

Why are we introducing 20mph (signed only) limits on residential and shopping streets?

Surrey's fourth Local Transport Plan (LTP4), adopted on 12 July 2022, sets out our plans for transforming our transport network from 2022 up to 2032 and beyond.

The LTP sets out a proposal for '**lower 20 mph road speeds to make our roads safer and our air cleaner**'. This proposal will play a key role in our approach to **rapidly reducing carbon emissions, ensuring that Surrey is on track for net zero emissions by 2050** (LTP4 objective).

The proposal refers to the introduction of 20mph limits indicated by speed limit (and repeater) signs only (signed only limits); rather than 20mph zones which are designed to be 'self-enforcing' through the introduction of physical traffic calming measures (e.g. speed humps, chicanes).

The intention is to work towards default 20 mph limits in residential and shopping streets, in accordance with the Surrey Street Family Framework. There is a presumption that most existing 30mph limits will be reduced to 20mph, however, this is not appropriate for all roads.

Lower speed limits in residential and shopping streets will also play an important role in:

- Our '**Vision Zero**' approach to road safety – This follows the principle that it is neither inevitable nor acceptable that anyone should be killed or seriously injured when travelling. The aim is to achieve a highway system with no fatalities or serious injuries involving road traffic. As part of this approach, we will proactively design out hazards on the road network. This will include working towards default 20 mph schemes in residential and shopping streets, in accordance with the Surrey Street Family Framework.
- Establishing '**Liveable Neighbourhoods**'- neighbourhoods that recognise their importance as places for people, and not just their importance for the movement of vehicles¹. We will work with partners to create attractive local environments and welcoming neighbourhoods that people want to live in; reducing the dominance of cars and goods vehicles resulting in improved safety, air quality and noise pollution to encourage more walking, cycling and social interactions. Introducing 20 mph and traffic management as default on roads identified in the Surrey Street Family Framework² as having an important 'place' function, is an important part of this approach.

¹ Liveable Neighbourhoods (LN) are defined areas that upscale the importance of places for people and rebalances the dominance of vehicles against other road user groups. Over 250 possible LN zones have been identified across urban areas in Surrey. The first tranche (Year 1 of a 10 Year programme) comprises of 33 LN zones, primarily located in the northern boroughs of Elmbridge, Runnymede, Spelthorne and Woking. All zones include proposals for introducing 20mph limits.

² The Framework will provide a basis for identifying the different functions of roads in different places, recognising that, on many roads, 'place'-based activities (such as walking, cycling, social interactions, leisure and retail) are more important, whilst also recognising that some roads have important 'movement' functions.

- Delivering our **Healthy Streets approach** - In addition, we have produced guidance on Healthy Streets for Surrey, to deliver high quality, attractive, safe, accessible and sustainable development, to achieve a sense of place. The guide is aimed at better embedding health, wellbeing and sustainability into our street design. The guide allows a range of users, from residents to master planners and highway engineers, to access and understand design guidance that helps them to create streets as Healthy Streets. 20mph limits are an important characteristics of our Healthy Streets approach.

Growth in 20mph (signed only) limits elsewhere

In 2013, DfT provided revised guidelines on the setting of local speed limits (DfT Circular 01/2013). The guidance says that authorities can set 20mph speed limits in areas where local needs and conditions suggest the current speed limit is too high.

Following the publication of Circular 01/2013, various local authorities introduced area-wide limits covering substantial urban areas. This included places like Brighton, Winchester (Hampshire), Chichester (West Sussex), and Tonbridge (Kent) in the south-east. More recently, a number of countywide schemes have been delivered:

- Oxfordshire – As part of the County Council's commitment to 'VisionZero' (the elimination of deaths and serious injuries from road traffic collisions in Oxfordshire), communities are able to request the introduction of 20mph areas.
- Cornwall – Cornwall is one of the first rural areas to reduce speed limits from 30mph to 20mph in built up areas. This will support Cornwall's ambition to be carbon neutral by 2030.

