the Road Traffic Regulation Act, 1984). The option would be to lower the limit so that the single largest group of roads in the hierarchy (in terms of length throughout the UK) are those to which the default limit is applied. This would eliminate the requirement to sign such roads with repeater signs, but all other limits would require signing.

9.19. Such a system seems impractical, however, as the majority of roads (by kilometre) fall within the C class or unclassified category. To sign other roads (A and B roads) at a limit higher than the prescribed national maximum would undermine the notion of a national maximum, by having many major roads with a higher limit. Also, a change in primary legislation would be required to allow vehicles to exceed the national limit in defined circumstances.

## 10. Summary and Recommendations

10.1. A new hierarchy for speed management on rural roads could produce benefits by providing consistent use of speed limits, enabling drivers better to recognise what speeds they should be travelling at on different road environments. It could also assist vulnerable road user groups, particularly in areas where such users are most at risk by providing a framework for traffic speed reduction.

10.2. Any rural road hierarchy should be simple if it is to gain road users understanding and acceptance.

10.3. It should be based on three tiers:

- Tier 1 - through routes and traffic distribution;
- Tier 2 - for mixed use; and
- Tier 3 - local use roads.

10.4. This template should relate to the existing road classification system. Some roads would be reclassified to conform to the desired hierarchy of: Tier 1 being A roads; Tier 2 being B roads; and all other roads being Tier 3.

10.5. A protocol is needed to allocate roads to the template. An assessment framework is needed to determine the appropriate speed limit for sections of road within a route.

10.6. If the desired speed is not likely to occur on a self-enforcing basis then action will be needed to ensure that the desired speed regime prevails. As extensive enforcement is unrealistic in remote rural areas, effective and acceptable traffic calming measures will need to be developed. The long term aim should be that the desired speeds are the 'natural' speeds chosen by drivers on that section of road.

10.7. It is considered that the rural road hierarchy suggested above should be implemented on a trial basis and fully assessed before it is used nationally. As a first step, a desk-top study should be undertaken to allocate roads to the proposed hierarchy. A second stage trial should then be conducted in a region (encompassing more than one local authority) to convert the existing roads to the proposed system.

10.8. The implications for classes of vehicles other than cars (such as large goods vehicles, buses and coaches, and cars towing caravans or trailers) and the current speed limits which apply to these vehicles, must also be considered.

10.9. If extensive use of repeater signs is to be avoided, the implementation of the hierarchy would require changes to the current laws governing speed limits. A detailed study of the legal implications is needed.

10.10. Although currently there is a large amount of research being conducted that will assist in the further development and implementation of the hierarchy, there is a call for further work in some areas. We consider the following to be of high importance in the further development of the hierarchy:

- Careful examination of lessons to be learnt from the Dutch experience.
- Incorporation of the wider policy context for the hierarchy, including economic and social issues, such as sustainable transport.
- Development of the assessment framework is needed to determine the appropriate speed for sections of road within the tiers of the hierarchy.
- Research on appropriate speed limits for HGVs and buses.
- Consideration of the legal issues surrounding the replacement of repeater signs with alternative methods to indicate the prevailing speed limit.
- Consideration of the signs and markings needed to specify the limit in a way fitting the rural environment.
- An evaluation of costs and timescale to implement the rural speed hierarchy.
- Further research into drivers choice of speed in different road environments, including speed monitoring to establish the nature and extent of the problem and to inform decisions on appropriate vehicle speeds and limits.
- Development of effective and acceptable traffic calming measures in rural areas.

10.11. This list is presented in no particular order, and it should be noted that some of these issues have already been scheduled into the research programme.

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## **Appendix 1 - Distribution list for Interim Report No 2.**

AA

Association of British Drivers

Association of Chief Police Officers (ACPO)

Association of Industrial Road Safety Officers (AIRSO)

Association of London Borough Road Safety Officers (ALBRSO)

BRAKE

British Horse Society

British Motorcyclists Federation

Commission for Integrated Transport

Confederation for Passenger Transport

Council for the Preservation of Rural England (CPRE)

Countryside Agency

CSS

Cyclists Touring Club

Department for Transport Local Government and the Regions (DTLR)

Freight Transport Association

Highways Agency

Institute of Civil Engineers (ICE)

Institute of Highways Inc Engineers

Institute of Road Safety Officers (IRSO)

Institution of Highways and Transportation (IHT)

Local Authority Road Safety Officers Association (LARSOA)

Local Government Association

Motorists Forum

National Assembly for Wales

National Farmers Union (NFU)

PACTS

Road Haulage Association

RoadPeace

Roads Service Northern Ireland

RoSPA

Scottish Executive

Slower Speeds Initiative

Society of Chief Officers of Transportation in Scotland (SCOTS)

SUSTRANS

Technical Advisors Group (TAG)

Welsh Association of Technical Officers (WATO)

