

Road User Safety Division  
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## **Call for comments on revision of DfT's speed limit circular**

December 2009

Dear colleagues,

As you may be aware, DfT Ministers recently announced an independent expert review on the issues of drink and drug driving to inform the new Road Safety Strategy. The review, chaired by Sir Peter North, is already underway and will report to the Department by 31st March 2010.

As this work takes place, we would like to seek your views on a proposed revision to the Department's advice on setting local speed limits, Circular 01/06.<sup>1</sup>

This year's consultation on the new Road Safety Strategy set out the overarching objective of reducing casualties among all road users. This objective should inform decisions on reviewing and setting speed limits and therefore provides context for the speed limit advice. In our consultation we committed to updating the speed limit circular and asked for views on specific policy proposals about speed limits. Comments in response to these proposals have informed the proposed amendments to the Circular summarised below.

The Consultation set out the aims of tackling pedestrian casualties and reducing the risks for road users on rural single carriageway roads. In line with this emphasis, we will focus our revision of the Circular on the advice on 20 mph zones and limits; and on rural A and B single carriageway roads.

We carried out a comprehensive review and full consultation exercise to produce the current circular, issued in 2006. Informal feedback from users has generally been positive, confirming that the advice remains largely fit for purpose, so we are not proposing substantial changes. We are also keen to give you certainty on the new advice as soon as possible to allow progress with introducing more 20 mph schemes and with carrying out rural speed limit reviews. We aim to issue a revised Speed Limit Circular in early 2010.

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<sup>1</sup> Circular 01/06, [www.dft.gov.uk/pgr/roadsafety/speedmanagement/dftcircular106/dftcircular106.pdf](http://www.dft.gov.uk/pgr/roadsafety/speedmanagement/dftcircular106/dftcircular106.pdf)

We are therefore asking for your comments on areas of change through this letter, before finalising the new advice. We will be making additional changes aimed at clarifying or rationalising the advice, or where changes to other sections are required as a result of the changes proposed here.

We would ask you to use the advice contained in this letter to continue with your speed management activity until the final new guidance is in place.

If you would like to comment please respond **by 5<sup>th</sup> February 2010**, either in writing, to:

Speed Management Branch  
Road User Safety Division, Zone 2/13  
Department for Transport  
Great Minster House  
76 Marsham Street  
London SW1P 4DR

or by e-mail to the following address:  
[speedlimitcircular@dft.gsi.gov.uk](mailto:speedlimitcircular@dft.gsi.gov.uk)

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In summary, we propose the following changes:

**On 20 mph zones and limits:**

- Draft revised text is at Appendix A to this letter.
- We want to encourage highway authorities to introduce, over time, 20 mph zones or limits into streets which are primarily residential in nature and into town or city streets where pedestrian and cyclist movements are high, such as around schools, shops, markets, playgrounds and other areas, where these are not part of any major through route.
- We want to make it clearer that highway authorities have flexibility in the use of 20 mph zones and limits, and should apply the option best suited to the local circumstances and that brings most benefits in terms of casualty reductions and wider community benefits.
- We want to draw attention to the initial evidence from the trial of wide area signed-only 20mph limits in Portsmouth, and want to make clear that 20 mph limits over a number of roads may be appropriate elsewhere.
- We are setting out that we will consider the requirements for calming measures in 20 mph zones as part of the DfT's Traffic Signs Policy Review, which was announced in September 2008. In exceptional cases, the Department could also look at giving special authorisation for the use of 20 mph repeater signs, including with accompanying painted roundels, instead of calming measures, on individual streets with low average speeds within a 20 mph zone. Decisions will, however, be made on a case by case basis.
- In addition to better road safety outcomes, we will also look to contribute to the DfT's other goals, including for the economy, emissions, equality of opportunity and quality of life.

