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Assembly

Research and Information Service Briefing Paper

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Speed limit compliance and enforcement

1 Overview

This paper has been produced to support members in their scrutiny of the Road Traffic (Speed Limits) Bill. The primary objective of the bill is to reduce the number of accidents and fatalities caused by road traffic collisions by reducing the speed limit on residential (unclassified) roads from 30mph to 20mph.

This paper reviews the literature on speed limit compliance.

2 Speed Limit Compliance

The literature suggests that speed limits on their own have only modest effects on actual driver speeds as a considerable proportion of vehicles are driven at excessive speeds. The RAC's *Report on Motoring*, which tracks the attitudes and opinion of the UK's drivers, shows that nearly two thirds of motorists (65%) break the 70mph speed limit. Indeed, most drivers do not even consider this failure to comply with the speed limit as an offence:

- 65% of drivers admit to breaking the 70mph speed limit but 92% consider themselves to be law-abiding drivers.

- Just one fifth (20%) of motorists say the speed limit should never be broken on motorways, compared to 51% who state the speed limit should never be broken in towns.

The research suggests that any regulation, including speed limits, must be reasonable i.e. for compliance with speed limits to be high, *“the majority of the driving public must perceive them to be legitimate and comply with them voluntarily. Otherwise they are likely to be disregarded”*.¹

Clearly the UKs 70mph limit lacks credibility meaning the majority of drivers will exceed this speed and perceive this to be reasonable. That being said, the RAC report shows that drivers are more cognisant of the dangers of driving in town centres and indeed this latest report finds that compliance of speed limits is far better in 20mph urban zones *“...because motorists understand that they are near schools and accident black spots.”*²

The question this raises is if 20mph speed limits are implemented on all restricted roads will the 20mph limit lose credibility? This may then impact not only on those areas where it may be relatively safe to drive at 20mph but also in those zones where speed is proven to be a major cause of RTCs?

2.1 Driver perception

A key factor in the success, or rather compliance rate of speed limits, is how the road is perceived by the driver i.e. does the speed limit reflect the wider road environment. For example, if a road has any or a combination of traffic calming measures, such as: on-street parking, numerous junctions and/or evidence of pedestrian/cycling activity - drivers are more likely to adjust their behaviour to cope with that environment. However, if there is a speed limit of 20mph on a road with no obvious hazards drivers are more likely to drive at a speed they themselves feel comfortable with regardless of the speed limit.³ Van Schagen et al. (2004) comments:

*“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.”*⁴

The DfT already recognises the importance of setting appropriate local speed limits, as such it issues guidance on ‘Setting Local Speed Limits’. This guidance sets out the most important considerations and principles in establishing speed limits outside of the prescribed national speed limits. This document is clear that:

¹ Archer, J., Fothering, N., Symmons, M. and Corben, B. (2008) The Impact of Lowered Speed Limits in Urban and Metropolitan Areas. Monash University Accident Research Centre.

² RAC (2013) RAC Report on Motoring 2013 [online] available from: <http://nia1.me/1vx>

³ Ibid

⁴ Van Schagen, et al. (2004) in: SWOV [online] Towards credible speed limits, available from: <http://nia1.me/1w>

85. *Successful 20mph zones and 20mph speed limits should be generally self-enforcing i.e. the existing conditions of the road together with measures such as traffic calming, or signing, publicity and information as part of the scheme, lead to mean a traffic speed compliant with the speed limit*
86. *Evidence from successful 20mph schemes show that the introduction of 20mph zones generally reduces mean traffic speed by more than is the case with signed-only 20mph limits.*
95. *Signed-only 20mph speed limits lead to only small reductions in traffic speed, therefore they are most appropriate where speeds are already low (mean speed at or below 24mph).*

With regards to targeted or area-based coverage, the DfT guidance states:

97. *The implementation of 20 mph limits over a larger number of roads, which the previous Speed Limit Circular (01/2006) advised against, should be considered where mean speeds are at or below 24 mph over a number of roads. Traffic authorities are already free to use additional measures in 20 mph limits to achieve compliance, such as some traffic calming measures and vehicle activated signs, or safety cameras. Average speed cameras may provide a useful tool for enforcing compliance with urban speed limits*

The Swedish Road Safety Authority (SWOV) promote the use of physical traffic calming measures as it brings credibility to the speed limit⁵ Indeed the use of traffic calming measures is common in a number of European jurisdictions. For example, a recent Swiss study (Lindemann, 2005) found that:

