



A Guide to 20mph Limits

Executive Summary

The purpose of this guide is to explain to the non road safety professional the pros and cons of 20mph speed limits and zones, present the research that has been conducted on the effectiveness of limits and zones and provide advice on when they are most appropriate.

20mph limits consist of a speed limit change to 20mph which is indicated by road signage. TSRGD 2016 says: 'the requirement to place at least one repeater sign along a speed limit has been removed. The onus is on the traffic authority to determine the appropriate provision of speed limit repeaters having regard to existing guidance. In deciding this, it is strongly recommended that consideration is given to the potential for challenge to the enforcement of the speed limit. Normal convention is that they do not have self-enforcing physical features, but may be supported by interventions including education, police enforcement, community speedwatch and selective engineering measures. 20mph zones are designed to be "self-enforcing" by means of traffic calming measures or safety cameras that are introduced along with the change in the speed limit'. Where 20 mph speed limits are introduced, Highway Authorities should monitor their effectiveness to ensure that they are managing vehicle speed at or below 20mph. If this is not the case a package of measures needs to be introduced to ensure driver compliance.

20mph zones are more costly to implement than 20 mph limits and as such tend to be used on a more selective basis. They can result in substantial reductions in speeds and casualties. Area wide 20mph limits are less costly to introduce and can be applied to large areas. However, they have a smaller effect on speed and casualty reduction than 20 mph speed zones where vehicle speeds are managed through physical traffic calming features.

Drivers who travel at higher speeds have less time to identify and react to what is happening around them. It takes them longer to stop, and if they are involved in a collision, it is more severe, causing greater injury to any vehicle occupant, pedestrian or rider involved. The purpose of 20mph limits is to create conditions in which drivers choose to drive at no more than 20mph and so reduce the likelihood of collisions, and the severity of any that do occur.

In 2017, on 20mph roads, most car drivers exceeded the speed limit under free flow conditionsⁱⁱ. Therefore, 20mph limits need to be supported by a range of measures to help drivers understand why they are set, to demonstrate their benefits, such as reducing the likelihood and severity of collisions and to encourage drivers to comply with them.

The Department for Transport advise traffic authorities to keep their speed limits under review with changing circumstances and to consider the introduction of more 20mph limits and zones, over time, in urban areas and built-up village streets that are primarily residential. It also advises that 20mph limits over a larger number of roads can be considered where mean speeds at or below 24mph are already achieved.

Many local authorities are introducing 20mph limit areas to reduce road risk, and encourage active travel, increase walking and cycling and improve air quality. Areas where traffic moves at around 20mph are more conducive to walking and cycling. A recent evaluation of the effectiveness of 20mph limits showed a small but statistically significant increase in reported levels of cycling and walkingⁱⁱⁱ.

In order to be most effective, it is important that drivers understand and comply with the lower speed limits. As they require drivers to change their driving behaviour and speed choice, they need to be supported by a co-ordinated strategy of complementary measures to make sure that road users know which roads have 20mph speed limits, why, when they apply and that they are legal limits with which drivers must comply.



They can be an important part of a Safe System Approach that recognises that road collisions can cause injuries that are higher than human tolerance to withstand, and so seeks to modify roads, design and behaviour, to minimise the risk of collisions occurring and to ensure that when collisions do occur, the impacts are unlikely to result in death or serious injury. This in particular can help people in deprived areas and encourage and enable safe walking and safer cycling.

Embedding a Safe System approach is evident in the strategies of the Department for Transport and the devolved governments, Highways England, Public Health England and in many local authority road safety strategies.

There has been substantial expansion in the number of 20mph schemes throughout Great Britain over the last few decades, beginning with 20mph zones, and in more recent years, 20mph limits.