Elsewhere in the UK:

- London now has 20 mph limits on most minor roads and substantial lengths of major roads.
- Edinburgh has introduced 20 mph limits across much of the city.
- Wales has reported success with 20 mph limits in pilot areas and will replace 30 mph limits with 20 mph across the country in September 2023, except for those roads exempted.

A number of **international organisations** have called for the wider roll-out of 20mph limits:

- In 2020, the General Assembly of the United Nations³ endorsed 20mph or 30km/h speed limits where vulnerable road users and vehicles mix, except where strong evidence exists that higher speeds are safe, noting that efforts to reduce speed in general will have a beneficial impact on air quality and climate change as well as being vital to reduce road traffic deaths and injuries.
- The World Health Organisation (WHO, 2017) recommends 20mph limits as best practice in residential areas.

³ Stockholm Declaration, Third Global Ministerial Conference on Road Safety: Achieving Global Goals 2030 Stockholm, 19–20 February 2020. Accessed here: [Stockholm Declaration - RoadSafetySweden](#)

- The National Institute for Health and Care Excellence has published various guidance highlighting the potential role of 20mph limits in reducing unintentional injuries on the road (2010), promoting walking and cycling (2012), and tackling air pollution (2017).

Potential benefits of 20mph limits

The **potential** benefits of 20mph limits are substantial and wide-ranging:

- **Creating safer environments for all in streets where people and traffic mix, especially the most vulnerable, like pedestrians, cyclists, children and older people and people with disabilities, and reducing the severity of collisions when they do occur (reducing road deaths and serious injuries).**

There is an established positive relationship between vehicle speed and injury collisions – the higher the speed, the more collisions and where collisions do occur, the higher the risk of a fatal injury at higher speeds. 20mph speed limits provide drivers more reaction time and reduce the stopping distance required. For collisions between pedestrians and vehicles, at 20mph 95% survive, but at 30mph this drops to around half, and to 5% at 40mph.

At 20 mph a pedestrian is likely to survive an impact with a motor vehicle whereas at 30 mph the pedestrian is significantly more likely to be killed⁴.

If a child suddenly steps in front of a car, they are much less likely to be seriously injured or killed if a vehicle is travelling at 20mph limit.

- **Improving health by creating safer and more appealing environments for walking, cycling and scooting.**

Lower speeds mean people feel more comfortable to walk and cycle and it is safer for children to walk to school. Traffic speeds are often highlighted as a reason why children do not walk to school.

- **Tackling climate change, by promoting safe walking and cycling to reduce car dependency, and reducing carbon dioxide (CO₂) tailpipe emissions (as a result of slower and less acceleration and deceleration).**

A key factor determining the impact of 20mph limit schemes on carbon emissions is the extent to which the lower speeds increase the likelihood that residents will choose to walk or cycle (because they feel that it is now safer to do so), and therefore reduce the overall vehicle kilometres undertaken.

The relationship between CO₂ emissions and vehicle speed is complex. Tailpipe CO₂ emission factors are higher for petrol vehicles at 20mph compared to 30mph (+2.1%); but slightly lower for diesel vehicles (-0.9%). Smoother driving at 20mph (with less acceleration and deceleration) is likely to result in lower CO₂ emissions. Electric vehicles do not emit CO₂ emissions directly, but the generation of electricity used to charge electric

⁴ LUSTRE – Lower Urban Speed Limits in Europe: What does the evidence show? (PACTS, et.al., 2023) <https://www.pacts.org.uk/lustre-lower-urban-speed-limits-in-europe/> (Accessed: 25/05/2023)

vehicles often results in CO₂ emissions and the power (electricity) demands of electric vehicles are less at 20mph than 30mph.

- Improving air quality, by reducing NO_x tailpipe emissions (as a result of slower and smoother driving), reducing particulate matter from brake and tyre dust (again as a result of slower and smoother driving), and promoting safe walking and cycling to reduce car dependency.

