

RURAL ECONOMY AND CONNECTIVITY COMMITTEE

RESTRICTED ROADS (20 MPH SPEED LIMIT) (SCOTLAND) BILL

SUBMISSION FROM [Glasgow Centre for Population Health]

The Glasgow Centre for Population Health (GCPH) was established in 2004 to generate insights and evidence, support new approaches, and inform and influence action to improve health and tackle inequality. Working with a wide range of partners, we conduct research of direct relevance to policy and practice; facilitate and stimulate the exchange of ideas, fresh thinking and debate; and support processes of development and change.

In 2007, the GCPH established a programme of work to gather and analyse information on transport and health, to improve understanding of trends and influences on travel choices, and to evaluate the impact of transport policies and programmes on active, sustainable travel in Glasgow and the Clyde Valley area. Since then the programme has collated and analysed national survey and routine data to provide information and trends on modes of travel and casualties for different population groups, conducted wide-ranging research to explore travel patterns and attitudes towards active travel in and around Glasgow, and convened seminars and workshops to discuss the emerging issues and possible ways forward. This paper has been written in response to the call for evidence in relation to the Restricted Roads (20mph Speed Limit) (Scotland) Bill requested by the Rural Economy and Connectivity Committee.

In our previous consultation response to the Scottish Parliament's consultation on a proposal for a Restricted Roads (20mph limit) (Scotland) Bill in 2017¹ we stated our support for the introduction of a mandatory 20mph limit in urban settings (on restricted roads) across Scotland as a significant preventive public health measure based on the strong and growing evidence of the range of health benefits that are likely to result from such a measure. This evidence is summarised in both the Policy Memorandum associated with the Bill² and in our previous consultation response.

To reiterate, there is robust evidence that this measure will improve road safety by reducing the number and risk of accidents, as well as the severity of injury if an accident does occur^{3,4}.

With regard to increasing physical activity through active travel, there is growing evidence that lowering traffic speed can encourage people to walk and cycle in urban settings. This measure has also been found to contribute to allaying parental fears regarding their children walking to school⁵. In terms of the health economic benefits of increasing population levels of active travel, a review describing the potential effect of increased walking and cycling in urban England and Wales on the National Health Service (NHS) estimated a saving of approximately £17 billion through the reduced prevalence of diseases associated with physical inactivity⁶.

Other important public health benefits of mandatory speed reduction, although the evidence is more mixed, include reduced noise pollution and improved air quality resulting from reduced particulate matter (PM_{2.5}) from transport sources⁷.

There are also social benefits likely to accrue from reduced traffic speed, including improving the 'liveability' of neighbourhoods through improved environmental quality, increased social cohesion⁸ and greater viability of local businesses in urban areas to the benefit of residents, workers, visitors and retailers^{9,10}.

There is widespread recognition of this evidence base and support for the introduction of 20mph limits. For example, it has been cited as one of nine key local, evidence based actions to reduce health inequalities¹¹ and the Faculty of Public Health's Manifesto for Public Health¹² includes setting 20mph speed limits in built up urban areas as one of 12 priority areas where specific and urgent action is needed.

To be successful, strong political leadership is needed with legislation supported by communication/social marketing campaigns aimed at normalising slower traffic speed in urban settings, changing the car-dominated culture and encouraging more people to walk, cycle and use public transport. Many European countries with similar characteristics to Scotland have achieved high levels of walking and cycling in their cities through strong political leadership accompanied by appropriate investment¹³.

Overall, this Bill represents a low-cost intervention that has the potential to address a range of policy areas.

We applaud the common sense approach and the flexibility of the proposal outlined in the Bill by which local authorities will have the option to designate some roads in built-up areas as being suitable for a 30mph limit where appropriate arguments for such re-designation can be made.

We provide further detail of the evidence directly relating to the posed questions 1-4 below and address some concerns that have been raised about the Bill in question 5.