20mph limits are areas where the speed limit has been reduced to 20mph but there are no physical measures to reduce vehicle speeds. 20mph speed limit signs are used to notify the driver of the speed limit in the area. It is vital that 20mph signage is clear and if necessary, repeaters used at appropriate intervals to ensure that drivers are aware of the speed limit and to aid compliance. They tend to be most appropriate for roads where average speeds are already low (guidance suggests below 24mph) and the layout and use of the road gives the clear impression that 20mph or lower is the most appropriate speed.

20mph zones use physical traffic calming measures, such as speed cushions and road humps, chicanes, mini-roundabouts and road narrowing, to reduce traffic speed, so that the zone becomes 'self-enforcing'. 20mph zones tend to be the most effective and reliable way to reduce speed in small areas.

A considerable body of evidence has demonstrated that speed significantly increases the likelihood of collisions, the chances of those collisions causing injury and the severity of those injuries, and that both 20mph zones and 20mph limits reduce the number and risk of these accidents and the casualties they cause. 20mph limits, without traffic calming measures, reduce speeds and casualties but tend not to be as effective as 20mph zones with traffic calming^{iv,v,vi}.

The main findings of the most recent evaluation of 20mph limits commissioned by the DfT, published in November 2018 include^{vii}:

- 20mph limits are supported by the majority of residents and drivers
- There has been a small reduction (less than 1mph) in average (median) speed
- Vehicles travelling at higher speeds before the introduction of the 20mph limit have reduced their speed more than those already travelling at lower speeds
- There was a small but statistically significant improvement in reported levels of cycling and walking.

The Atkins report, as it is known, also stated that there was no evidence yet to conclude that there had been a significant change in collisions and casualties following the introduction of 20mph limits in residential areas. However, this may change as more data becomes available.

20mph zones with physical traffic calming produce greater speed reductions, but are more costly to implement and so tend to be placed in smaller areas with a record of pedestrian and cyclist casualties.

20mph limits, without traffic calming, are most effective where speeds are at 24mph or below. However, they are less expensive than 20mph zones and so can cover larger areas, which may make them a more cost effective measure, if they are able to reduce collisions and the severity of any that do occur. Local communities often support them and they encourage sustainable travel, and are viewed as an important element of clean air strategies.



20mph speed limits are more effective when they are supported by street design that indicates that a lower speed is appropriate.

20mph limits support, and need to be supported by, other local public policies, including:

- Education and publicity campaigns to promote driving at safe speeds
- Clean Air Strategies and Zones
- Sustainable travel initiatives
- Safer school travel initiatives, including School Travel Plans
- Promoting safer vehicles and vehicle technology
- Managing Occupational Road Risk (MORR) and support from employers
- Improved Signs and Crossings
- Enforcement and compliance campaigns, including Safety Cameras
- Co-operation with Local Road Safety Stakeholders
- Liaison with the Public Health Service.

It is also crucial to use data and research evidence to set clear aims and objectives for 20mph limits and to assess whether they have been effective. It is important to evaluate whether expected objectives have been met. Evidential research should be used to ensure that the correct speed management intervention is used in each instance.

This guide summarises the recent evaluation evidence and experience of local authorities about 20mph limits.

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Introduction

Drivers who travel at higher speeds have less time to identify and react to what is happening around them. It takes them longer to stop, and if they are involved in a collision, it is more severe, causing greater injury to the occupants and any pedestrian or rider they hit.

The purpose of 20mph limits is to create conditions in which drivers naturally choose to drive at around 20mph as a result of the nature of the area.

In 2017 overall compliance with speed limits remained broadly level, which it has done since 2011, but there were minor increases in vehicles exceeding the speed limit between 2016 and 2017. However, on 20mph roads, most car drivers (86%) exceeded the speed limit under free flow conditions. It is important to note that this may not be typical of most 20mph roads, as the data is collected from a sample of 116 automatic traffic counters.

Almost half of car drivers exceeded the speed limit on motorways in 2017, and just over half of car drivers exceeded the speed limit on 30mph roads, with some (6%) exceeding the limit by 10mph or more.^{viii}

Most pedestrian casualties occur in built up areas: 19 of the 22 child pedestrians and 338 of the 448 adult pedestrians who were killed in 2017, died on built-up roads. Over half of cyclist deaths (62 of 101) and most casualties (16,886 of 18,321) also occur on these roads^{ix}.

