



**Northern Ireland
Assembly**

COMMITTEE FOR REGIONAL DEVELOPMENT

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**Evidence submission by the Institute of Public in Ireland on the
Road Traffic (Speed Limits) Bill.**

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1. Outline of submission

The following evidence submission by the Institute of Public Health in Ireland (IPH) provides an overview of the role of IPH and our portfolio of work relevant to the Road Traffic (Speed Limits) Bill. Section 3 outlines the key points from our submission. Evidence supporting the case for the introduction of 20mph speed limits on residential roads is set out in sections 4-13, followed by a number of recommendations for the Committee's consideration.

2. Institute of Public Health in Ireland

The remit of the Institute of Public Health in Ireland (IPH) is to promote cooperation for public health between Northern Ireland and the Republic of Ireland in the areas of research and information, capacity building and policy advice. Our approach is to support the Departments of Health and their agencies in both jurisdictions, and maximise the benefits of all-island cooperation to achieve practical benefits for people in Northern Ireland and the Republic of Ireland.

IPH has been actively engaged in research and policy development relating to the interface between health, travel and the built environment. IPH published a review of the *Health Impacts of Transport*¹, *Health Impacts of the Built Environment*², and *Active travel - healthy lives*.³ IPH submitted a response to the Department of the Environment's *Road Safety Strategy 2010-2020 for Northern Ireland*, in which we highlighted the importance of cross-sectoral working, our support for active travel, the benefits of Health Impact Assessment and the need to consider inequalities in relation to road deaths and injuries.⁴ IPH also submitted consultation responses to the *Active Travel Strategy* and *Draft Bicycle Strategy* outlining our support for cycling and walking as a means of helping to increase levels of physical activity and improve public health.^{5,6}

Our portfolio also includes membership of the Injury Observatory of Britain and Ireland and involvement in the development of the European Child Safety Report Card (part of the 'Tools to Address Childhood Trauma, Injury and Children's Safety' project). IPH was a member of the steering group which oversaw the development of Ireland's first Physical Activity Report Card in 2014.

IPH considers the introduction of a 20mph speed limit on residential areas to be one of a range of measures needed to support drivers to drive at safer speeds. In 2012 IPH responded positively in principle to the consultation on a Private Members Bill to introduce 20mph speed limits in designated restricted streets in Northern Ireland.

3. Key Points

IPH welcomes the proposal by the Committee for Regional Development to consider legislation to introduce a 20mph speed limit on residential roads.

There is sufficient evidence to conclude that a number of public health gains can be accrued from lowered speeds in residential areas including:

- Reductions in frequency of injuries, severity of injuries and fatalities particularly among vulnerable road users such as older people, people with disabilities and young children.
- Offering protection to children at higher risk of injury and fatality on the roads, particularly those living in disadvantaged communities.
- A contribution to reorienting the focus of residential streets so they become safer, more liveable places for children to play and more conducive to community and neighbour interaction.
- Increasing the appeal and safety of the environment for walking and cycling and potentially contributing to active travel and physical activity.
- Enhanced support for drivers to modify their driving behaviour in residential areas by adopting a consistent and simplified approach.
- Opportunities to limit environmental pollution arising from motorised vehicles.

The introduction of this legislation would support the vision set out in the draft *Bicycle Strategy for Northern Ireland* to create a safe shared space for all road users. In addition the legislation would have scope to support the aims set out in government policy on active travel (*Building an Active Travel Future for Northern Ireland*) as well as supporting government efforts to promote opportunities for physical activity including children's play.

4. Evidence for 20mph speed restrictions

Evidence relating to the introduction of 20mph speed limits is presented in the following sections according to:

- impact on road traffic accidents;
- reducing injuries and fatalities;
- public health benefits of creating safer, more liveable environments; and
- need for education and awareness on the introduction of any such speed restrictions.

