

20's Plenty



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20's Plenty For Us



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INFORMATION FOR LOCAL AUTHORITIES REGARDING THE IMPLICATIONS OF 20 MPH SPEED LIMITS/ZONES

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20's Plenty For Us

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Introduction

20's Plenty For Us often receives requests from Local Authorities to comment on their consideration of a default 20 mph speed limit for all residential roads and comparing this with isolated 20 mph zones.

This response has been organised around the following Terms of Reference :-

- To gain an understanding of the collision statistics
- To seek a range of views as to the impact of 20 mph speed limits and 20 mph zones on road safety in terms of reducing vehicle speeds and casualty numbers
- To investigate what options other local authorities across the country are pursuing in terms of 20 mph speed limits/zones
- To gain an understanding of the potential environmental impacts of 20 mph speeds on air quality, tail pipe and carbon emissions as well as noise
- To gain an understanding of the potential 'other benefits' which 20 mph speeds may bring, such as health benefits, increased sociability, and better walking and cycling conditions
- To gain an understanding of any potential consequences of any displacement of traffic as a result of introducing lower speed limits
- To gain an understanding of the speed limit review currently being undertaken and the links with this investigation
- To identify the benefits, feasibility and potential costs of various 20 mph speed options for the authority
- To develop recommendations for the future development of council policy on 20 mph speed limits/zones

If any officers or councillors require further explanation of any of the points raised in this document then please contact us using the details at the end of this document.

To gain an understanding of the collision statistics

In its recent White Paper on road safety (A Safer Way)ⁱ the DfT made particular reference to the casualties for children, pedestrians and those in deprived areas where the UK was falling behind other countries. Based on the child road deaths per head of population Britain was 17th in the world behind Finland, Iceland, Netherlands, France, Germany, Norway, Belgium, Canada, Sweden, Spain, Japan, Portugal, Switzerland, Austria, Australia and USA.

For pedestrians in the UK you can measure the "skewing" of road danger towards vulnerable users by the %age of road fatalities which are pedestrian. This has been increasing year on year over the past 5 years. The following graph shows the result of the DfT annual casualties for 2004 to 2008ⁱⁱ :-



In most European countries this figure is below 15% whilst in Netherlands, Belgium and Luxembourg it is below 10%.

The same road casualty report (Table 41a) confirms that for Great Britain there were a total of 26,717 reported Killed or Seriously Injured on built up roads. These were distributed in class of road as follows :-

A Road	B Roads	Other Roads
11,357	3,603	11,757
42.5%	13.5%	44%

This therefore indicates that casualties are not limited to A roads but occur mainly on other roads.

In its White Paper “A Safer Way” the DfT identified in para 2.26 that 2 of the key challenges for the new road safety strategy were :-

- Pedestrian and cycle casualties in our towns and cities – particularly in deprived communities.
- Protecting children and young people.

Hence we would suggest that :-

- In Britain our road danger is significantly skewed towards pedestrians compared to other countries.
- That casualties do take place across all types of “built-up” roads with a very large proportion on roads which are not designated as A or B roads.
- The DfT have recognised that pedestrian and child casualties are a key challenge requiring intervention.

To seek a range of views as to the impact of 20 mph speed limits and 20 mph zones on road safety in terms of reducing vehicle speeds and casualty numbers

In its White Paper the DfT recognised that a key issue to address “was speeds on urban roads where high numbers of road users are present, and where small changes in speed have a large impact on injury severity.”

Whilst speed is only recognised as a contributory factor in 24.6% of deaths in the UK in 2008, it is a very great contributor to the ability for collision participants to avoid any potential collision and the consequential casualty.

The “rule of thumb” regarding the influence of speed on collisions in urban areas is that for every 1mph reduction in average speed then there is a resultant decrease in collision frequency of 6%. (Taylor, Lynam and Baruya, 2000).

When looking at the effectiveness of any speed reduction initiative then it is important to consider its “scope”, in terms of the number of roads effected, and also its “scale of speed reduction”. This is an essential difference between 20 mph zones (including traffic calming engineering) and 20 mph limits (without such engineering).

On a similar number of roads a 20 mph zone will always create a greater scale of speed reduction than a 20 mph limit.