For pedestrians struck by cars, the risk of being killed increases slowly until impact speeds of around 30mph, but above this speed, the risk increases rapidly. A pedestrian hit by a car travelling at between 30mph and 40mph is 3.5 to 5.5 times more likely to be killed than one struck by a car travelling at less than 30mph.^x

Elderly pedestrians have a much greater risk of suffering fatal injuries than other age groups.

For car occupants, the risk of being in a collision with another vehicle also increases with speed. The risk is much higher in a side impact than in a frontal impact.^{xi}

Even a small amount above the speed limit makes a big difference.



Setting Local Speed Limits^{xii}

The Department for Transport advise traffic authorities to keep their speed limits under review with changing circumstances, and to consider the introduction of more 20 mph limits and zones, over time, in urban areas and built-up village streets that are primarily residential, to ensure greater safety for pedestrians and cyclists.

It also advises that 20mph limits over a larger number of roads should be considered where mean speeds at or below 24mph are already achieved over a number of roads.

The guidance sets out a number of important factors when considering what is an appropriate speed limit:

- history of collisions, including frequency, severity, types and causes;
- road geometry and engineering (width, sightlines, bends, junctions, accesses and safety barriers etc.);
- road function (strategic, through traffic, local access etc.);
- Composition of road users (including existing and potential levels of vulnerable road users);
- existing traffic speeds;
- road environment, including level of road-side development and possible impacts on residents (e.g. severance, noise, or air quality).



20mph Limits

Local authorities have a statutory duty, under section 39 of the [1988 Road Traffic Act](#)^{xiii} to “take steps both to reduce and prevent accidents”. They must “prepare and carry out a programme of measures designed to promote road safety”, may “carry out studies into accidents arising out of the use of vehicles on roads or part of roads, other than trunk roads, within their area”, and “in the light of those studies, take such measures as appear to the authority to be appropriate to prevent such accidents.”

Many local authorities are introducing 20mph limits to reduce road risk, and encourage active travel, increase walking and cycling and improve air quality. They are encouraging and helping drivers to keep to safe speeds, but also of contributing towards healthier environments. However, to be most effective, drivers must be aware of and comply with them. As they require drivers to change their behaviour and speed choice, they need to be supported by a co-ordinated strategy to make sure that road users know which roads have 20mph speed limits, why, when they apply and that as they are legal limits drivers must comply with them.

20mph limits are most likely to be effective if they are implemented on roads that already have relatively low traffic speed.^{xiv}

To assist Local Highway Authorities when reviewing and deciding appropriate speed limits, the Department for Transport have a speed limit appraisal tool, which can be accessed at:

<https://www.gov.uk/government/publications/speed-limit-appraisal-tool>

20mph speed limits can be an important part of a [Safe System approach](#)^{xv}. This recognises that road collisions (for example, a car hitting a pedestrian at 40mph) can cause injuries that are higher than human tolerance to withstand. It seeks to modify roads and vehicles, and change behaviour, to minimise the risk of collisions occurring and to ensure that when collisions occur, the impacts are unlikely to result in death or serious injury. This means that injury prevention measures extend beyond trying to change individual behaviour and include changing vehicles, roads and vehicle speeds.