1. Is reducing the speed limit to 20mph the best way of achieving the aims of the Bill?

- Enhancing road safety

Reducing road speed in urban areas will reduce the *number* of road traffic accidents (RTAs) as well as the *severity* of injuries incurred in RTAs¹⁴. The most likely cause of death in UK children aged 11-16 not attributed to disease is road accidents. The introduction of 20mph limits and zones reduce the number and severity of road traffic accidents¹⁵, and several studies have shown that the risk of pedestrian death increases sharply between the speeds of 20mph and 30mph¹⁶ and above 30mph the risk of fatality increases more rapidly with respect to speed.

Our briefing paper presents data showing that casualties on 30mph roads accounted for 52% of all casualties between 2013 and 2017. Of these 1% were fatalities, 13% serious casualties and 86% slight injury casualties. Casualties on 20mph roads made up just 3% of all casualties, the majority involving slight injury. More vulnerable road users are disproportionately more likely to be injured on 30mph roads. Pedestrians and cyclists make up 15% and 8%, respectively, of all casualties on all roads in Scotland, but on 30mph roads pedestrian and cyclist casualties make up a greater proportion of casualties: 25% and 11%,

respectively. Furthermore, pedestrians and cyclists account for 47% and 15% respectively of all serious casualties on 30mph roads.

In terms of all pedestrian fatalities, the majority occur on 30mph roads. Pedestrian fatalities account for 63% of all fatalities on 30mph roads, while cyclists account for a further 4% of the fatalities occurring on 30mph roads.

In summary, the most vulnerable road users, pedestrians and cyclists, make up over 60% of serious or fatal casualties on 30mph roads.

In terms of the potential effectiveness of a 20mph limit, it has been estimated that as a 'robust' general rule that a 1mph reduction in average speed can achieve a 5% reduction in accident frequency¹⁷. In the GCPH briefing paper, we present analyses which show that, with average speed reductions of between 1.9mph and 2.7mph (achieved in two recent 20mph schemes: a pilot in South Central Edinburgh¹⁸ and a permanent scheme in Bristol¹⁹), significant reductions in road traffic casualties and accidents are potentially possible. Reducing the speed limit on 30mph urban roads to 20mph could potentially prevent 530-750 casualties annually across Scotland (including 3-5 fatalities), based on the impacts seen from similar schemes previously. The value of prevention based on these different scenarios is estimated to be between £27.1 million and £39.9 million annually.

- Improving health outcomes – increased active travel

As well as fewer and less serious injuries on the roads, other benefits are likely to accrue from the Bill. Reducing road speed, particularly if combined with the introduction of safer, high quality infrastructure for walking and cycling, will help encourage more people to walk and cycle. This increase in physical activity is likely to contribute to improved health. Those who travel actively on a regular basis are more likely to be a healthy weight and to have improved health²⁰. Further, the introduction of 20mph limits in other parts of the UK have been widely supported by pedestrians and cyclists, with two thirds of cyclists feeling that they help to create a safer environment for cycling and over half of residents feeling that it creates a more pleasant environment for walking and cycling²¹.

- Improving health outcomes – air quality

Studies have found mixed effects of reduced speeds on vehicle emissions, making it more complicated to identify health effects²².

Modelling has been undertaken by different research teams to estimate the impact on air pollution of a reduction in vehicle speed from 30mph to 20mph. One of these, undertaken by Kings College London, concluded that it would be incorrect to assume a 20mph speed restriction would be detrimental to local air quality but that the effects are likely to be mixed. For example, NO_x emissions will be higher for petrol vehicles at reduced speeds of 20mph but lower for diesel vehicles; given the higher contribution of diesel vehicles to emissions of NO_x, this is important.

Another approach to modelling the impact on air quality²³ concludes that switching from 30mph to 20mph limits may lead to a slight increase in deaths and years of life lost associated with NO₂, but a greater reduction in deaths and years of life lost for PM_{2.5}. If the lower speed limit results in smoother driving with less braking and acceleration (as evidence suggests it does), the health benefits from reduced PM_{2.5} are likely to be greater.