Previous research shows reductions as follows :-

	Transport for London 20 mph Zone	Hull 20 mph Zone	Portsmouth 20 mph limit
Speeds before implementation	>25 mph	29-33 mph	<=24 mph
Speeds after implementation	17 mph	17-21 mph	19 mph

Atkins Interim Report on Portsmouth City Council 20 mph Limits

20 mph zones

Recent analysis of the 20 mph zones in London have suggested a 42% reduction in all casualties within 20 mph zones compared with outside areasⁱⁱⁱ.

This study provides robust evidence for the beneficial effects of 20 mph zones on road safety in London, with the best estimate of the overall effect being a reduction in all casualties of 42% (95% CI 36%, 48%) compared with outside areas. There were reductions for most casualty groups, and no evidence of collision migration to other areas. That a greater proportion of those injured in 20 mph zones are local residents suggests they have also had an effect on cars ‘rat running’.

With regard to cost effectiveness, it concluded that :-

The cost effectiveness analysis suggested that the benefits (in terms of casualties prevented) of 20 mph zones implemented in high casualty areas are greater than the costs of implementation, whereas those in low casualty areas are not. The results show that 20 mph zones become cost effective when a road has over 0.7 casualties per km.

Other research was cited by DfT in its recent Speed Limit Circular (Dec 16th 2009) when it recognised that :-

20 mph zones are very effective at reducing collisions and injuries. Research has shown that overall average annual accident frequency may fall by around 60%, and the number of accidents involving injury to children may be reduced by up to two-thirds. Zones may also bring further benefits, such as an overall reduction in traffic flow,

where research has shown a reduction by over a quarter (Webster and Mackie, 1996), as well as a shift towards more walking and cycling.

So, our conclusion is that 20 mph zones are very effective in reducing casualties and represent good value for money where it can be predicted that current casualties are high.

20 mph zones have a cost of approximately £60,000 per km at 2005 prices.

Therefore 20 mph zones tend to be prioritised to roads with higher speeds and higher road casualties and are substantially higher than where 20 mph limits would be appropriate.

Their cost also determines that they are implemented in isolated “islands” of speed reduction. These suffer from two factors which reduce their overall effectiveness :-

- a) Drivers who live outside such areas do not “own” any benefit for their family on their street which would probably remain a 30 mph limit. Hence drivers are not usually sympathetic to what is perceived as “slowing down” merely for the benefit of those who do live within these “islands”.
- b) For every 20 mph isolated area there is an “exit” sign indicating that drivers should revert back to 30 mph. Hence this legitimises and maintains a speed 10 mph higher on adjacent roads. Whilst not necessarily increasing casualties as a result it fails to broaden the benefits of such schemes beyond their boundaries. Indeed, the sudden lack of “traffic calming” features encourages a change in pace and speed.

20 mph limits

In the past 20 mph limits have only been implemented in short sections, usually around schools. These relied upon “driver sympathy” to reduce speeds as they were generally not enforced by the police due to :-

- A) Short lengths creating legal technical difficulties
- B) Speed detectors at the time were radar based and not approved below 30 mph.

Previous research by TRL (Mackie, 1998) had shown that on average only a 1 mph reduction in speed would be achieved through “signed only limits”. This would still be expected to result in a 5% reduction in casualties.

However, whilst 20 mph limits may be less effective than 20 mph zones in reducing speed, their cost is significantly lower, and their lack of engineering may enable them to be rolled out faster and far wider than 20 mph zones.

Portsmouth’s “Total 20” initiative

This is what interested Portsmouth City Council in 2006 when they decided to implement a 20 mph speed limit across all 1,200 residential roads on 410km of its 438km road network (ie 94%).

The total cost of this was £475,000 and equated to just £333 per street or £1,158 per km. Had it spent the same money on 20 mph zones then this would have covered just 8km. Its “scope” (or distance of road covered) with an authority-wide 20 mph limit was therefore 51 times higher than if it had implemented 20 mph zones.

In the DfT review of Portsmouth’s 2nd year of its “Total 20” initiative then a 22% drop in collisions was found compared to the average of the previous 3 years.

Whilst the speed of vehicles on roads where previous speeds were low did not drop appreciably, the reduction on roads where previously the average speed was 24-29 mph dropped by 6.5 mph.

There is also the fact that by introducing this across all residential roads in the city the driver ownership and benefit was widely spread and all streets had a consistent speed limit associated with either being primarily residential or an arterial road.