“A substantial and lasting reduction in the speed of vehicles in 30km/h zones can be achieved only by installing individual, carefully selected and properly located structural measures”⁶

This study found that zones with traffic calming measures (where speed had been reduced from 50km/h to 30km/h) had seen significant reductions in speed but in zones without these measures there was practically no reduction⁷ Similar results were found by Parker (1997) who examined the effect on driver speed behaviour of both raising and lowering posted speed limits on urban and rural roads, without any interventions, either physical or soft. This study found reducing the speed limit had no effect on speeds⁸

⁵ SWOV (2011) Road User Pilots in Different European Countries. SWOV [online] available from: <http://nia1.me/1wm>

⁶ Lindemann, H.P. (2005) The Effects on Road Safety of Kilometre-Per-Hour Zone Signposting in Residential Districts. *Institute of Transportation Engineers (ITE) Journal*. Vol. 75 (6). Pp 50-54

⁷ Lindemann, H.P. (2005) The Effects on Road Safety of Kilometre-Per-Hour Zone Signposting in Residential Districts. *Institute of Transportation Engineers (ITE) Journal*. Vol. 75 (6). Pp 50-54

⁸ Parker, M.R. (1997) Effects of raising and lowering speed limits on selected roadway sections. In: Islam, T (et al.) The impact of lowered residential speed limits on vehicle speed behaviour. *Safety Science* vol. 62 (2014) pp. 483-494

All of these studies concluded that changes in speed limits must be accompanied by appropriate enforcement, infrastructure and information/education measures. However, there are instances where substantial reductions in speed have been realised without traffic calming. For example, an Australian study (in the City of Unley, South Australia), found that reducing speed limits from 60km/h (37mph) to 40km/h (25mph) on local residential roads was effective in bringing speeds down to 40km/h;⁹ However, the speed limit framework in Australia differs from most of Europe:

- The most vulnerable zones are as low as 25km/h (15mph), these 25 km/h limits are applied in and around schools;
- Residential areas have a 40km/h limit; while
- General built up areas i.e. shopping high streets etc., have a limit of 50km/h.¹⁰

A USA study (city of Columbia) reported similar findings. In this case speeds were reduced from 30mph (48km/h) to 25mph (40km/h) and this resulted in speed reductions ranging from 1-6mph.¹¹ This suggests that speed reductions can be achieved within certain areas without the use of traffic calming but unfortunately there is a lack of empirical evidence on which to base a definitive conclusion.

2.2 Self-explaining roads

The City of Munich, Germany established its first 30 km/h zone on January 1988 and today 80% of the city's 2,300 km urban road network has a 30 km/h speed limit. The remaining 20% represent the main road network, where the default speed limit is 50 km/h.

The policy in Munich is founded on the concept of "self-explaining roads". As described by Charlton et al. (2010),¹² the general concept is to clearly differentiate different road functionality groupings by means of consistent design elements, e.g. roadway widths, intersection controls, crossing types. In this way, it is potentially possible to create a road network where, even in the absence of different speed limits, motorists generally travel at a speed appropriate to the class of road they are driving on.¹³

An interesting element of this policy is that when streets are reconstructed and the speed limit reduced, it is Munich's policy to remove existing cycle paths or cycle lanes (if these are present), as mixed traffic is viewed as the safest form of travel for cyclists. The person responsible at the city for the implementation of the cycle network used the following words: *"The best and safest cycle path is, ultimately, the one that is not needed because of the traffic structure and the traffic proficiency of the road users."*

⁹ Banawiroon, T., Yue, W.L. (2003) A further investigation of 40km/h speed zone case study of Unely of South Australia. Proceedings of the Eastern Asia Society for Transportation Studies [online] available from: <http://nia1.me/1wk>

¹⁰ Ibid.

¹¹ Rossy, G., Sun, C., Jessen, D. and Newman, E. (2011) Residential speed reduction case studies. In: 90th Annual Meeting of the Transportation Research Board, Washington, D.C.

¹² CHARLTON S.G. et al. (2010). Using endemic road features to create self-explaining roads and reduce vehicle speeds, *Accident Analysis and Prevention*, No. 42, pp.1989-1998, Elsevier.

¹³ Koorey, G. (2011) Implementing lower speed limits in New Zealand. Proceedings: IPENZ Transportation Group Conference.