Embedding a Safe System approach is evident in the Department for Transport’s [British Road Safety Statement](#)^{xvi},^{xvii}, the [Road Safety Management Capacity Review](#)^{xviii}, Highways England’s [Safety Performance Framework](#)^{xix}, Transport for London’s [Vision Zero](#)^{xx}, the Scottish Government’s [Road Safety Framework](#)^{xxi}, and in towns and cities and local authority road safety strategies. For example, New York City is also introducing a Vision Zero programme including lower speed limits, improved street design, cameras and on-street enforcement.^{xxii}

Public Health England guidance recognises that the Safe System approach is a proactive way of addressing road safety issues, but that road design is fundamental in preventing road user errors from causing fatal or serious injury. It recommends both 20mph limits and 20mph zones, stating, “*Introducing 20mph limits and 20mph zones in priority areas can reduce vehicle speeds and thereby prevent injuries and reduce their severity. Lower vehicle speeds also help to reduce health inequalities due to traffic injury and should be supported with education and publicity, appropriate road engineering measures, and enforcement activities.*” Public Health England also advises that 20mph limits and zones and the Safe System approach be embedded in strategic documents such as the Local Transport Plan, Joint Strategic Needs Assessment (JSNA) or Road Safety Plan. It recommends introducing 20mph limits and/or 20mph zones in priority areas as part of a Safe System approach to road safety as one of three key actions for reducing child road casualties.^{xxiii}

The Marmot Review into health inequalities proposed a strategy to address the social determinants of health.^{xxiv}

A recent PACTS report recommended that the Government adopt performance indicators to help understand the processes that lead to collisions and recommended a set of performance indicators to measure progress. There



are eight recommended indicators outlined in the report, including the percentage of traffic complying with speed limits on national and local roads and the percentage of car occupants using a seat belt or child car seat.^{xxv}

A Brief History of 20mph Limits

In December 1990, the Department of Transport's Circular Roads 4/90^{xxvi} set guidelines for the introduction of 20mph speed limits; local authorities had to apply for consent to introduce a 20mph zone. This was based on international experience that had demonstrated that lower speed limits, when combined with traffic calming measures to ensure that vehicles maintained low speeds through the zone, could have safety benefits. Road safety publicity campaigns, such as the "Kill Your Speed, Not a Child" campaign highlighted that driving at 20mph was much less likely to result in the death or serious injury of a child pedestrian.

In 1999, the Road Traffic Regulation Act (Amendment) Order 1999^{xxvii} gave Highways Authorities more flexibility so they no longer had to apply for permission to introduce a zone. The updated legislation made two distinct types of 20mph speed limit possible:

- 20mph limits, which consisted of a speed limit change to 20mph indicated by speed limit signs and road markings, and
- 20mph zones, which were designed to be "self-enforcing" due to the traffic calming measures.

It suggested that 20mph limits are appropriate for roads where average speeds are already low (below 24mph) or when supported by traffic calming measures. Ultimately, the Local Authority was responsible for deciding which option, if either, was the more appropriate.

In January 2015, the Scottish Government's Good Practice Guide for setting 20mph speed restrictions (updated in 2016)^{xxviii} gave local authorities in Scotland options to introduce them near schools, in residential areas and in other areas of our towns and cities where there is a significant volume of pedestrian or cyclist activity. It aimed to encourage local authorities to set 20mph speed restrictions, where appropriate.

There has been substantial expansion in the number of 20mph schemes throughout Great Britain.^{xxix, xxx}



Characteristics of 20mph Speed Limits and Zones

20mph limits are areas where the speed limit has been reduced to 20mph but normally there are no physical measures to reduce vehicle speeds within the area. Drivers are alerted to the speed limit by 20mph signs and road markings. They are most appropriate for roads where average speeds are already low, and the guidance suggests below 24mph. The layout and use of the road must also give the clear impression that 20mph or lower is the most appropriate speed.

20mph zones use traffic calming measures to reduce traffic speed, so that the zone becomes 'self-enforcing'. Speed and road humps, chicanes, road narrowing, planting and other measures can be introduced to both physically and visually reinforce the nature of the road. Traffic calming can incorporate a wide range of measures designed to help reduce drivers' speeds and improve the overall environment.

The main traffic calming measures include vertical deflections (such as road humps, speed humps, speed cushions, speed tables and rumble strips), horizontal deflections (such as chicanes), road narrowing and central islands which can encourage drivers to reduce their speed, although they can largely depend on the balance of the opposing traffic flows. 20mph zones with traffic calming measures tend to be the most effective and reliable way to reduce speed, although 20mph limits without traffic calming can also reduce speeds.