It is important to acknowledge that much of the evidence around 20mph speed restrictions is based on studies evaluating the impact of 20mph speed zones (physical traffic calming measures) as opposed to speed limits (signage only). It is also

important to note that in jurisdictions where speed limits are presented as km/h, 30km/h is considered the equivalent to 20mph. The evidence presented in the following sections clearly stipulates the type of speed restrictions in place and the effects thereof.

5. Supporting drivers to modify their driving behaviour and changing drivers' perceptions

Research indicates that in general, drivers use a combination of design issues (such as lane width, visibility and clearance) and road use issues (such as traffic volumes, turning activity and pedestrian activity) in choosing a speed that feels appropriate.⁷ While signposting speed can change driver behaviour, that greater effects are seen in the context of more comprehensive measures including speed zones. The proposed legislation will potentially make it easier for drivers to comply with speed limits by adopting a consistent and simplified approach. There are already over 500 20mph speed zones in operation across Northern Ireland and the evidence from other parts of the UK would suggest that the roll out of 20mph speed limits in residential streets is more effective in terms of compliance.⁸

There is growing recognition and support for the societal benefits of reducing traffic speed in residential areas. In a review of drivers' perceptions of driving on urban residential streets in a 30km/h speed limit, the majority of respondents agreed that motorists should give priority to pedestrians/ cyclists anywhere they are encountered on 30 km/h residential streets. However, a majority of the drivers considered breaking the speed limit as a way to reduce their travel time.⁹

Evidence from the pilot schemes in both Portsmouth¹⁰ and Edinburgh¹¹ found that compliance with 20mph speed limits was achieved if the baseline average traffic speed was already at 24mph or less. A review by the Road Safety Observatory¹² found that 52% of drivers agreed that driving 35mph in 30mph areas is dangerous. In line with other research, speeding on 30mph roads was more commonly reported than speeding on 60mph roads. Men and younger drivers were more likely to report exceeding the speed limit than were other groups.¹³

The roll-out of 20mph speed limits across all residential streets will support drivers in modifying their driving behaviour. In a recent report on approaches to tackle health inequalities in the UK, Professor Danny Dorling noted that given the extent to which 20mph speed limits and zones have been implemented across the UK, it now makes sense as a national speed limit. Professor Dorling argues that the residents and workers across the UK should be protected by 20mph speed limits and that it would avoid confusion as well as save lives and improve public space.¹⁴

6. Reducing road traffic accidents, injuries and fatalities

Evidence exists to support the introduction of 20mph speed limits as a means of reducing the number and severity of road traffic accidents. It has been estimated that a reduction of one mile per hour in existing low speed areas resulted in 5% fewer collisions.¹⁵ A recent umbrella review of the effects of 20mph zones and limits on health and health inequalities concluded that there was convincing evidence on the effectiveness of these measures in reducing accidents, injuries, traffic speed and volume, as well as improving the perception of safety. The findings of this review are summarised below:¹⁶

A UK study examining the impact of 20mph speed zones in 200 small residential areas found:

- 61% reduction in total injuries;
- 70% reduction in child pedestrian injuries;
- 48% reduction in child injuries;
- 6.2% reduction in accidents for each 1mph reduction in speed; and
- On average speed reduced from 25 to 16mph¹⁷

Studies in the Netherlands reported similar effects at 30kmh:

- 5% reduction in accidents;
- 25% reduction in injuries;
- 85% of traffic travelling at a mean speed of <30km/h and a 15-30% reduction in traffic volume;¹⁸
- 25% in injuries over a 15 year period;
- considered to be a cost-effective intervention.¹⁹

A German study found a 25% reduction in accidents in an area where 30km/h limits were in place.²⁰ In Denmark, 15-30km/h speed zones were associated with a 64% reduction in road user injuries; whilst a London based study reported a 45% reduction in injuries in 20mph zones.²¹

7. Reducing injury/accident risk for vulnerable road-users

Reducing the speed limit from 30 to 20mph has been demonstrated to reduce the number of injuries and fatalities.²² A speed limit of 20mph slows traffic down sufficiently to adapt to the presence of pedestrians and other road users; a person is seven times more likely to survive if hit by a car travelling at 20mph rather than 30mph.²³

Lowering the speed limit to 20mph reduces collisions between vehicles and children by up to 70%.²⁴ Research suggests that one of the risk factors for children in fast

traffic environments is a developmental issue: their eyes and brains are not yet mature enough to be able to judge speeds over 20mph.²⁵ This makes it more hazardous for children crossing the road.