2.3 Police service position on 20mph speed limits and enforcement.

Police enforcement has proven effective in reducing both the mean speeds and the variance in speed on various roadways.¹⁴ However, as pointed out by the Association of Chief Police Officers (ACPO):

“Speed enforcement is expensive – it is both time and resource intensive and competes with other important policing issues of equal public concern. Enforcement is mainly reactive and should not be seen as a preventative measure to achieve vehicle speeds. Prevention has to rely on public support and compliance by the majority.”¹⁵

The Association of Chief Police Officers (ACPO) supports the view that speed limits must be set appropriately, having taken account of the prevailing road conditions in the area.

In terms of 20mph zones ACPO suggests this clarity should include ensuring that the landscaping, engineering and signage within the areas contributes to the zone feeling and looking like a 20mph zone. The police take the view that the introduction of 20mph zones should be done on the basis of improving the safety of vulnerable road users and that compliance rather than enforcement should be the primary aim.

The police services position of all speed limits, including 20mph roads is:

- Appropriate speed limits are supported, so long as they look and feel like the limit giving visiting motorists who wish to conform a chance;
- The desired outcome of setting speed limits has to be to achieve safe roads for other and vulnerable users not high speeds and high enforcement levels;
- Speed limits should be self-enforcing;
- 20mph zones should only be introduced where speeds are already low or with interventions that make the limit clear;
- Where problem areas are identified traffic calming should be used; and
- Enforcement against drivers who simply misread the road may not be appropriate.

3 Public attitude towards 20mph speed limits

The public consultation carried out by the Department for the Environment (DoE) in its preparation for the Road Safety Strategy for Northern Ireland to 2020 provides a strong evidence base for local attitudes to 20mph speed limits and zones within Northern Ireland. The consultation consisted of:

¹⁴ Stanojevic, P. Javanovic, D. and Lajunen, T. (2013) Influence of traffic enforcement on the attitudes and behavior of drivers. *Accident Analysis and Prevention*. Vol. 52, pp. 29-39

¹⁵ Association of Chief Police Officers (2011) ACPO Speed Enforcement Policy Guidelines [online] available from: <http://nia1.me/1wu>

- 1,132 on-line questionnaire responses (323 people provided additional ‘free-text’ information);
- 39 written responses by mail (7 of which were nil responses);
- 36 written responses received as Word files or PDF questionnaires;
- 803 questionnaires completed by children and young people;
- 30 responses to DOE during the informal consultation;
- 12 meetings with children and young people with 205 attendees; and
- 10 meetings with 12 other groups.

Respondents were asked to give their views on the wider application of 20mph speed limits and zones:

- 76% (n=860) of on-line respondents supported the wider use of 20mph zones and limits in residential areas;
- many drivers asked that consideration be given to alternative traffic calming measures other than speed humps, as these cause damage and wear and tear on cars;
- Many written responses supported proposals to develop a programme of 20mph speed limits at rural schools where the national speed limit applies and the wider introduction of 20mph limits in urban areas;
- there were also a number of comments opposing such measures for economic and traffic flow reasons;
- Of those respondents who did support the principles of 20mph limits, many wished to see the proposals extended to include all schools, to all rural towns and villages and to more urban areas;
- The absence of traffic calming engineering measures from some 20mph schemes was particularly welcomed both in the general comments received and in comments specific to rural areas;
- It was suggested that the use of such measures in rural areas failed to consider the size of modern agricultural and heavy goods vehicles and indicated the difficulties caused as a result;
- Other respondents however, disagreed suggesting that traffic calming measures were effective in changing driver behaviours;
- It was noted that 20mph limits would encourage walking and cycling activities and this was to be welcomed. It was further suggested that the concept might be broadened to incorporate Home Zones, an initiative where roads and streets are physically altered to balance the needs of all road users.
- A policy that encouraged traffic in residential areas to move at speeds more appropriate to sharing the space with pedestrians was welcomed.
- Some respondents gave a more cautious welcome to 20mph limits and suggested that such limits only be applied to locations where specific need had been identified rather than adopting it as a standard operational policy;

- If this were to be the case, one respondent, representing the freight and haulage sector, indicated their strong objection;
- There was also some debate about the difference between areas with 20mph zones or limits and whether they would be more effective as 'advisory' or 'enforceable' limits in residential and other urban areas where they are applied;
- Better signage when approaching restricted speed areas would be welcomed.
- Some respondents were concerned that the introduction of 20mph limits might conflict with other government commitments to reduce greenhouse gas emissions and improve air quality.
- In particular, Belfast City Council asked that appropriate environmental assessments be carried out to assess the impact of lower speeds and associated increases in vehicle emissions.

