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Restricted Roads (20 mph Speed Limit) (Scotland) Bill

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This briefing provides an overview of the provisions set out in the Restricted Roads (20mph Speed Limit) (Scotland) Bill and outlines research into the effectiveness of 20mph speed limits in achieving speed reduction, road safety, environmental and economic goals.

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Introduction

The Restricted Roads (20 mph Speed Limit) (Scotland) Bill is a Member's Bill, introduced by Mark Ruskell MSP on 21 September 2018. The Bill seeks to reduce the default speed limit on restricted roads, generally residential streets and minor roads in urban areas, from 30mph to 20mph.

The briefing sets out the definition of a restricted road, outlines public opinion research into 20mph speed limits and summarises research into the effectiveness of sign-only 20mph limit schemes implemented across Great Britain over the last few years in:

- Reducing average vehicle speeds
- Improving road safety
- Reducing local air pollution
- Increasing levels of walking and cycling

It goes on to outline the provisions in the Bill, its financial implications and consultation undertaken by Mark Ruskell MSP prior to its introduction.

Why reduce the default speed limit for restricted roads?

The Policy Memorandum which accompanies the Bill summarises its aims as follows:

> "3. The Bill's purpose is to reduce the general speed limit on a "restricted road" from 30 mph to 20 mph.
>
> 4. In so doing, it makes 20 mph the norm in built-up areas, rather than the exception, while still allowing a limited network of through-routes in towns and cities which are subject to speed limits higher than 20 mph. The Bill is intended to encourage a change in social and cultural attitudes towards road safety by restricting speeds in built-up areas."

What is a restricted road?

A restricted road is a particular category of road that is subject to a default speed limit - currently set at 30mph. Generally, restricted roads are residential streets and minor roads in urban areas. However, it is worth noting that, within built-up areas, there is a mixture of road classifications:

- **Urban motorways:** High speed strategic routes. Speed limits can very between 70mph and 50mph, dependent on location.
- **A and B roads:** Generally strategic or through routes, usually not restricted roads, except where they have been reclassified as a restricted road by order. Speed limits can vary between 70mph and 20mph, dependent on location and the nature of traffic carried.
- **C roads and unclassified:** Generally, where they are street lit, are restricted roads, except where they have been reclassified by order. Speed limit generally 30mph or 20mph.

The formal definition of a restricted road, which is quite complex, is explained below.

Speed limits are regulated under the provisions of Part VI of the Road Traffic Regulation Act 1984 ("the 1984 Act"). Section 81(1) of the 1984 Act sets a general speed limit applicable to most roads in built-up areas, stating:

> “ It shall not be lawful for a person to drive a motor vehicle on a restricted road at a speed exceeding 30 miles per hour.”

Section 82(1)(b) of the 1984 Act defines a "restricted road" in Scotland as a road where:

> “ ...there is provided on it a system of carriageway lighting furnished by means of lamps placed not more than 185 metres apart and the road is of a classification or type specified for the purposes of this subsection in regulations made by the Scottish Ministers”

Further to this, the Restricted Roads (Classification or Type) (Scotland) Regulations 1985 includes the following definition of a restricted road:

> “ ...roads classified by the Secretary of State [now Scottish Ministers] under Section 11 of the Roads (Scotland) Act 1984 as class C and unclassified roads”

Additionally, unrestricted roads can be reclassified as a restricted road by order, made under section 82(2)(b) of the 1984 Act. Likewise, a restricted road may be reclassified as another category of road, by order, under section 82(2)(a) of the 1984 Act.

A traffic authority (normally the local authority) can make an order, under Section 84(1) of the 1984 Act, to impose a speed limit on any road (other than a special road - typically motorways and certain strategic routes). Where such an order applies on a permanent basis to a restricted road it ceases to be a restricted road.

As a result, every restricted road is subject to a 30 mph limit unless it has been made subject to another temporary speed limit, as a result of an order made under section 84(1) of the 1984 Act.

Research into the effectiveness of 20mph speed limits

The following sections outline key research findings into the effectiveness of sign-only 20mph speed limit schemes established across Britain over the last few years. It is important to note that these findings relate to stand-alone 20mph speed limit schemes. The proposals in the Bill would create a default 20mph speed limit for restricted roads in Scotland, which could produce different outcomes from those highlighted below. However, this is the most robust evidence currently available on this subject.