In Great Britain, 90% of child pedestrian injuries on weekdays occurred on 30mph speed limit roads.²⁶ In Northern Ireland, for the period January 1999 to March 2009 (inclusive), between 88% (12-15 year olds) and 98% (0-4 year olds) of casualties among boys occurred in 30mph speed limits. A similar trend was observed among girls, ranging from 91% of 12-15 year old casualties to 97% of 0-4 year old casualties being a pedestrian casualty in a 30mph zone.²⁷

Residential streets differ significantly from main thoroughfares, in that they are likely to have a significant number of more vulnerable road users, especially children, older people and disabled people. Research shows that the impact of pedestrian fatality drops from 7% at 30mph to 1% at 20mph.²⁸ However when considered by age group, the vulnerability of older pedestrians is clear as their risk of fatality at 30mph is 47%.²⁹ Older pedestrians are particularly vulnerable since they are largely unprotected and even in moderate collisions are at greater risk of fatality or serious injury. There are consequences of ageing on sensory, perceptual, cognitive and physical abilities that can result in problems coping with traffic.³⁰

8. Inequalities in accidents and injury on the roads

There are significant inequalities in child injury, with children who live in deprived areas at greater risk of injury.²⁶ There is evidence to suggest that the incidence of road traffic injury and fatality is higher in more deprived communities. A review of child pedestrian road casualty data between 1999 and 2008 found that children living in the most deprived areas of Northern Ireland were 4.8 times more likely to be injured as a pedestrian in a road collision than those living in the most affluent areas.³¹ A further study found that children living within the most deprived areas of North and West Belfast were over three times more likely to be involved in road traffic accidents.³²

9. Cost of injuries and cost-effectiveness of speed limits

The latest Department for Transport report on road casualties in Great Britain provides an estimate of the costⁱ of road accidents and casualties in 2013. The total cost of all reported road accidents and casualties was estimated to have been £14.7bnⁱⁱ (which includes).³³

ⁱ Costs based on 2013 prices and values

ⁱⁱ Loss of output due to injury; ambulance and hospital costs; human costs of casualties; police costs; insurance and administration; and damage to property.

The cost of child casualties in Northern Ireland over the period 2003-2008 has been estimated as £50m each year.³¹ This is a significant finding in the current context, given that the majority of child casualties in both urban and rural areas occur in 30mph speed limits.

10. Creating a more liveable environment for road users and residents

While the primary focus of the proposed legislation is on reducing road traffic injuries, slowing down traffic in residential streets has the potential to deliver broader return to public health as streets become more conducive to play and social interaction. There is growing interest in the UK and internationally in redressing the balance between people and traffic through participation in movements such as *Living Streets* (UK)³⁴ and *Complete Streets* (USA).³⁵ *Complete Streets* integrates people and place in the planning, design, construction, operation, and maintenance of transportation networks. A recent review found that *Complete Streets* projects tended to improve safety for everyone, increased cycling and walking, showed a mix of increases and decreases in motorised traffic, as well as support for economic investment.³⁶

Social networks are important for both physical and mental health but heavy motor traffic has been shown to have a negative impact on opportunities for social interaction among residents. A recent study in Bristol found that the average resident on a busy street had less than one quarter the number of local friends compared with those living on a similar street with little traffic.³⁷

One of the main reasons for the introduction of 20mph speed limits is to make residential streets safer. Evaluations of a number of pilot schemes demonstrated that local residents felt their areas were safer for walking and cycling. The overall level of support for the 20mph speed limits on residential streets in Edinburgh increased from 68% 'before' to 79% 'after', while the proportion of respondents strongly supporting the 20mph speed limit increased significantly from 14% 'before' to 37% 'after'.¹¹