The speed limits were not introduced with “only signing” but involved a strong public and community engagement program. Some of this was due to the democratic process involved in such a major initiative, but this was complemented by leaflets to all children, press and other media engagement.

The police were persuaded that some “light touch” enforcement would be useful and this complemented the other efforts of the Council. The use of modern “laser” speed detectors and longer roads avoided the previous problems with enforcement.

Within Portsmouth, this “holistic” approach that empowers all the residents of the city has resulted in a collective community commitment to road safety which sees most people appreciating the benefits of sharing the roads more equally with vulnerable road users. Hence it can become a powerful factor in creating a more cohesive society.

To investigate what options other local authorities across the country are pursuing in terms of 20 mph speed limits/zones

To date the state of “total 20” implementations in local authorities is as follows :-

- Portsmouth has implemented “Total 20” on all its residential roads. (May 2008)
- Oxford has implemented “Total 20” on all its residential roads. (Sep 2009)
- Islington has implemented “Total 20” on all its residential roads. (March 2010)
- Newcastle is converting all its “advisory” speed limits on residential roads to mandatory 20 mph limits
- Bristol City Council is implementing 20 mph speed limits on 2/3 of the city.
- Warrington has implemented 20mph limits on 190 roads and is rolling this out across the whole town.
- Southwark is now “infilling” all of its residential roads at 20 mph to create “total 20” for the borough
- Wirral has announced a 3 year program to set 20mph limits for all residential roads.
- Edinburgh has announced a large 20mph limited area in the Southern part of the city.
- Lancashire has pledged all residential roads in the county to have a 20mph limit by 2013.
- Brighton & Hove has committed to 20mph for all residential streets
- Sheffield is rolling out area-wide 20mph limits as part a city-wide review of signage.
- Liverpool has committed to 20mph limits on 70% of its residential streets.
- York is planning the roll-out of 20mph limits across the whole town.

Officers or Councillors in the following local authorities have been or are in communication with 20’s Plenty for Us to consider the implementation of 20 mph limits on an authority-wide basis :-

- | | |
|--------------|-----------------------------------|
| • Sheffield | • Lambeth |
| • Bodmin | • Plymouth |
| • York | • Middlesborough |
| • Cambridge | • Hartlepool |
| • Colchester | • Stockton on Tees |
| • Lancaster | • Redcar & Cleveland |
| • Bath | • Brighton & Hove |
| • Haringey | • Glasgow |
| • Knutsford | • Northern Ireland Roads Services |
| • Lancashire | • West Sussex |

We also have local 20’s Plenty community campaigns in more than 90 towns around the country.

To gain an understanding of the potential environmental impacts of 20 mph speeds on air quality, tail pipe and carbon emissions as well as noise

The most relevant research on 20 mph speed limits and emissions comes from Belgium where extensive 30 kph (18.5 mph) speed limits have been used.^{iv}

Their primary conclusion was that :-

Results indicate that emissions of most classic pollutants should not be expected to rise or fall dramatically. Nevertheless VeTESS results indicate that some emissions such as PM exhaust from diesels may show a significant decrease, whereas MEET functions assume a moderate increase. Exposure of residents to one of the most toxic components of the urban air pollution mixture may therefore also decrease.

Whilst actual difference between fuel consumption at 20 mph and 30 mph will vary from vehicle to vehicle dependent upon engine characteristics and gearing, most vehicles show a maximum of 10% difference. This may be positive or negative.

In practice actual urban cycles which remove all 20-30mph acceleration by means of limiting the speed to 20 mph will always reduce fuel consumption.

There is also the consideration that “smoother” driving will reduce fuel. Of course any modal switch to walking, cycling or public transport associated with lower road danger will also reduce emissions.

There is also a considerable reduction in noise at 20 mph compared to 30 mph.

To gain an understanding of the potential 'other benefits' which 20 mph speeds may bring, such as health benefits, increased sociability, and better walking and cycling conditions

Health

The Association Of Directors of Public Health promote their "take Action on Active Travel" campaign^v. This has 20 mph limits for residential streets as one of its core strategies for increasing the health of the nation :-

- make 20mph or lower speed limits the norm for residential streets and those used by shoppers, tourists and others, close to schools or public buildings, or important for walking and cycling or children's play. In urban areas only the busiest strategic traffic routes should now qualify for higher speed limits

To quote from its campaign report :-

- Perhaps the single biggest step in making the streets safer (and making them **feel** safer) is to reduce speeds. Towns and cities all across Europe have successfully implemented town-wide 30kph (19mph) limits; Portsmouth is the first UK example.
- We call on all UK governments immediately to legislate for easier implementation of town-wide 20mph zones, and for local authorities to implement them, including in rural villages. In residential areas traffic should move at speeds appropriate to sharing with people.