Evidence About Outcomes of 20mph Schemes

Road safety engineering is an established and effective way of reducing road casualties, and is one of the key reasons why death and injury on our roads has fallen so substantially over the last few decades.

Evidence suggests that 20mph limits, without traffic calming measures, reduce speeds, but much less than 20mph zones with traffic calming.^{xxxix xxxii, xxxiii}

20mph schemes are often located in the most deprived areas. There is a well-established link between socio-economic status and risk of being injured in road traffic accidents,^{xxxiv,xxxv,xxxvi, xxxvii} so any increase in risk due to higher traffic speeds disproportionately affects people in those areas.



Evidence About 20mph Speed Limits

In 2014, the Department for Transport (DfT) commissioned engineering consultancy firm Atkins to conduct an evaluation^{xxxviii} into signed-only 20mph limits without physical traffic calming measures based on 12 case study schemes in England and various comparable areas with a 30mph speed limit in place. The report was published in November 2018.

The study explored the enablers and barriers to implementing a successful 20mph speed limit scheme and found that early engagement and buy-in from relevant stakeholders, clear articulation of the scheme's rationale, objectives and outcomes and tailoring of schemes to the local circumstances are crucial to a scheme being accepted by the public. It had long been thought that most residents and drivers support 20mph schemes, and this study confirmed it.

However, there was a concern amongst members of the public regarding a lack of enforcement of 20mph limits and a view that the chance of being caught exceeding the speed limit is very small.

Overall, the introduction of 20mph limits led to a small reduction in median speed (0.7mph in residential areas and 0.9mph in cities), but vehicles travelling at higher speeds before the change of speed limit reduced their speed more than those already travelling at lower speeds.

There is not yet enough evidence to conclude that in residential areas the introduction of 20mph limit had led to a significant change in casualty and collision rates, but this may change as more data becomes available. However, there was a small but statistically significant rise in reported levels of cycling and walking. 5% of residents said they were walking more and 2% said they were cycling more since the introduction of 20mph limits.

Benefits of the schemes included an improvement in quality of life, community benefits and encouragement of healthier travel modes such as cycling and walking.

The findings of the study support the advice set out in the DfT's Setting Local Speed Limits. The guidance states that traffic authorities have the power to introduce 20mph limits (signed only) and 20mph zones (with physical traffic calming measures) on major streets where there are or could be significant numbers of journeys on foot and on bike and on residential streets.

However, consideration should be given to encouraging traffic authorities to work with relevant partners from the police, health, environment, urban planning, education, and the local community to deliver 20mph limits as part of an integrated approach to addressing transport, community, environment and health objectives.

The report also stated that there was no evidence yet to conclude that there had been a significant change in collisions and casualties following the introduction of 20mph limits in residential areas. However, this may change as more data becomes available.

Recent media reports^{xxxix} have questioned the effectiveness of 20mph schemes, claiming that they may be leading to more deaths. However, these reports do not appear to distinguish between schemes with traffic calming measures and schemes without. They claim that in some cases rates of serious accidents have gone up as frustrated drivers take risks to pass those travelling within the limit. The media reports demonstrate the importance of providing clear evidence and publicity to support 20mph limits.



Welsh research has suggested that if all current 30mph limit roads in Wales became 20mph limits, it is estimated that 6–10 lives would be saved and 1,200 – 2,000 casualties avoided each year, at a value of prevention of £58M–£94M. In terms of air pollution, deaths attributed to nitrogen dioxide (NO₂) may increase by 63, and years of life lost by 753. However, deaths attributed to particulates (PM_{2.5}) may decrease by 117 and years of life lost by 1,400^{xl}.

