

# Review of 20 mph Zone and Limit Implementation in England

## Abstract

AECOM, in association with the Tavistock Institute, was commissioned by the Department for Transport to undertake a review of the implementation of 20 mph zones and limits in England. This work was part of the wider Local Road User Safety Evaluation and Action Learning commission. The review considered where and when zones and limits are being implemented, the rationale for their use and the characteristics of supporting traffic calming measures. The findings have enhanced the understanding of the different approaches to 20 mph zone and limit use and implementation, and identified the characteristics of recently implemented schemes.

## Main findings

The review and research study focused on two areas of 20 mph scheme development and use; the rationale for their use; and the quantity/variability of scheme designs and coverage. The study findings were derived using a combination of Department for Transport databases and primary data collated from a selection of case study Local Highway Authorities (LHA). The findings should therefore be considered within this context. The main findings of the review are:

- There are an estimated 2,150 20 mph zones in operation in England.
- Case study evidence indicates that 96% of 20 mph zones take the form of vertical traffic calming/deflection measures, such as road humps. 1% of zones utilise horizontal measures, such as chicanes, and 3% contain a mix of vertical and horizontal measures.
- 10% of 20 mph measures in case study authorities are speed limit controlled areas, using signing only.
- The average case study LHA road network length incorporated within zones and limits is 2.7 km, with a range from less than 1 km to 25 km.
- In case study areas the percentage of the total LHA road network covered with 20 mph zones and limits varies from less than 1% to 44%.
- In forming the decision to introduce 20 mph zones and limits implementation in the vicinity of schools provided by far the strongest rationale. This rationale was not always supported by historic evidence from recorded casualties in the 20 mph zones and limits areas.
- The location of zones and limits did not appear to be linked to levels of social deprivation or the proximity to hospitals.

## Background

The first 20 mph zones were opened in Norwich, Kingston-upon-Thames and Sheffield in January 1991 to address the problem of child pedestrian casualties in and around residential areas. In a study of the impacts of 250 such zones, carried out by the Transport Research Laboratory (TRL) in 1996, it was found that:

- Average speeds had fallen by nine miles per hour;
- The annual total of accidents had fallen by 60%;
- The number of accidents involving children had fallen by 67%; and
- The number of incidents involving cyclists had fallen by 29%.

A subsequent study carried out by TRL in 1998 focused on areas where a 20 mph speed limit had been introduced without extensive traffic calming measures. This review indicated that:

- The use of 20 mph signs alone, without associated traffic calming methods, led to speed reductions, on average, of about one mile per hour; and
- 20 mph speed restrictions where reliance is placed primarily on the signing of the limit are less effective in reducing traffic speeds than when zone treatment (traffic calming) is used.

The 2009 Department's *A Safer Way: Consultation on Making Britain's Roads the Safest in the World* document proposed strengthening guidance on the use of 20 mph speed limits, promoting 20 mph zones or limits in residential areas or locations where pedestrian and cyclist movements are high. Encouragement may be given to the use of 20 mph zones and limits in the vicinity of town centres, schools, shops and playgrounds.

To assist the Department in promoting the cost-effective implementation of 20 mph zones and limits, this review considered the following key research questions:

- Where (location and area type) are the 20 mph zones and limits located?
- When were schemes implemented?
- What are the characteristics of the zones introduced?
- What are the local policies, strategies and plans for developing and delivering 20 mph zones and limits?

- What differences in strategic approach can be identified among authority areas/types?
- Why are 20 mph schemes being implemented?
- What are the main processes and decision making points in scheme implementation?
- What are the main barriers to implementation and how can existing processes be improved?
- How could the relationships between road safety stakeholders, the DfT and Local Highway Authorities be improved to advance the processes of delivering 20 mph zones and limits?

## Research findings

### Scheme delivery

The research considered when and where 20 mph zones and limits have been implemented, including an assessment of correlations with proximity to key trip destinations such as schools and hospitals.