***Please let us know whether you agree that this is the right approach, or have any comments.***

**On rural speed limits:**

- We propose to restructure, remove repetition and rationalise the advice contained in chapter 6 on rural speed management and Annexes D and E of the Circular.
- We will reiterate our call for speed limit reviews by 2011, making it clearer that the emphasis for highway authorities should be on carrying out speed limit reviews on 'A' and 'B' class national speed limit single carriageways and adapting lower limits where the risks are relatively high and there is evidence that a lower limit would reduce casualties, by the end of 2011. Instead of focusing on A and B roads, authorities may choose to use the Institute of Highways and Transportation (IHT) definition of 'upper tier' roads and focus on these.
- Recognising pressures on resources, we are not asking for a comprehensive speed limit review of minor rural roads, but only of those C and unclassified roads (or those that fit the IHT definition of 'lower tier' roads) that have the highest risk of collisions or where there is particular local concern about the speed limit.
- We also propose to withdraw the technical assessment tool for rural speed limit reviews, contained in Traffic Advisory Leaflet 2/06<sup>2</sup> and referred to in the current Circular. This approach is based on the informal feedback we have received from users of the tool. We propose to leave in place the principles underlying the tool, and set them out more clearly in the Circular.
- We will also include reference to new Road Safety Foundation EURORAP risk mapping of A roads, charting the relative accident risk, which should assist highways authorities with speed limit reviews on those roads. Maps can be found on the Road Safety Foundations' website.<sup>3</sup>
- Evidence from the use of average speed cameras shows that they are effective in reducing speeds over longer stretches of road. A number of highway authorities have submitted before and after evaluation data to the Department and this suggests reductions in the rate of KSI and reductions in the percentage of vehicles exceeding the speed limit have taken place at each of the sites. It should however be noted that the data have not been independently validated or adjusted for national KSI trends or regression to mean effect. We will include this in our revised circular.

***Please let us know whether you agree that this is the right approach, or have any comments.***

***If you have any wider comments about the Circular, beyond the issues raised above, please feel free to also share them with us.***

Road User Safety Division

DfT

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<sup>2</sup> <http://www.dft.gov.uk/pgr/roads/tpm/tal/trafficmanagement/ficadvisoryleaflet206spe1767.pdf>

<sup>3</sup> EuroRAP, Risk Rating of Britain's Motorways and A Roads, [www.eurorap.org/library/pdfs/20090620\\_RSFRiskMap.pdf](http://www.eurorap.org/library/pdfs/20090620_RSFRiskMap.pdf)

## **Appendix A – Proposed draft new section on 20 mph limits and zones**

### **20 MPH SPEED LIMITS AND ZONES**

20 mph zones and limits are now relatively wide-spread, with an estimated over 2,000 schemes in operation in England, the majority of which are 20 mph zones.

There is clear evidence of the impact of reducing traffic speeds on reducing collisions and casualties, as accident frequency is lower at lower speeds, and where collisions do occur, there is a lower risk of fatal injury at lower speeds. Research shows that on urban roads with low average traffic speeds any 1 mph reduction in average speed can reduce the accident frequency by around 6 % (Taylor, Lynam and Baruya, 2000). There is also clear evidence confirming the greater chance of survival of pedestrians in collisions at lower speeds.

Further benefits of 20 mph schemes include quality of life and community benefits, encouragement of healthier and more sustainable transport modes such as walking and cycling. There may also be environmental benefits, as generally, driving more slowly at a steady pace will save fuel and carbon dioxide emissions, unless an unnecessarily low gear is used.

Based on this positive effect on road safety, and a generally favourable reception from local residents, we want to encourage highway authorities, over time, to introduce 20 mph zones or limits into

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

Successful 20 mph zones and 20 mph speed limits should be generally self-enforcing, i.e. the existing conditions of the road together with any measures such as traffic calming or signing as part of the scheme, should lead to average traffic speeds compliant with the speed limit. To achieve compliance there should be no expectation on the police to provide additional enforcement beyond their routine activity, unless this has been explicitly agreed.

Evidence from successful 20 mph schemes shows that the introduction of 20 mph zones generally reduces average traffic speeds by more than is the case when a signed-only 20 mph limit is introduced. Currently, zones make up about 90% of all 20 mph schemes in England.

Early evidence from the area-wide 20 mph limit scheme in Portsmouth confirms previous findings that the introduction of signed-only 20 mph limits reduced average traffic speeds by less than 20 mph zones (by around 1 mph). However, the Portsmouth scheme indicates that where average traffic speeds before the installation of 20 mph limits were above 24 mph, average speeds were significantly reduced, by around 7 mph. (Atkins, 2009). Early evidence also suggests that overall casualty benefits above the national trend are likely.