Evidence from Earlier Evaluations

Portsmouth ^{xli}

In 2007, the speed limit was reduced from 30mph to 20mph on around 94% of roads in Portsmouth. A study found that on roads with an average speed of 20mph or less before the limit was introduced, there was an average speed reduction of 1.3mph, which varied from 0.6mph to 1.7mph. Average speed dropped from 19.8mph to 18.5mph. This was a statistically significant reduction in speeds.

There was also a 21% reduction in reported injuries of all severities. The number of killed or seriously injured casualties rose in the same time period, although the relatively low numbers meant that small fluctuations by chance could have had an undue influence on this. It was not possible to measure whether or not the amount of pedestrian activity had increased following the introduction of the 20mph limits.

Bristol

Bristol City Council piloted 20mph limits using speed limit signs and communication campaigns to encourage children to play outside and increase cycling. They also used education campaigns, vehicle activated signs and roundels on the road. Two years later, speed surveys on 10% of the roads covered by the scheme found reduced mean daytime speeds on 65% of the roads. On residential roads, there was an average 0.4mph reduction in speeds, and a larger reduction on main roads, 1.7mph average reduction compared with 1.3mph in other areas. Casualties in the first 12 months reduced slightly in one pilot area but increased in the other area. The data did not show significant indications either way. However, the amount of monitoring data was very small and the study period short.

Key lessons learned were that the vast majority of people in the pilot areas wanted safer more pleasant streets and a favourable environment for walking and cycling. Results suggested that 20mph limits, if introduced with careful community engagement, communication and driver education, can help to change choice of travel mode. A key issue is the need to distinguish between streets with shops, schools, and homes, where pedestrian activity is currently suppressed, versus arterial routes where speed has a less significant effect on communities.^{xliii} Support for 20mph limits amongst residents was around 82% and there was 70% support for a citywide expansion of 20mph limits in residential areas. However, according to one study, drivers' attitudes to 20mph speed limits do not necessarily reflect their actual behaviour, with some supporters speeding, while some opponents comply^{xliii}.

A recent evaluation of the Bristol 20mph limit scheme showed that on average, according to Automatic Traffic Count speed data there was a statistically significant 2.7mph decrease in vehicle speeds on roads where the 20mph speed limit was introduced. In the areas that remained as 30mph limits, there was a statistically significant but negligible reduction in speed (0.04 mph). The estimated total number of injuries avoided across the city each year was 4.53 fatal, 11.3 serious, and 159.3 slight injuries, an annual saving of £15,256,309^{xliv}.

Edinburgh

Edinburgh council estimate that a 20mph limit (without physical traffic calming measures) could be introduced at just 1/6th of the cost of a traditional 20mph zone. The council expected that 20mph limits would encourage more



walking and cycling and reduce the severity of any accidents.

'Before' and 'after' speed surveys found that where the speed limit was lowered to 20mph, 'before' speeds fell by an average of 1.9mph. Where the speed limit remained at a 30mph, the average fall in speed was 0.8mph. Some locations with a 'before' speed over 24mph saw an average fall of 3.3mph. However, there were slight increases in speeds in some locations and some areas continued to have average speeds over 24mph, despite the reduction of the speed limit to 20mph.

The 20mph speed limit resulted in an overall drop in speeds in most cases. Although 75% of the locations still had average speeds of more than 20mph, in all but four of the locations, speeds were below 24mph. There was also strong residential support for 20mph limits to improve safety for children walking around the area and playing in the street, and walking and cycling conditions. In the following year, there were lower vehicle speeds and there was a 7% increase in journeys by foot, a 5% increase in journeys by bicycle and a 3% fall in journeys by car.^{xiv}

The Glasgow Centre for Population Health's report^{xvii} described potential scenarios, based on speed reductions observed in 20mph schemes in Bristol and Edinburgh. Scenario one, based on speed reductions in a 20mph scheme in Bristol, predicts a 13.5% casualty reduction, including five fewer fatalities and a £39.9m saving per year. Scenario two, based on the average speed reductions in a 20mph pilot scheme, anticipated a 9.5% reduction in casualties, including three fewer fatalities and a £27.1m saving. Scenario three predicted a 2.6% casualty reduction (including one fewer fatality) and £7.8m saved per year. The report concluded that the successful introduction of 20mph speed limits would be affected by local contexts, communication, behaviour change campaigns, policing and enforcement.