This campaign is backed by over 100 voluntary organisations and health bodies.

Increased Sociability

Whilst we know that many of our urban centres and main roads are blighted by traffic due to either congestion or high speed, any city that endorses the movement of motor vehicles at 30 mph around residential roads will not create a sociable environment for residents within communities.

It will not be conducive to walking or cycling as an activity and certainly will not allow children their independent mobility in moving around their streets.

Whilst parents may well protect their children and deny them the use of the roads that they consider to be dangerously used by motor vehicles, the elderly often have no such protection and need to visit shops and simply move around their community. With reduced agility then the speed of motor vehicles can become a real factor in constraining their independent movement. And of course, that lack of mobility may well lead to reduced fitness and health levels.

It will also inevitably lead to less sociability when they become imprisoned in their own homes through either fear of traffic or disability brought on through lack of exercise.

Cycling and Walking

In the recent DfT National Travel Survey it was found that 47% of adults questioned strongly agreed that "the idea of cycling on busy roads frightens me". A further 27% tended to agree with this.

In other countries, low traffic speeds on residential and urban roads are the foundation of their walking and cycling strategies. With lower speeds then almost every road becomes more cycle and pedestrian friendly.

Cycling and walking are the preferred way in which children would like to travel to school. Increasing numbers of children walking and cycling effects active travel and reduces obesity levels. Streets that are busy with walkers and cyclists also become safer streets.

Providing a safe road network for children to walk or cycle to school also reduces those parents driving their children to school. This "virtuous circle" then reduces traffic so making those same streets even more attractive for cycling and walking.

Other towns have found that roads with 20 mph speed limits require far fewer interventions for vulnerable road users. In fact cycle facilities are generally not required in such roads. In many towns this is being used to consider making any one way streets with a 20 mph speed limit into 2 way streets for cyclists. In most European towns with such provisions in 30 kph streets then no contraflow lanes are required.

To gain an understanding of any potential consequences of any displacement of traffic as a result of introducing lower speed limits

The benefit of a "Total 20" approach is that the only displacement that is possible is from residential roads which may be used as short cuts or "rat runs". If anything, traffic is displaced onto arterial roads. However, for cyclists and pedestrians then the lower speeds on residential roads make them more attractive than arterial roads. This is a different effect from that produced by local 20 mph zones which may well create displacement to adjacent uncalmed residential roads.

If a "Total 20" approach is taken that excludes arterial roads then this will have minimal effect on journey times. As each home is within 1/3 mile of such a road then the maximum increase in time for that 1/3 mile is 20 seconds (the difference in time for 1/3 mile at 20 or 30 mph). However even arterial roads at peak time have low speeds so 20mph limits would not effect journey times for most motor vehicle trips.

To gain an understanding of the speed limit review currently being undertaken and the links with this investigation

Within the Speed Limit Review as defined in DfT Circular 01/2006 there is a requirement to review all A and B roads by 2011. This guidance includes the principle that *"The needs of vulnerable road users must be fully taken into account in order to further encourage these modes of travel and improve their safety."*

We believe that this is better accomplished if a "holistic" approach can be taken to the road network. Whilst this may be difficult if considering the appropriate speed limit for all roads individually, the use of a "Total 20" approach that sets all residential roads (apart from those which are arterial) at 20 mph has significant benefits.

- It combines the A & B road review with residential roads.
- It enables a consistent and clear decision making process for the community.
- It can maximise the effect of any speed limit campaigns
- It can help develop a collective community commitment to lower speeds.
- It provides a cost effective method for implementing all changes to speed limits

In addition, the latest revision to the guidance on setting local speed limits as per the Speed Limit Circular of Dec 09 seeks to encourage all authorities to introduce 20 mph speed limits into :-

- streets which are primarily residential in nature
- town or city streets where pedestrians and cyclist movements are high such as around schools, shops, markets, playgrounds and other areas; where they are not part of any major through route.