Does the public support 20mph speed limits?

Detailed research into the impact of sign-only 20mph speed limits undertaken for the [1] UK Department for Transport published in 2018 found that, following the introduction of 20mph speed limits:

- 75% of residents on a street with a 20mph limit were supportive
- 66% of non-resident drivers were supportive
- 81% of cyclists were supportive
- 44% of residents on neighbouring streets with a 30mph areas were supportive
- 29% of motorcyclists were supportive

In addition, just 12% of residents and 21% of non-resident drivers would support the limit being returned to 30mph. The report also noted that:

> " Net support (% saying 'good idea' - % saying 'bad idea') amongst residents increased significantly after the implementation of the schemes (from +58% to +63%), suggesting that some pre-implementation concerns did not materialise or became more acceptable. The most common area of concern across all user groups considered was around compliance, with most focus group and survey participants of the opinion that stronger enforcement measures are needed if 20mph limits are to be effective. "

Earlier [2] research, which involved a comprehensive review of literature on public attitudes to road-user safety, for the UK Government Department for Transport reported that:

- 89% of people support 20 mph zones outside schools
- 77% of people support 20 mph speed limits in general on all residential roads
- Support for 20 mph zones remained constant at this level between 2000 and 2007
- Support among Scottish drivers for 20 mph zones rose from 22% in 1991 to 86% in 2002. It is worth noting that this research focussed on 20mph zones, which generally involve physical traffic calming measures, e.g. speed humps or chicanes, that encourage compliance with the 20mph speed limit.

Do 20mph speed limits actually reduce average speeds?

Research into the effectiveness of sign-only 20mph speed limits in Britain has found that, generally, they produce a small reduction in average speeds - typically in the region of one to two miles per hour. Detailed research into the effectiveness of sign-only 20mph speed limits for Bristol City Council, which rolled-out a city-wide 20mph limit between January 2014 and September 2015 was [3] conducted by the University of West England. This concluded that:

> " …there was a statistically significant 2.7mph decrease in vehicle speeds on roads where the 20mph speed limit was introduced, when controlling for other factors that might affect speed (areas, calendar year, time of day, season, type of road, and day of week). In the areas that stayed 30mph, there was a statistically significant negligible reduction in speed (0.04 mph)"

[4] Research into the effectiveness of the pilot 20mph speed limit in south Edinburgh that began in March 2012 produced similar results, concluding that:

> " The average speed of vehicles on streets, provided with a 20mph speed limit, has dropped by an average of 1.9mph from 22.8mph to 20.9mph."

The recent research by the [1] Department for Transport concluded that:

> " Journey speed analysis shows that the median speed has fallen by 0.7mph in residential areas and 0.9mph in city centre areas. Spot speed analysis[i] shows a reduction in mean vehicle speed in four case study areas (based on both unweighted and flow weighted data[ii]) varying from -0.9mph to -2.3mph; and in a fifth case study area (-1.5mph) based on flow weighted data only. There was no significant change in three case study areas. Faster drivers have reduced their speed more, with the 85th percentile speed falling by -1.1mph in residential areas and by -1.6mph in city centre areas, based on journey speed data. This is a key finding, as other research shows that higher speeds are associated with increased safety risk (more collisions, increased severity, perceptions that the environment is not safe for vulnerable users). "

Earlier research into the effectiveness of sign-only 20mph speed limits in [5] Portsmouth and at [6] sites around England reported an average reduction in vehicle speeds of around 1mph.

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i Spot speed analysis involves the measurement of individual speeds of a sample of vehicles passing a given spot. This information can be used to determine mean (average) speeds and the distribution of traffic speed at a specific location.

ii Flow-weighted statistics attach greater weight to speeds recorded on busy roads than quiet roads. Unweighted figures attach the same weight to each individual speed recorded that is sued to calculate a mean speeds, regardless of how busy any individual road happens to be.

Do 20mph speed limits improve road safety?