It should be noted that these responses were based on a proposal for a wider use of 20mph speed limits and/or zones under current legislation. However, it is clear that there is strong support for this policy, with the idea of 20mph speed limits gaining more support than zones with physical measures.

This consultation also suggests that the proposals in this Bill may not go far enough, in so far as there has been a call for the wider application of 20mph speed limits to include school areas, rural towns and villages as well as urban areas.

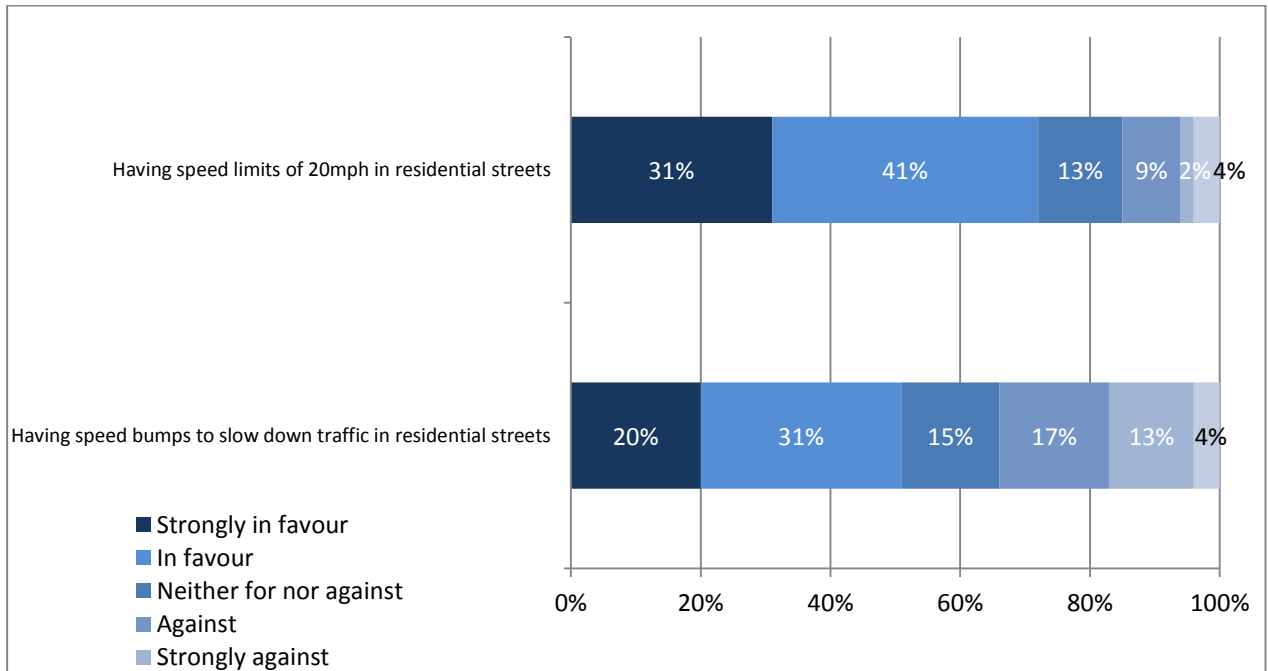
Accommodating the wider use of 20mph limits (outside of restricted roads) is something which members may wish to consider during their scrutiny of the Bill.

3.1 British Social Attitudes Survey (BSAS) 2012

Every year the BSAS asks over 3,000 people what it's like to live in Britain and how they think Britain is run. Since 1983 the survey has been tracking people's changing social, political and moral attitudes. In 2012 people were asked about their attitudes towards transport issues, including issues around road safety including traffic calming measures and 20mph speed limits on residential roads.

Approximately half (51%) of all respondents were in favour of having speed bumps to slow down traffic in residential streets and 72% were in favour of 20 mile per hour speed limits in residential streets (figure 5). The proportion in favour of speed bumps and 20 mile speed limits outweighed the number of people against these measures (30% and 11% respectively).

Figure 5: Attitudes towards traffic calming measures on residential streets



As was the case with the DoE’s road safety strategy consultation, these findings show that 20mph speed limits are viewed more positively than 20mph zones (with physical measures).