Hence rather than taking a "bite by bite" approach we would recommend a "Total 20" approach which sets 20 mph as the speed limit for all residential roads unless determined otherwise by the local authority.

To identify the benefits, feasibility and potential costs of various 20 mph speed options for the city

As discussed above, the differences between the costs of 20 mph zones and 20 mph limits are substantial.

With an expected constraint on finances in the future then "value for money" of any intervention will be a key consideration. As the "Total 20" approach with speed limits costs 51 times less than 20 mph zones, then for any given expenditure a "Total 20" approach will deliver far wider benefits to residents.

Comparing £100,000 spent within a community with 50 miles of roads we find that 20 mph limits with signage alone gives much better value for money than 20 mph zones.

Option 1 - Spending £100,000 on 20mph zones with physical calming.

This funds just one mile of streets with a 20 mph zone with physical calming. Average speed drops by 9 mph. As the speed limit on the other 49 miles of roads remains the same then the average speed reduction across the whole network is just 0.18 mph. Note that isolated schemes endorse driving faster outside of the zone.

Option 2 - Spending £100,000 on 20mph limits without physical calming.

This will fund 56 miles of streets with a 20mph limit. Hence it will cover the whole community. The average speed reduction will be 1.3 mph.

For any given expenditure 20mph area-wide limits are 7.2 times more effective than physically calmed zones.

For the same expense as engineering a 20 mph zone for 250 houses and 500 people then over 25,000 could benefit from a 20 mph speed limit in their road.

Benefits from a Total 20 scheme would be :-

- Demonstrates Council commitment to making streets safer and improving quality of life
- Reduces Road Danger for all road users
- Encourages a shift to walking and cycling

- Reduces emissions
- Increases mobility for children with consequent gains in health and self-esteem.
- Increases inclusion and access for those without motor vehicles.
- Reduces noise.
- Reduces congestion due to “School run” motor vehicles.
- Increase social cohesion.
- Consistently sets speed limits according to road use rather than physical characteristics.
- Creates a commitment to sharing the roads more equitably.

To develop recommendations for the future development of council policy on 20 mph speed limits/zones

We therefore suggest that Local Authorities should embark on a “Total 20” initiative to set 20 mph as the speed limit for all residential roads. Arterial and main roads should be considered separately under the terms of the Speed Limit Review with reference to the needs of vulnerable road user requirements. This would enable the Authority to make a considered judgement of the appropriate speed.

Recent Developments

June 2011 – DfT announce new signage rules allowing repeaters signs and carriageways 20mph signs to be accepted as Traffic Calming Features, hence increasing flexibility and reducing costs for local authorities implementing 20mph limits.

June 2011 – EU Transport Committee recommends 30km/h (20mph) limits for residential roads throughout Europe.

September 2011 – Now 6.8m people live in local authorities committed to are-wide 20mph limits for residential roads.

Rod King – September 2011

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20's Plenty



Where People Live

20's Plenty for Us is a national campaign that supports those communities wishing to implement 20 mph as the default speed limit for residential and town centre roads. It is available to provide advice, and examples of Total 20 implementations across the country.

Implementing lower speeds that work requires far more than highway engineering. 20's Plenty For Us can offer practical advice on how to work with communities to maximise driver compliance and community ownership of lower speeds.

www.20splentyforus.org.uk

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i Department for Transport – A Safer Way

www.20splentyforus.org.uk/UsefulReports/DfTConsultation/DfTroadsafetyconsultation.pdf

ii Department for Transport – 2008 Road casualties GB

www.20splentyforus.org.uk/UsefulReports/Road%20casualties2008.pdf

iii Grundy, Steinbach, Edwards, Green, Armstrong & Wilson – Effect of 20 mph traffic speed zones on road injuries in London

www.20splentyforus.org.uk/UsefulReports/20-mph-zones-and-road-safety-in-london.pdf

iv Luc Int Panis Carolien Beckx and Steven Broekx – Impact of 30 km/h zones introduction on vehicle exhaust emissions

www.20splentyforus.org.uk/UsefulReports/Impact%20of%2030%20kmh%20zone%20i.pdf

v Association of Directors of Public Health – Take Action on Active Travel

www.adph.org.uk/downloads/policies/Take_action_on_active_travel.pdf