Circular Roads 05/99 (DETR, 1999) sets out the legislative regime for introducing 20 mph limits and zones and Traffic Advisory Leaflet 09/99 (20 mph Speed Limits

and Zones) (DETR 1999a) gives additional advice on how and where to implement 20 mph speed limits and 20 mph zones. A comprehensive and early consultation of all those who may be affected by the introduction of a 20 mph scheme is an essential part of the implementation process. This needs to include local residents, all tiers of local government, the police and emergency services and any other relevant local groups.

It is important to consider the full range of options and their benefits, both road safety and wider community and environmental benefits, and costs before making a decision as to the most appropriate method of introducing a 20 mph scheme to meet the local objectives.

## **20 mph zones**

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.

20 mph zones are predominantly used in urban areas, both town centres and residential areas, and in the vicinity of schools. They may also be used around shops, markets, playgrounds and other areas with high pedestrian or cyclist traffic, though they should not include any major through roads. It is generally recommended that they are imposed over an area consisting of several roads.

A 20 mph zone is indicated by specially designed 20 mph zone entry and exit signs (TSRGD, diagrams 674 and 675). The statutory provisions (Direction 16(1) TSRGD) require that no point within the zone must be further than 50 metres from a traffic calming feature (unless in a cul-de-sac, where it may be up to 80 metres).

No additional speed limit or traffic calming signs are required within a 20 mph zone, as these are implicit in the 20 mph zone signs.

There may be cases where a wider area is considered for a 20 mph zone, but contains small individual roads or stretches of road where average speeds are already so low that a signed-only limit would be appropriate to achieve compliance. However, the introduction of 20 mph zones and 20 mph limits bordering immediately on each other should be avoided where possible as this and the signing to indicate this may be confusing for road users. The Department would recommend including these roads as part of the zone and use the available lighter touch traffic calming measures, such as overrun areas rather than more substantive engineering measures.

Where this is not practical, in exceptional cases the Department could also look at giving special authorisation for the use of 20 mph repeater signs, including with accompanying painted roundels, instead of traffic calming measures, within a 20 mph zone. Decisions will, however, be made on a case by case basis.

## **20 mph speed limits**

Research into signed-only 20 mph speed limits shows that they generally lead to only small reductions in traffic speeds. Signed-only 20 mph speed limits are therefore most appropriate for areas where vehicle speeds are already low. This may for example be on roads that are very narrow, through engineering or on-road car parking. If average speeds are already around 24 mph on a road, introducing a 20 mph speed limit through signing alone, is likely to lead to general compliance with the new speed limit. Early research from the area-wide 20 mph limit in Portsmouth suggests that greater reductions can be achieved through signed only limits where previous average speeds were significantly above 20 mph.

The implementation of 20 mph limits over a larger number of roads, which we previously advised against, should be considered where the conditions are right. Highways authorities are already free to use additional measures in 20 mph limits to achieve compliance, such as some traffic calming measures and vehicle activated signs or speed cameras.

A 20 mph speed limit is indicated by terminal speed limit signs, and repeater signs are required at regular intervals along the roads covered by the limit (TSRGD, diagram 670 and Direction 11). Where traffic calming measures are placed they should be signed in line with regulations (TSRGD Diagram 557.1-4 and 883).

### **Variable 20 mph limits**

Highway authorities have powers to introduce 20 mph speed limit that apply only at certain times of day. These variable limits may be particularly relevant where for example a school is located on a road that is not suitable for a regular 20 mph zone or limit, for example a major through road. To indicate these limits, variable message signs are available (TSRGD, Regulation 58).

The Department has occasionally granted special authorisation for the trialling of a more cost-effective sign indicating “20 mph when lights flash”. Pending evidence about the level of compliance that can be achieved through this sign, the DfT may consider this as part of the signs review.

### **Traffic Calming Measures**

Traffic calming involves the installation of specific physical measures to encourage lower traffic speeds. There are many measures available to traffic authorities to help reduce vehicle speeds and ensure compliance with the speed limit in force. As set out above, these are required at regular intervals in 20 mph zones and may be used in 20 mph limits.