The Glasgow Centre for Population Health (GCPH) undertook [7] research, published in September 2018, looking at the possible impact of a 20mph speed limit on road casualties in Scotland and the associated monetary value of casualty reduction. They modelled three different scenarios based on speed reductions observed in previous sign-only 20mph limit schemes and the resulting casualty reductions. The three scenarios are: a higher estimate of a 13.5% reduction in casualties – based on average speed reductions seen in the permanent 20mph limit scheme in Bristol; a middle estimate of 9.5% – based on average speed reductions observed in the 20mph pilot scheme in South Central Edinburgh; and a lower estimate of 2.6%, to show the reduction in overall casualties needed to save just one life. The estimated reduction in casualties and associated monetary values of prevention under each scenario were:

- **Scenario 1 (13.5% reduction in casualties)** 755 fewer casualties, including five fewer fatalities, associated with savings of £39.9 million per year
- **Scenario 2 (9.5% reduction in casualties)** 531 fewer casualties, including three fewer fatalities and a saving of £27.1 million per year
- **Scenario 3 (2.6% reduction in casualties)** 145 fewer casualties, including one less fatality and a saving of £7.8 million per year

The [3] full assessment of the impact of 20mph speed limits in Bristol, data from which was used by the GCPH, concluded that:

> " There has been a reduction in the number of fatal, serious and slight injuries from road traffic collisions, equating to estimated cost savings of over £15 million per year."

A [8] systematic review of evidence on 20mph zones, where physical traffic calming measures are present, and 20mph speed limit areas published in the Journal of Public Health concluded:

> " …that 20 mph zones and limits are effective in reducing accidents and injuries, traffic speed and volume, as well as improving perceptions of safety in studies that made this a focus."

The recent Department for Transport research into the effectiveness of 20mph limits found limited evidence for any significant change in collisions or casualties in the majority of case study areas it considered, when background trends were considered. However, it did find that:

> " There is some evidence to suggest a positive 20mph impact in one case study location (Brighton Phase 1), where a blanket 20mph limit was introduced covering both major and minor roads, and where there is sufficient data to indicate a statistically significant change in collisions and casualties. It should be stressed that this represents just one case study, and the extent to which the findings are transferable to other locations is unclear. "

While a [9] review of 20mph speed limits in the Calderdale Council area found that they had produced a:

> “ 30% casualty reduction over a 3 year period, later schemes indicate a 40% reduction. ”

However, not all schemes have been so successful, with an [10] assessment of pilot 20mph speed limits in the Hampshire Council area concluding that:

> “ In terms of accident and injury data, the impact of the pilot schemes upon road safety is projected to be neutral.”

It is worth noting that [11] earlier research conducted by TRL concluded that accident frequency falls by roughly 6% for every 1mph reduction in mean speed for urban roads with low average speeds and by about 4% for urban roads with medium speeds.

One other issue worth considering is that most research reports highlighted the relatively short period over which data had been collected and the impact this had on identifying trends in collisions, casualty numbers and injury severity and possible future patterns, e.g. the Department for Transport research highlighted that:

> “ The road safety data analysed for this study was based on between 17 and 42 months of data after the introduction of the 20mph limits, reflecting the different implementation dates for the various case study schemes. Further data is required to determine the long-term impact of the limits. Collision and casualty rates are known to fluctuate from year to year, and the post implementation data currently available may not be indicative of the longer-term trend. ”

Do 20mph speed limits reduce local air pollution?

While there has been limited research into this area, the available evidence suggests that 20mph speed limits can have a small positive impact on vehicle emissions. [12] Detailed research conducted for the Corporation of the City of London concluded that exhaust emissions are broadly similar with either a 30mph limit or a 20mph limit, while particulate emissions due to tyre and brake wear are lower with a 20mph limit.

[13] Research conducted into the possible impact of introducing a default 20mph speed limit in Wales, reporting an earlier study into this issue, found that it could result in

> “ 12% reduction in gear changes, 14% reduction in braking and 12% reduction in fuel use, reducing transport emissions in residential areas by 12%.”

The National Institute for Health and Care Excellence (NICE) recommended in its report [14] "Air pollution: outdoor air quality and health" that local authorities establish:

> “ 20 mph limits without physical measures to reduce speeds in urban areas where average speeds are already low (below around 24 mph) to avoid unnecessary accelerations and decelerations”

Do 20mph speed limits help increase levels of walking and cycling?