Residential streets are typically where children play, learn to ride a bicycle, meet their friends and cross the road to get to friends' houses or play areas. Parents who perceive their street as a safe place are more likely to let their children play outdoors. This is reflected in the current Northern Ireland policy statement on play and leisure which states:

'Where communities and environments are configured to maximise informal contact among neighbours, particularly through well developed and appropriate opportunities for play, the streets are safer, children are taken

*better care of, people are generally happier with their surroundings, and there is increased social participation in local activities and reduced risk of crime, graffiti and violence.'*³⁸

Play is crucial to children's health and development; it improves their physical and mental health and can help to maintain a healthy weight.³⁹ However the most recent Health Survey Northern Ireland⁴⁰ shows that a quarter of children aged 2-10 are overweight or obese and a key contributing factor is low levels of physical activity – only half of 7 year old children across the UK are sufficiently active for good health and children in Northern Ireland are the least active at 43% compared to the rest of the UK.⁴¹ Maximising children's opportunities for play, in particular outdoors and active play as well as active travel can help redress the trend towards increasingly sedentary lifestyles. In Edinburgh, the proportion of older primary school children allowed to play unsupervised outside their home on the pavement or in the street rose from 31% to 66% following the introduction of 20mph speed limits.¹¹

11. Enhancing the environment for active travel

Slowing down traffic can help make residential streets safer and more attractive for walking and cycling, thus contributing to a modal shift away from cars towards active travel. This is supported by evidence from the health, planning and traffic engineering literature which has found higher levels of active travel in environments made safer through measures such as enforcement of speed limits, traffic calming and prioritisation of the rights of pedestrians and cyclists over motorised traffic.⁴²

However, evidence in this area remains incomplete. A review by the National Institute for Health and Clinical Excellence found there was insufficient evidence to make any firm conclusions about the extent to which the specific content of traffic calming interventions influences their effectiveness; partly due to the diverse range of interventions.⁴³

Nonetheless, short journeys are particularly amenable to change in favour of active travel. One third of all journeys undertaken in Northern Ireland are for distances of less than two miles. Currently, 51.6% of these journeys are taken by car, while 43% are on foot and less than 1% by bicycle.⁴⁴ However, fear of injury can put people off walking and cycling; therefore creating safer roads can help encourage active travel.²⁶

As well as health benefits, evidence suggests that environments conducive to walking and cycling are also good for local economic development and local property values. Safe roads can have wider financial benefits; enhancing the walkability and opportunities for cycling within neighbourhoods can lead to greater use of local

shops and businesses contributing to greater commercial activity within communities.⁴⁵ The WHO *Health Economic Assessment Tool* (HEAT) for walking and cycling can help local authorities place a financial value on the benefits of active travel in their communities.⁴⁶

The profile of road users in Northern Ireland is changing with increasing numbers of cyclists in Belfast in particular.⁴⁷ The draft *Bicycle Strategy for Northern Ireland* sets out a vision that seeks to establish a safe, shared space for all road users.⁴⁸ This is an important dimension of the strategy, given the needs of this growing group of road users. The introduction of the Belfast public bike hire scheme, coupled with the proposals for 20mph speed limits within Belfast city centre, offers a unique opportunity to facilitate active travel in a safe and sustainable way.

12. Environmental pollution – air and noise

There are two issues to consider when assessing the potential impact on air pollution and noise levels of reducing traffic speed in residential streets. If the policy results in a modal shift towards more active forms of travel and/or a reduction in the number of car journeys made along this route, there will be reduced levels of noise and air pollution. However if traffic levels remain the same but moving at slower speeds, the evidence of impacts is less clear as a range of factors need to be taken into consideration. These issues are considered below.