A recent review of 20 mph zone and limit implementation (DfT, 2009) shows that the vast majority of calming measures in use are speed humps, tables, cushions or rumble devices, so called vertical deflections, but highway authorities will want to consider the full set of available measures.

The Highways (Road Humps) Regulations 1999, The Highways (Traffic Calming) Regulations 1999 and Direction 16 of TSRGD give details of the traffic calming measures that meet the requirements for a 20 mph zone.

It is important to consider fully which measures might be appropriate for the specific local requirements. These calming measures range from more substantive engineering measures to lighter touch road surface treatments and include for example:

- road humps
- road narrowing measures, including e.g. chicanes, pinch-points or overrun areas,
- gateways
- road markings
- rumble devices.

The DfT's Traffic Signs Policy Review, announced in September 2008, will consider the requirements for traffic calming measures within 20 mph zones. Any changes to this would require regulatory change, and will be taken forward as part of the review.

The Department does not currently advise the use of average speed cameras to enforce 20 mph zones. Transport for London is working with some London boroughs piloting the implementation of some 20mph zones where average speed cameras will play a role in enforcing the speed limit. The evaluation of these pilots will show whether this approach has any benefits over existing measures and whether highway authorities may want to consider whether it is appropriate for their own areas.

# Interim Evaluation of the Implementation of 20 mph Speed Limits in Portsmouth

## Summary Report

Atkins was commissioned by the Department for Transport (DfT) to carry out an Interim Evaluation of a scheme designed by Portsmouth City Council (PCC) to implement an area-wide 20 mph speed limit using signing alone. All data was gathered by PCC.

### Introduction

Portsmouth City Council (PCC) is the first local authority in England to implement an extensive area-wide 20 mph speed limit scheme covering the majority of its residential roads and using speed limit signing alone i.e. terminal and repeater signs. PCC has introduced 20 mph speed limits on 410km of its 438km road network – i.e. 94% of the length of its roads.

This document summarises the findings of an interim evaluation of the impact of the scheme. It reports on monitored changes in traffic speeds and road casualties, comparing data for "Before" and "After" scheme implementation. The document is intended to provide an early transfer of information to other local highway authorities on the effectiveness of implementing speed limits through use of signs alone and without providing any accompanying traffic calming measures.

### Background

On most of the roads where the speed limit signs and road markings were installed, the average speeds before installation were less than or equal to 24 mph. The relatively low speeds on these roads before the

scheme implementation were mainly attributable to narrow carriageways and on-street parking which reduce the effective width. 20 mph signs were also provided on roads within the sectors with median speeds greater than 24 mph in order to avoid inconsistency in the signed speed limits within the sectors.

The scheme was implemented partly to support the low driving speeds adopted previously by many motorists and partly to encourage less aggressive driving behaviour from those who drove at inappropriate speeds. The aim was to ensure that the scheme was self-enforcing so as to avoid the need for extra police enforcement. The cost of implementing the scheme was £0.57million which came from the LTP capital expenditure programme.

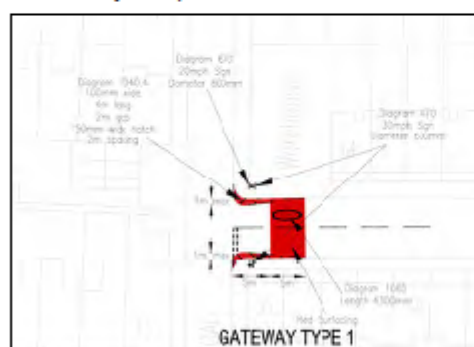
The implementation of the 20 mph speed limit scheme was carried out using a combination of post-mounted terminal and repeater signs. 20 mph speed limit roundel road markings were also provided on the carriageway next to the terminal post-mounted signs. For ease of installation the city was divided into six sectors: Central East, Central West, North East, North West, South East and South West.

### Stakeholder Engagement

Public information about the scheme was disseminated via the media and community involvement. This proactive approach was agreed, following legal advice, as a better publicity strategy than publishing a long list of street names using on-street notices. The approach received positive feedback from the public, and no complaints were received about lack of information.