Recent research published by the [1] Department for Transport concluded that the introduction of 20mph speed limits had produced small increases in the proportion of people travelling on foot or by bike, stating that:

> " ...there has been a small (but significant) increase in the proportion of survey respondents stating that they have increased their use of active travel modes. Some 5% of residents surveyed said that they are walking more, and 2% said that they are cycling more, since the introduction of the 20mph limits...In addition, a small proportion of households with children reported that their children are cycling locally more often since the introduction of 20mph limits (9% of households for children aged 6-10 years, 6% of households for children aged 11-14, and 6% of households for children aged 15-17) ...The results suggest that while the introduction of a 20mph limit is perceived as a largely positive measure for pedestrians and cyclists; infrastructure-related barriers to walking and cycling remain (see Chapter 9) and the change in reported levels of walking and cycling undertaken by residents in general appears to be small (but statistically significant). "

The Department for Transport cautioned that these figures were "self reported", meaning they may not accurately reflect real-world travel behaviours.

[4] Research into the effectiveness of the pilot 20mph speed limit in south Edinburgh, which began in March 2012, reported similar changes,noting that:

> " The net change (the difference between the overall increase and decrease in mode use) was +7% for journeys by foot, +5% for journeys by bicycle, -3% for journeys by car. "

Proposals in the Restricted Roads (20 mph Speed Limit) (Scotland) Bill

The Restricted Roads (20 mph Speed Limit) (Scotland) Bill includes three substantive provisions, which are summarised below:

1. Amends Section 81(1) of the Road Traffic Regulation Act 1984, which sets the general speed limit for restricted roads, to reduce the speed limit above which it is an offence to drive from 30mph to 20mph.

2. Amends Section 81(2) of the Road Traffic Regulation Act 1984 to continue to allow Scottish Ministers, by Order, to vary the default 20mph speed limit on restricted roads.

3. Amends the Local Authorities' Traffic Orders (Procedure) (Scotland) Regulations 1999 to include a new category of Order that can use a simplified procedure for approval. This new category covers Orders required after a change to the general speed limit on restricted roads, whether that change is made by primary legislation or by an order under section 81(2) of the Road Traffic Regulation Act 1984. The simplified procedure would not be available to any Order that would increase the speed limit.

The first two provisions outlined above would come into force 18 months from the date the Act received Royal Assent, or on an earlier date specified in Regulations made by Scottish Ministers. The third provision would come into force on the day after Royal Assent.

Consultation on the proposals in the Restricted Roads (20 mph Speed Limit) (Scotland) Bill

[15] A consultation on the draft Restricted Roads (20 mph Speed Limit) (Scotland) Bill was launched on 12 May 2017 and was open for comment until 15 September 2017, which was accompanied by an online survey. The consultation and online survey posed 11 questions, which covered the aims and approach of the Bill, financial implications, equalities and sustainability impacts and any other concerns.

A [16] summary of consultation responses was published on 20 November 2017. This indicates that:

> " Overall, 891 respondents (66% – just under two-thirds) were fully or partially supportive, while 434 (32% – just under a third) were partially or fully opposed. If the 1,090 near-identical responses received via the Friends of the Earth and Scottish Green Party online tools – all of which were supportive – are included, 1,981 respondents (82%) supported the proposal, while 434 (18%) opposed it. "

Financial Implications of the proposals in the Restricted Roads (20 mph Speed Limit) (Scotland) Bill

The Financial Memorandum which accompanies the Bill estimates that the proposals would impose the following costs on public authorities:

	Annual costs in the first two years	Annually after the first two years
Scottish Government	£0.45m (marketing)	N/A
Crown Office	£0.483m-£0.966m	£0.483m-£0.966m
Scottish Courts	£0.258m-£0.516m	£0.258m-£0.516m
Local authorities	£9m-£10m (signage)	£0-£1m (monitoring)
Police Scotland	N/A	N/A
TOTAL	£10.2m-£11.9m	£0.75m-£2.5m

The policy memorandum also estimates savings that would accrue from a reduction in collisions and casualties, estimating annual cost savings of between £20.5m (based on a 5% reduction in collisions) and £36.1m (based on a 10% reduction in collisions).

These figures are broadly similar to those calculated independently by the [7] Glasgow Centre for Population Health (GCPH), which used a different methodology to reach its conclusions. The GCPH calculated three possible annual savings based on different casualty reduction outcomes, these were £39.9 million per year (13.5% reduction in casualties), £27.1m (9.5% reduction in casualties) and £7.8m (2.6% reduction in casualties).