A review of the evidence on issues related to speed limits acknowledged that emissions are highest in slow-moving traffic and lowest at speeds between 25mph and 55mph. The main source of noise at speeds above 35mph is from tyres, while below 25mph this is replaced by engine noise.⁴⁹

Given that both emissions and engine noise are made worse by frequent acceleration and braking, evidence suggests that traffic conditions, road and design and driver behaviour have greater potential impacts on environmental pollution than the speed itself. For example, an evaluation of the estimated impacts on vehicle emissions of a 20mph speed restriction in central London concluded that the stop start nature of traffic in central London contributed more to emissions than the posted speed limits.⁵⁰ Elsewhere it has been shown that speed reductions that result in smoother traffic such as traffic signal coordination, reduce noise and emissions, while those that increase braking such as speed humps have the opposite effect.⁷ Driver behaviour is an important consideration in both traffic conditions and road design as an aggressive driving style including hard acceleration and braking will increase both engine and tyre noise as well as emissions.⁵¹

Air and noise pollution are important considerations within the context of the proposed Bill. However, it will be important to take account of current road traffic speeds and conditions, as well as any increases in cycling and walking, to determine if the implementation of the proposed 20mph speed limits is likely to impact on levels of noise and air pollution.

13. Raising public awareness about the proposed legislation

IPH welcomes the clause within the proposed Bill requiring the Department for Regional Development to raise public awareness of the change in law before it takes effect. Whilst 20mph speed zones and limits are not new to Northern Ireland, the implementation of such speed restrictions to date has been localised. Given the proposed roll out 20mph speed limits on residential roads, it will be essential that all road users are aware of the changes in speed limits and the implications for their mode of transport, journey route and travel time.

The WHO *Report on Road Traffic Injury Prevention* concluded that road safety campaigns were able to influence behaviour when used in conjunction with legislation and law enforcement. The report also noted that when used in isolation, education, information and publicity generally do not deliver tangible and sustained reductions in deaths and serious injuries.⁵² We would therefore urge that due consideration is given to resources for enforcing 20mph speed limits to ensure successful implementation of lower speeds in residential areas.

In the Republic of Ireland, there has been a public awareness strategy to alert citizens of the move towards 'slow zones' which give local authorities the power to introduce 30km/h speed limits in residential areas. This is an important move forward in terms of improving the road safety in residential areas, particularly for pedestrians and cyclists. The roll out of 'slow zones' across the Republic of Ireland, coupled with the potential introduction of 20mph speed limits in Northern Ireland, will help reinforce these lower speed limits in both jurisdictions and in turn help to achieve compliance with new speed restrictions, particularly among those driving frequently cross-border.

14. Recommendations

As part of any future evaluation of the impacts of 20mph speed limits, IPH recommends that public health outcomes would be assessed including injury prevention and the broader public health gains relating to active travel and perception of area safety. Consideration should be given to applying the WHO Health and Economic Assessment Tool within any such evaluation. In addition, consideration should be given to the assessment of the impact of the legislation on health inequalities.

Any pre-legislation or post-legislation assessment of the cost-effectiveness of this measure should include data related to the significant personal and health service costs associated with road injuries and deaths in Northern Ireland.

IPH welcomes the commitment that legislative changes to speed restrictions would be supported with targeted public awareness and road safety/education campaigns to ensure the highest possible level of compliance.

IPH recommends that public information campaign(s) should be adequately funded and evaluated to ensure the best possible outcomes are achieved in terms of public awareness and compliance with any new speed restrictions.

IPH considers that the success of the new speed limits will rely heavily on aspects of enforcement and that provisions for same should be carefully considered. Engagement with local communities and all relevant stakeholders, such as PSNI and local councils will be a critical part of the implementation process.

As with any change in policy, if 20mph speed limits are introduced, it will be important to determine if the anticipated benefits of reduced speeds are sustained over time. If the new speed limits fail to achieve reduced speeds in some areas, consideration should be given to expanding the range of speed limiting measures in those resistant areas.

Consideration should be given to adequate signage in both public and private housing developments. Roles and responsibilities in the context of timely provision of appropriate speed limit signage within privately owned housing developments should be clearly assigned.

Particular consideration should be given to the signage and monitoring of 20mph speed limits around schools, as areas with high volumes of motorised traffic, as well as pedestrian and cyclist movement.

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