Vehicle tailpipe emissions - particularly nitrogen oxides (NO_x) and particulate matter (PM₁₀, PM_{2.5}) are the primary cause of poor air quality in most urban areas. Similar to CO₂ emissions, the impact of driving speeds on tailpipe NO_x and PM₁₀ emissions is not straightforward; fuel type, engine size, driving styles, acceleration and braking can all impact on emissions.

Recent research has shown that up to 75% of road transport particulate emissions (PM₁₀, PM_{2.5}) come from tyre and brake wear. This means driving style is an increasingly important determinant of overall air quality. Slower speeds encourage a smoother driving style, with fewer accelerations and decelerations, which results in fewer particulate emissions.

On balance 20mph limits do not have a negative impact on exhaust emissions and there are clear benefits to driving style, with fewer accelerations and decelerations, than in 30mph limits. This smoother driving style reduces particulate emissions from tyre- and brake-wear and associated particulate emissions.

- Helping to create 'liveable neighbourhoods' that recognise their importance as places for people rather than vehicles, by reducing the dominance of cars and goods vehicles and helping to improve safety, air quality and noise pollution to encourage more walking, cycling and social interactions.

Roads cause less severance when traffic moves slower. This increases social connectivity and encourages walking, cycling and scooting.

20mph limits are often supported by local residents and seen as a positive response to concerns about speeds, safety and the quality of the environment in their local areas. A National 20mph Research Study for the Department for Transport, undertaken by Atkins et. al. (2018) found high levels of post implementation support of 20mph limits amongst residents (75% support), with little call for the limit to be changed back to 30mph (12% support).

In the longer term, health, environmental and community benefits could be greater than the more obvious road safety benefits.

Evidence from other 20mph schemes

PACTS (Parliamentary Advisory Council for Transport Safety) has recently (May 2023) published a review of the evidence available on the impact of 20mph limits⁵ based on:

⁵ <https://www.pacts.org.uk/lustre-lower-urban-speed-limits-in-europe/> (Accessed: 25/05/2023)

- analysis of 24 UK studies / reports (undertaken by Loughborough University); and
- the results of studies from six countries, with input from the European Transport Safety Council.

The report shows that the quality of studies assessing the outcomes of 20 mph limit is variable. Few take account of background trends; and methods and data sources used are often difficult to compare. Despite these limitations, the conclusions and direction of change are reasonably consistent. These show a **downward movement in speeds and casualties where lower limits are introduced**. However, it is the scale of the movement that is harder to assess.

Based on the UK case studies, the report concludes that:

- 20 mph limits without physical measures result in modest speed reductions – typically 1-2 mph where before speeds are approximately 25 mph, and reductions of 3-5 mph where before speeds are approximately 30 mph.
- 20 mph limits without physical measures result in approximately 11% fewer casualties than before.
- Very few studies have attempted to assess the outcomes in relation to other goals set, such as increasing walking and cycling, air quality, noise etc.
- It may be that 20 mph limit reductions introduced at scale have a greater impact. In addition, it seems that schemes incorporating main roads have greater casualty reductions. This may be due to better public awareness, supporting measures, or both.

A National 20mph Research Study (Atkins et. al., 2018), covering twelve area-wide 20mph limits), found that:

- **Most drivers (70%) agreed that the 20mph limit makes it more acceptable to drive at a lower speed – enabling them to adapt their driving speed to the road environment.**
- **20mph limits are perceived to be beneficial for cyclists and pedestrians - 69% of residents agreed that the 20mph limits are beneficial for cyclists and pedestrians.**
- **a significant proportion of residents said that keeping traffic below 20mph makes it more likely they will walk (16%) or cycle (9%) to local places rather than use the car.**

Compliance

It is acknowledged that the signed only 20 mph scheme is unlikely to result in all drivers complying with the new 20mph limits. However, as highlighted above, the evidence suggests that such schemes result in an overall reduction in mean average speeds, with reductions of 3 to 5 mph where before mean average speeds are approximately 30 mph. Reducing speeds will have a positive benefit on road safety, climate change and air quality; and will create better environments for walking and cycling, with associated health, well-being, and accessibility benefits. Non-compliance is likely to be higher at night when there are fewer pedestrians and cyclists making trips.