In the evidence review by NICE for their guidance on outdoor air quality and health, they note that the reduction in air pollutants resulting from speed limits relies partly on the resultant smoothing of traffic flow and reduction in acceleration and braking. Where flow is not improved by reductions in speed (for example, where there is congestion) the projected improvements in vehicle emissions would be less²⁴.

In summary, the picture is not straightforward and likely to change as car technology evolves and electric cars become more commonplace. The evidence available does not offer strong evidence against an introduction of 20mph limits.

- Improving health outcomes – indirect social benefits

There are other social benefits likely to accrue from reduced traffic speeds in urban settings, such as an improvement in the liveability and environmental quality in urban areas benefiting residents, workers, visitors and retailers. A landmark study conducted by Donald Appleyard in 1969²⁵ replicated in Bristol in 2008 by Joshua Hart²⁶ found that excessive speed, volume and flow of vehicular traffic on residential streets undermines 'liveability' of these streets for residents in terms of reduced social networks and utilisation of their streets as a social space and that reducing road speeds encouraged more people to spend time walking and socialising in their neighbourhoods. These positive community impacts are possible if the introduction of a 20mph limit results in walking or cycling journeys replacing driving, which was demonstrated to some extent in Bristol after a 20mph limit was introduced²⁷. In addition, the introduction of lower speeds and/or reduced traffic can have a positive impact on a neighbourhood by helping to create the conditions in which local people are more likely to shop locally, parents are less fearful about letting their children play outdoors and people feel less daunted by traffic dominated environments.

- Changing driving culture and promoting compliance with speed limits

It is important to note that, while the evidence outlined above and in the consultation document point to many direct and indirect public health benefits that are likely to arise from the introduction of a 20mph limit, other complementary measures, such as driver education, safety campaigns and effective policing of new speed limits are required to maximise the effectiveness of reduced speed limits²⁸.

2. How will the 20mph Bill affect you?

N/A

3. It is proposed that a national awareness campaign is required to introduce a 20mph speed limit. Do you agree with this? And if so – what shape should any campaign take?

Yes, a campaign will be important, however there is good evidence across public health that educational interventions alone are generally ineffective at directly changing behaviour²⁹. For example, evidence from studies of speeding behaviour³⁰ has identified the complex social and psychological influences on speeding behaviour and note an apparent de-coupling of support for and compliance with 20mph limits observed in a number of geographical areas where limits have been introduced. This has important implications for

an education campaign given that public support for 20mph limits appears to be high³¹. Thus, a social marketing campaign that includes a national awareness campaign should accompany and support the engineering and enforcement that are required for effective implementation of new 20mph limits.

One study explored the complex reasons for non-compliance with speed limits and suggests that any campaign needs to reflect and respond to these. By segmenting the population using assessments of their potential compliance with 20mph limits and their support for the new limits, researchers found that 49% of those surveyed supported the limits and would comply, and 23% did not support the limits and would not comply. Interestingly 11% of those surveyed did not support the legislation but would comply with the new limits ('unsupportive compliers'), and 17% did support the limits but may still break them ('supportive non-compliers'). The researchers concluded that campaigns targeted at the 'unsupportive compliers' and 'supportive non-compliers' offer the most effective route to reducing speeds and, in time, by shifting a social norm in driving behaviours, will encourage other drivers to also lessen their speed. The research recommends a two pronged approach within a social marketing campaign for the introduction of 20mph limits targeted at these population groups – a social/public campaigning to address the social acceptability of speeding and the perceived legitimacy of speed limits and speed limit enforcement, as well as individually targeted interventions, for example speed awareness courses which also seek to increase the legitimacy of speed limit enforcement.

Research into other driving behaviours (drinking and driving)³² have concluded that the most plausible reason for their finding that legislation which reduced the legal alcohol limit for drivers was not associated with a reduction in road traffic accidents is that the new limit was insufficiently enforced or insufficiently publicised or both. This highlights the importance of communication of a new speed limit accompanied by visible enforcement.

2. Should Police Scotland be required to take additional enforcement action, over and above that used to enforce the current 30mph limit, following the introduction of a default 20mph limit on restricted roads?