In Scotland a number of local authorities have introduced wider 20mph limits areas across urban areas. These range from small conurbations in Fife to almost city wide projects in the City of Edinburgh.

During 2018, Mark Ruskell MSP, generated a consultation process to assess the impact of introducing legislation whereby the mandatory speed limit on restricted roads would be reduced from 30 to 20mph across Scotland. This process has progressed, with Mr Ruskell now introducing a members Bill on the Restricted Roads (20mph Speed Limits) (Scotland).

In broad terms Scottish Government and road safety professionals believe 20mph speed limits are a good idea when implemented in the right environment. However they believe more evidence and more detailed analysis is needed before the measure proposed in the Restricted Roads (20mph Limits) (Scotland) Bill can be fully supported.

Birmingham ^{xlvii}

Birmingham City Council have introduced 20mph speed limits to improve safety. A citywide publicity campaign is underway to show road users the benefits of driving at 20mph on residential roads. There are also a number of other activities to encourage drivers to stick to the 20mph limits currently taking place. These activities include 'kid's court', an educational activity, which gives speeding drivers the opportunity to face a panel of schoolchildren or receive penalty points on their licence and a £100 fine. A video featuring local schoolchildren has also been produced and is being used to deliver a message to speeding drivers when the police are out on location delivering roadside education and enforcement activities. An evaluation report has not yet been published.



Hampshire

In June 2018, Hampshire County Council concluded a comprehensive review of the outcomes achieved and effectiveness of 14 pilot “signed only” 20mph speed limits. The pilot schemes consisted of a mix of urban, residential and rural village centre areas across the County. The before-and-after speed data recorded for the pilot schemes demonstrated that reducing the speed limits in these areas had very little impact on driver behaviour. The County Council will continue to consider introducing 20mph speed limits in locations where injury accidents attributed to speed are identified, with such proposals assessed in accordance with its current casualty reduction led policy and Department for Transport guidance on setting speed limits.

Other Reviews

An umbrella review of the effects of 20mph zones and limits on health and health inequalities indicated that 20mph zones and limits were effective in reducing accidents, injuries and traffic volumes. There was also evidence that these measures are cost effective and are typically received positively by local residents.^{xlviii}

However, a 2017 survey 2,000 UK drivers revealed that more than half (52%) of admit to driving at 25 mph or faster in a 20mph speed limit, and 26% admitted to speeding in 20mph limits once a week or more. 25-34 year olds were most likely to drive at 25mph or faster in a 20mph speed limit (73%), while 55-64 year olds were least likely (45%).^{xlix}



A 2019 study aimed to investigate the effects of 20mph zones and limits on public health outcomes such as collisions and air quality. It also aimed to assess the differences between the individual effects of 20mph zones and limits, making it the first of its kind. The study involved conducting a systematic review of the 20mph zones and limits research area, starting with 6162 records and resulting in 12 key studies that all reported at least one public health outcome as a result of 20mph interventions. These studies were then investigated and outlined to give a picture of the overall effects of these interventions.

The results of the study suggest that 20mph zones have a very positive effect on public health outcomes. Similar was not found for 20mph limits, but research in this area is limited: there were only 2 studies concerning limits in this review. Overall research does indicate that 20mph limits are beneficial, but further evaluation is needed, with the use of comparison groups, to identify the specific public health effects. The key beneficial public health outcomes for 20mph zones were significant reductions in numbers of collisions and severities of casualties.