Over time, the level of compliance is expected to increase, as drivers adapt to the lower speed limits. Surrey County Council will continue to work with Surrey Police to identify the locations with the worst speeding and road safety risk to then agree and prioritise interventions at the sites that need the most attention.

Criteria for 20mph limits

There is a presumption that most existing 30mph limits in urban and village settings will be reduced to 20mph. This includes residential streets and streets that act as important places for shopping, leisure, socialising, business or health. These are areas where vulnerable road users and vehicles are expected to mix in a frequent and planned manner. Reducing speeds in general will have a beneficial impact on air quality and climate change as well as being vital to reduce road traffic deaths and injuries in these locations.

Where needed, there will be 30mph buffers on the approach to urban and village settings, to ensure a safe transition into and out of the 20mph limits. This may mean that the speed limit on some surrounding roads will change from 40mph to 30mph or the existing 30mph limit will be retained

Each new 20mph limit should be placed at a point that appears obvious to drivers as a transition into an urban or village setting and be applied consistently.

Where appropriate, the minimum length of a 30mph or 20mph speed limit will be 600 (in accordance with DfT 1/2013 guidance) to avoid frequent changes of speed. In exceptional circumstances this can be reduced to 400m in urban areas or 300m for a purely local access function.

Exceptions

A 20mph limit will not be an appropriate for all roads in urban and rural settings.

Higher limits will generally be retained where:

- **the number of pedestrians / cyclists using the road is low (and would still be low if speeds were lower), or**
- **pedestrians and cyclists do not need to mix with motor traffic (e.g. because there is a segregated cycle path for cyclists, formal crossing facilities or no requirement for people to cross the road, etc.).**

Most exceptions are expected to be made on A and B classified roads. These generally form the main routes carrying traffic through urban and village areas. A higher speed limit may be retained on these roads, if the environment suggests that a higher limit is safe. For example, because:

- pedestrians and cyclists are unlikely to use the route, because, for example, there are alternative more attractive route options available for pedestrians and cyclists;
- there are good facilities for pedestrians and cyclists which limit the need to mix with motor traffic. This may include wide pavements for pedestrians, cycle provision along the route which is 'suitable for most people' (or routes which separate cyclists from general traffic), formal crossing points for pedestrians and

cyclists at regular intervals or appropriate locations, bridges or underpasses which are accessible to use;

- there is a lack of properties, businesses or community facilities along the route or visible residential properties, businesses and community facilities may not be accessed on foot or cycle directly from the road, but via a separate service road or separate route (although the needs of cyclists travelling through the area may still need to be considered).

Where applying the above guidance would result in short sections of 30mph speed limits, no exception should be made.

Higher limits should not be retained where the road is part of an active travel route, or is a known collision location.

Where there are existing 40mph within an urban areas (e.g. strategically important dual carriageways designed to carry high volumes of traffic and not intended for use by pedestrians and cyclists), then consideration will be given to reducing the speed limit to 30 mph or to introduce 30mph buffers to ensure a safe transition into and out of the 20mph limits with a minimum length of at least 300m where possible to ensure a coherent application of speed limits across a road network.

Decision-making

Decisions about how to apply the above criteria will be based on professional and engineering judgement.

When deciding the speed limit, officers will need to consider whether reducing the speed limit from 30mph to 20mph is likely create a less safe environment for all, for example, because the road environment means that a 20mph limit would encourage overtaking, tailgating or aggressive driving.

Local Councillors will be consulted on the proposed speed limit changes in their Division, and will be given an opportunity to make representations to the Cabinet Member should they wish to do so.

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