Bibliography

1 Department for Transport. (2018, November). 20mph Research Study Process and Impact Evaluation Headline Repor. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/757307/20mph-headline-report.pdf [accessed 18 January 2018]

2 Department for Transport. (2010, September). Road Safety Research Report No. 112 Understanding Public Attitudes to Road-User Safety – Literature Review: Final Report. Retrieved from http://eprints.uwe.ac.uk/11963/1/rsrr1112.pdf [accessed 18 January 2018]

3 Centre for Public Health and Wellbeing, University of the West of England. (2018, July). The Bristol Twenty Miles Per Hour Limit Evaluation (BRITE) Study Analysis of the 20mph Rollout Project. Retrieved from http://eprints.uwe.ac.uk/34851/7/BRITE%20Bristol%2020mph%20limit%20evaluation%20report_20July18update.pdf [accessed 18 January 2018]

4 City of Edinburgh Council. (2013, August). South Central Edinburgh 20mph Limit Pilot Evaluation. Retrieved from http://www.edinburgh.gov.uk/downloads/file/7820/south_central_edinburgh_20mph_limit_pilot_evaluation_2013 [accessed 18 January 2018]

5 Department for Transport. (2010, September). Interim Evaluation of the Implementation of 20 mph Speed Limits in Portsmouth. Retrieved from https://webarchive.nationalarchives.gov.uk/+/http:/www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme4/interimeval20mphspeedlimits.pdf [accessed 18 January 2018]

6 Transport Research Laboratory. (1998). Urban speed management methods. Retrieved from https://trl.co.uk/sites/default/files/TRL363.pdf [accessed 18 January 2018]

7 Glasgow Centre for Population Health. (2018, September). THE POTENTIAL IMPACT OF A 20MPH SPEED LIMIT ON URBAN ROADS IN SCOTLAND. Retrieved from https://www.gcph.co.uk/assets/0000/6964/Policy_briefing_20mph.pdf [accessed 18 January 2019]

8 Cairns, J., Warren, J., Garthwaite, K., Greig, G., & Bambra, C. (2014). Go slow: an umbrella review of the effects of 20 mph zones and limits on health and health inequalities. *Journal of Public Health*, *37*(3), 515-520. doi: https://doi.org/10.1093/pubmed/fdu067

9 Calderdale Council. (2018, April). Update report – 20mph speed limits in Calderdale. [accessed 18 January 2019]

10 Hampshire County Council. (2018, June). Review of Residential 20 Pilot Programme. Retrieved from https://democracy.hants.gov.uk/documents/s19304/Report.pdf [accessed 18 January 2019]

11 Transport Research Laboratory. (2000). The effects of drivers' speed on the frequency of road accidents. Retrieved from https://trl.co.uk/sites/default/files/TRL421.pdf [accessed 18 January 2019]

12 Transport and Environmental Analysis Group, Centre for Transport Studies, Imperial College London. (2013, April). An evaluation of the estimated impacts on vehicle emissions of a 20mph speed restriction in central London. Retrieved from https://www.cityoflondon.gov.uk/business/environmental-health/environmental-protection/air-quality/Documents/speed-restriction-air-quality-report-2013-for-web.pdf [accessed 18 January 2019]

13 Jones, S., & Brunt, H. (2017). Twenty miles per hour speed limits: a sustainable solution to public health problems in Wales. *Journal of Epidemiology and Community Health*, *71*(7), 699-706. doi: https://jech.bmj.com/content/71/7/699.info

14 National Institute for Health and Care Excellence. (2017, June). Air pollution: outdoor air quality and health. Retrieved from https://www.nice.org.uk/guidance/ng70 [accessed 18 January 2019]

15 Non-Government Bills Unit. (2017, May). A proposal for a Bill to replace the current 30mph default speed limit on restricted roads with a 20mph limit. Consultation by Mark Ruskell MSP, Member for Mid Scotland and Fife. Retrieved from https://parliament.scot/S5PrivateBillsProposals/20170512_FINAL_VERSION1_NGBU.pdf [accessed 18 January 2019]

16 Non-Government Bills Unit. (2017, November). PROPOSED RESTRICTED ROADS (20MPH LIMIT) (SCOTLAND) BILL MARK RUSKELL MSP SUMMARY OF CONSULTATION RESPONSES. Retrieved from https://parliament.scot/S5PrivateBillsProposals/20180924_FINAL_Summary_of_consultation_responses.pdf [accessed 18 January 2019]

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