In summary, the stakeholder engagement process included:

- consultations with Neighbourhood Forums and residents' associations;
- publishing statutory advertisements in the local press;
- placing articles in the local press;
- television and radio interviews both locally and nationally;





- application of Intranet and Internet news flashes;
- including the FAQ website link in the Traffic Regulation Order (TRO);
- exhibition of plans and posters in all schools and public buildings;
- sending each school pupil home with a leaflet; and
- distributing plans and leaflets at the Civic Offices.

Community engagement involved close liaison with the local schools. Each child was sent home with a publicity leaflet showing which roads in their sector would be affected, responses to Frequently Asked Questions (FAQs), and contact details. This was supported by large posters placed in school halls. Posters and leaflets were also placed in doctors' surgeries, libraries, shopping centres, etc. At the same time, the scheme received considerable publicity in the local press, Council officers and Members gave interviews on the local radio, and a dedicated phone line was set up. Within the Council, cross party member support was received early which enabled a coordinated approach to seeking public support.

Support from the Police was on the basis that the scheme would be self-enforcing without the need for direct enforcement using fixed time / distance cameras or mobile spot speed safety cameras. All other statutory consultees did not have any objection to the scheme.

#### Data gathered and analysis



#### Traffic Speed

Average "Before" and "After" spot speed data was available for the South East, Central East and Central West sectors. The speed data covered 60 monitored sites in the South East sector, 52 in the Central East sector and 47 in the Central West sector, a total of 159 monitored sites.

#### Traffic Volume

Classified vehicle counts based on vehicle classifications were conducted from 0600 to 2200 hours for the "Before" and "After" periods on the same day of the week (Tuesday/Thursday) in July to allow for seasonal variations in traffic flows.

This traffic volume data was received from PCC for the cordon roads (those on the boundary of the 20mph speed limit scheme). This was analysed in order to identify whether any traffic migration had taken place.

#### Safety

"Before" and "After" road traffic accident and casualty data was provided for the roads in all six sectors which had 20mph speed limits. In each case, the "Before" period was 36 months with the "After" period covering only 12 months. There was no gap in the accident data to separate the implementation period; consequently the implementation period is included in the "Before" study period. This is justified because the implementation period involved erecting signs off running lanes, with the signs being covered until implementation day.

The data included the following accident parameters:

accident reference; date; location of accident; accident description; grid reference; severity; vehicle type; casualty class and casualty age.

Given that only one year of "After" data was available, the "Before" data for the three years was averaged to provide a comparative one year baseline period.

#### Comparison with 20mph zones

The effects of the 20mph speed limits implemented in Portsmouth were compared to those of 20mph zones in London and Hull. In contrast to the scheme in Portsmouth, Hull City Council and various London Boroughs have chosen to install traffic calming measures in addition to speed limit signs.

Information was gained from these areas via internet research and consultation with respective local authority officers.

#### Summary of outcomes

##### Traffic Speed

The average speed after the 20 mph speed limits were imposed was 0.9 miles per hour lower than the average speed before the speed limits were imposed. This change is not statistically significant.

At sites where the average "Before" speed was greater than 24 mph the average speed reduced by 7 mph. This change is statistically significant.

**Average Traffic speed changes after 20 mph speed limit implementation**

Sector	Average Before Speed (mph)	Average After Speed (mph)	Speed Change (mph)
Central West	20.2	19.1	-1.1
South East	19.6	18.6	-1.1
Central East	18.5	17.9	-0.6
All Sectors	19.4	18.5	-0.9

Despite a reduction in the number of sites with average speeds above 24 mph (21 sites before scheme implementation), 14 sites were found to still have average speeds between 24 mph and 29 mph after the schemes were implemented.

#### Traffic Volume

Due to the limited amount of data available at this stage, it has not been possible to determine if the scheme has had an effect on traffic migration or vehicle composition.

#### Safety

The analysis showed the total accident reduction was 13% and the number of casualties fell by 15%. KSI casualty numbers stayed the same whilst KSI accidents increased by 2%. None of these results were statistically significant when compared against national trends.

There were wide variations between the six sectors.