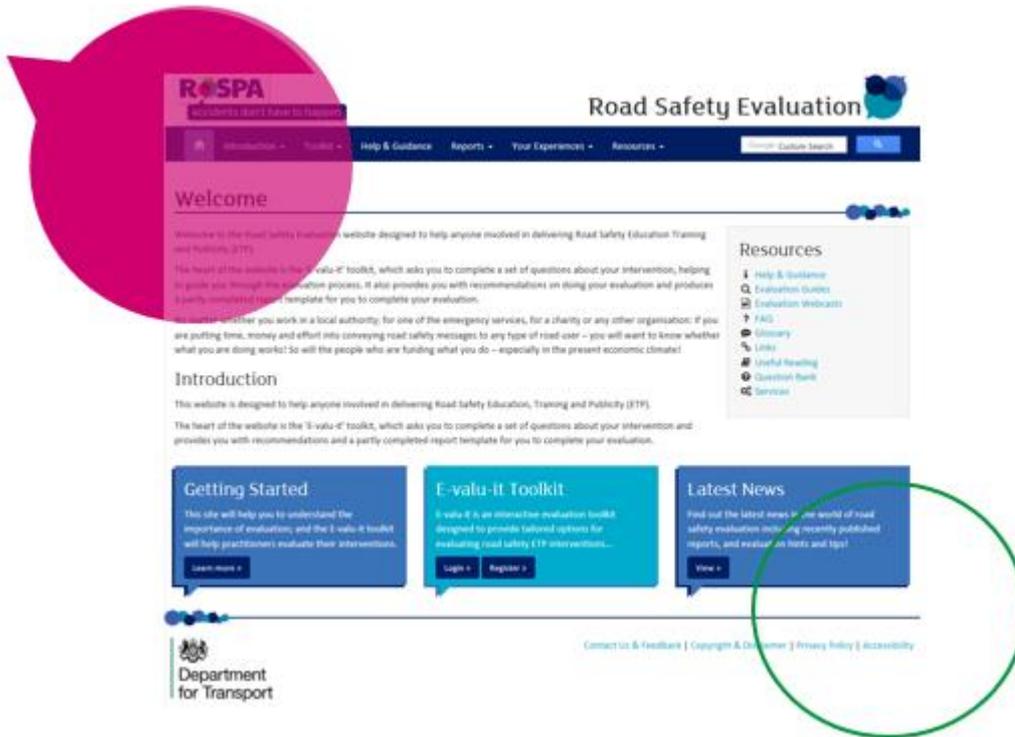
Research that investigates the effects on non-road safety related public health outcomes, such as pollution, is limited. It is possible that 20mph zones and limits could actually increase pollution, as some vehicles will operate inefficiently at low speeds. However, it is also possible that reduced speeds encourage smoother driving and reduced acceleration, which reduces emissions. Regardless, any negative effects could be seen as insignificant when considering the highly positive road safety benefits found as a result of 20mph zones. Some studies showed that 20mph interventions resulted in individuals feeling safer and calmer in areas that were previously full of high-speed traffic, causing them to walk and cycle more.ⁱ

Local Highway Authorities should consider the type of traffic calming measure used within 20mph zones, as some features can cause more vehicle pollution than others. This is illustrated in a report published by Imperial College London which explored the effects of a London 20mph speed restriction on vehicle emissions. It was found that cars can produce up to 98% more nitrogen oxides and up to 64% more carbon dioxide when driving over a speed bump as opposed to a speed cushion (these are shallower and do not span the entire width of the road).ⁱⁱ



Evaluating the impact of 20 mph speed limits

In addition to monitoring pre and post speed and casualty data, it is important to monitor behavioural change, education, training and publicity interventions to assess whether and how 20mph limits road safety programmes have achieved their aims (and if not, why not) so that future road safety programmes can be improved. Publishing the results of evaluations also helps to share any lessons learned. Evaluation results become part of the evidence base for road safety.



Help and guidance on how to plan and conduct evaluations of road safety programmes is available at www.roadsafetyevaluation.com^{lii}. The website contains an interactive road safety evaluation toolkit, E-valu-it, to help road safety practitioners plan, carry out and report the results of road safety evaluations.



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