As we have outlined above, there is evidence that signage alone is not adequate to influence speeding behaviour and that enforcement is required for compliance^{32,33}. This is reinforced in findings from Department for Transport research on 20mph limits which found that the most common areas of concern across user groups was around compliance, with focus groups and participants stating that stronger enforcement measures are needed³⁴.

However this need not be across all areas or at all times. Extending the use of existing technology, such as video surveillance would enable local authorities and the police to identify roads where speed/non-compliance is an issue and target enforcement activity in these areas e.g. Dalkeith Road, Edinburgh saw a reduction in speeding and casualties when average speed cameras were introduced to address an identified speeding problem³⁵.

3. What kind of timescale is needed for the 20mph speed limit to be introduced?

Adequate time will need to be given to raising awareness of the rationale for, and impending introduction of, new legislation in the months before the new limit comes into place, and this increased awareness should help improve compliance.

Time and resources will be required not only to encourage greater support for the Bill, but also to ensure that those who do support it are complying. This requires a culture shift away from the 'norm' of driving at 30mph. Tapp and Davis outline the timescales required to roll-out different types of 20mph options, with a signage only approach being 'very quick' and other more comprehensive approaches, including community engagement and marketing, taking much longer³⁶. It is noted that the more comprehensive approaches are more likely to lead to an increased compliance and greater average speed reductions, thus making them more favourable in terms of achieving the desired aims of the bill.

4. Do you have any comments on the impact that the Bill might have in relation to the following:

- > human rights or equalities for any particular group of people?**
- > sustainable development?**
- > island, rural or remote communities?**

In Scotland, child pedestrian from more deprived areas are three times more likely to be injured on the roads than those from less deprived areas³⁷. Adult pedestrians are also more likely to be injured on the roads in more deprived areas. While there are a number of potential reasons for this, 20mph limits on urban roads will benefit pedestrians in areas of greater deprivation by helping reduce both the number and severity of such accidents.

Given that the evidence shows that reduced road speeds will result in fewer and less severe road casualties, and particularly pedestrian casualties, reduced road speeds will particularly benefit those who don't or are unable to drive, including children, elderly people, people with disabilities that mean they are not able to drive, and those who cannot afford to own or run a car.

5. Is there anything else that should be included or excluded from the Bill? You can give your view on any of these questions.

In terms of possible costs incurred as a result of the introduction of 20mph limits, recent research commissioned by the Department for Transport (DfT) provides some further relevant evidence by reviewing 12 schemes which have introduced 20mph limits in parts of England since 2010. None of the schemes involved the introduction of physical traffic calming measures or changes to the street design so no costs were incurred for changes to road layout or structures. However communication and community engagement activities to raise awareness and support were included and these may incur additional costs. Enforcement was also found to be an important component if compliance is to be achieved and there may be costs related to this, however targeted approaches to compliance using existing technology may help minimise such costs.

In terms of possible changes to journey time as a result of 20mph limits, an increase of 3% and 5% were found in residential and city centre areas, respectively. This adds less than 30 seconds to a two-mile trip and less than two minutes to a five-mile trip which is, the report suggests, is unlikely to be noticed by drivers.

Regarding the 'credibility' of speed limits, the DfT research found that speeds in the 20mph areas did reduce on average by a small amount, with the greatest reductions in the faster speeds (the highest 15% of speeds reduced the most). Furthermore 72% of resident drivers (and 69% of non-resident drivers) surveyed agreed that the 20mph limit makes it more acceptable to drive at a lower speed. Support for the reduced limit was strong among cyclists, residents and non-resident drivers after the implementation of an area-based 20mph limit. Interestingly, support was lower among residents in neighbouring 30mph areas.

Compliance is an identified issue in existing research. In common with other legislation to improve health, such as the ban on smoking in public places and the introduction of seat belts, a range of pre- and post-implementation activities, including communication, community engagement and enforcement is required if high compliance is to be achieved. Over time, it is likely that social norms will change. The DfT research found that the speeds in the areas surrounding the 20mph limits fell slightly which suggests that drivers did not feel the need to make up time and may actually be reducing their speed outwith the 20mph limit.

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