**Change in accident numbers by accident severity**

Sector	Before (Average of 3 year data)			After			% change	
	Slight	KSI	Total	Slight	KSI	Total	KSI	Total
Central East	30.7	6.0	36.7	34.0	3.0	37.0	-50%	1%
Central West	21.0	3.0	24.0	16.0	6.0	22.0	100%	-8%
North East	29.7	2.3	32.0	28.0	4.0	32.0	71%	0%
North West	26.3	3.0	29.3	19.0	4.0	23.0	33%	-22%
South East	13.7	1.7	15.3	15.0	0.0	15.0	-100%	-2%
South West	25.0	2.7	27.7	13.0	2.0	15.0	-25%	-46%
All Sectors	146.3	18.7	165.0	125.0	19.0	144.0	2%	-13%

**Change in casualty numbers by casualty class and injury**

Sector	Before (Average of 3 year data)			After			% change	
	Slight	KSI	Total	Slight	KSI	Total	KSI	Total
Central West	32.7	6.0	38.7	38.0	3.0	41.0	-50%	6%
Central East	25.0	3.0	28.0	18.0	6.0	24.0	100%	-14%
North East	34.7	2.3	37.0	29.0	4.0	33.0	71%	-11%
North West	28.3	3.0	31.3	21.0	4.0	25.0	33%	-20%
South East	16.0	1.7	17.7	15.0	0.0	15.0	-100%	-15%
South West	29.3	3.0	32.3	17.0	2.0	19.0	-33%	-41%
All Sectors	186.0	19.0	205.0	138.0	19.0	157.0	0%	-15%

Previous research has suggested average speed reductions of about 1mph (as observed in Portsmouth) result in accident reductions of about 5%, for roads with similar traffic flows.<sup>1</sup> The confidence limits associated with the one year's after data in Portsmouth are larger than this.

#### Comparison with other 20 mph schemes

When the results of the 20 mph limit (without traffic calming) are compared to the effects of 20 mph zones (with traffic calming), it is evident that 20 mph zones are more effective in terms of casualty and speed reduction. This is likely to be attributable to the greater reductions in average speed (typically 9 mph) achieved by 20 mph zones. It is however noteworthy that on roads in Portsmouth with high initial speeds (average speeds greater than 24 mph) an average 7 mph speed reduction has been achieved by the 20 mph limits.

Research carried out by TRL for Transport for London and observations during an experiment in Hull (in 1998) showed that the implementation of 20 mph speed signs alone only resulted in a 1 mph reduction in speed. This is comparable to the reduction in speeds observed in Portsmouth.

#### Conclusions to date

- The average speed reduction achieved by installing speed limit signs alone is less than that achieved by the introduction of 20 mph zones partly because 20 mph Speed Limits are implemented where existing speeds are already low;
- Within an area-wide application of 20mph sign only limits, those roads with average speeds higher than

<sup>1</sup> This figure was not based on before and after studies of traffic calming schemes but is based on analysis of the accident frequency and the characteristics of 300 UK roads. From this a model relationship was developed linking speed and accident frequency to enable predictions in the reduction of accidents if speed is reduced. Taylor et al. (2002) *The Effects of Drivers Speed on the Frequency of Road Accidents*, TRL Report 421, Crowthorne

24 mph generally benefit from significant speed reductions, but not to the extent that the 20mph speed limit is self enforcing;

- Based on the available data for one year after scheme implementation, casualty benefits greater than the national trend have not demonstrated but nonetheless may be demonstrated when more data is available; and
- The evaluation of area-wide schemes relies on good quality data and an appropriate evaluation design.

#### **Possible follow-on work**

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- An analysis of available travel to school data is needed in order to assess the impact of the scheme on non-motorised user journeys to school;
- A review should be carried out of highway satisfaction surveys to determine the impact of the scheme on public perception and behaviour, and assess the perception of aggressive driving; and
- An evaluation study that takes account of 3 years of "After" data to monitor the long-term impacts of the 20 mph scheme in PCC would offer stronger evidence of outcomes.

#### **Further Information**

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For further details of the Portsmouth City Council 20 mph interim evaluation and copies of the Final Report, contact:

Angela Gill

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Department for Transport

Email: [road.safety@dft.gov.uk](mailto:road.safety@dft.gov.uk)

Quote reference: Portsmouth20