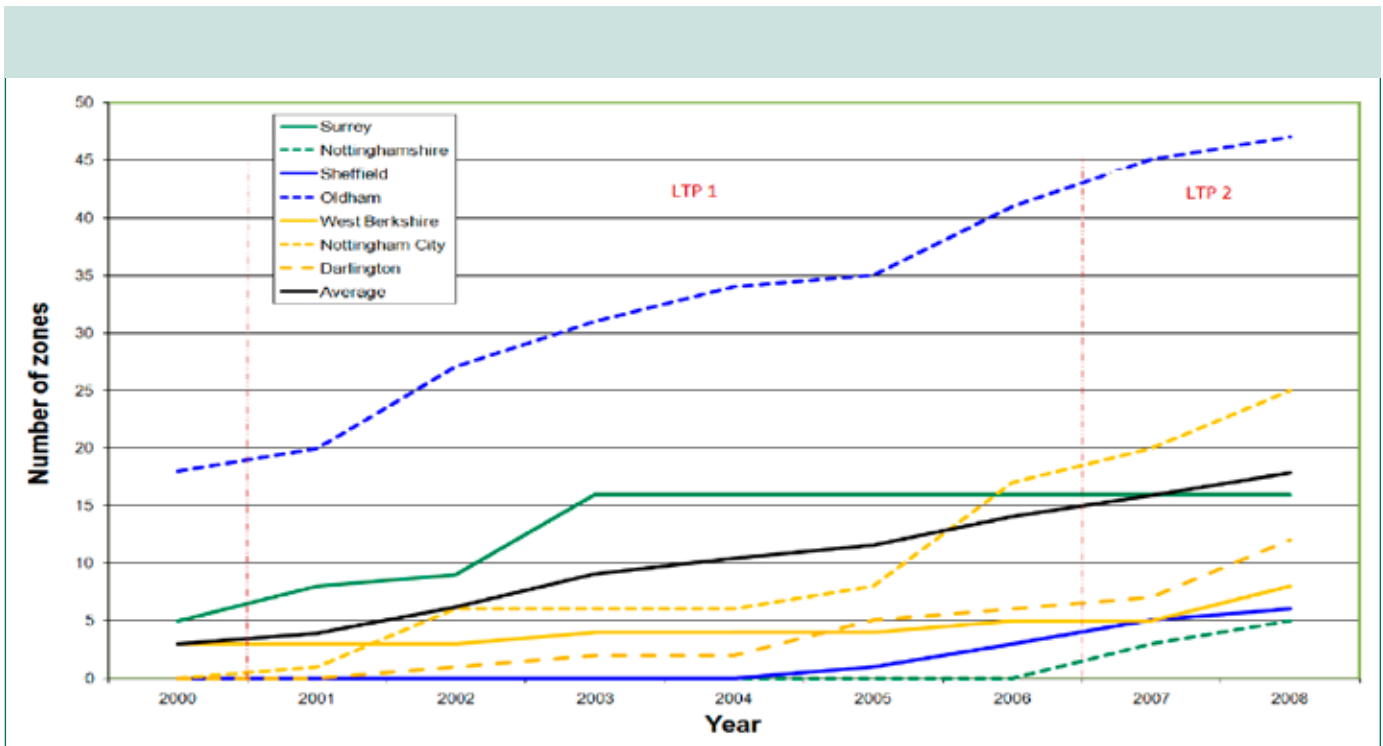
The research identified the number of 20 mph zones implemented in England, using a combination of Department databases and primary data collation with case study authorities. Table 1 identifies that there is an estimated 2,148 zones in England by 2008, consisting of 399 in London and 1,749 in non-London LHAs.

	London Boroughs	Non-London Boroughs
<b>Pre 2001</b>	34	416
<b>Post 2001</b>	365	1,333
<b>Total</b>	<b>399</b>	<b>1,749</b>

The study has assessed the implementation of 20 mph zones in areas of social deprivation to further explore the conclusions of previous research in London. The 14 case study LHAs surveyed as part of this research were analysed using Indices of Multiple Deprivation data and identified that:

- 33% of LHAs had implemented the majority of 20 mph zones in the *most* deprived areas;
- 33% of LHAs had implemented the majority of 20 mph zones in the *least* deprived areas; and
- 33% of LHAs had implemented 20 mph zones in a relatively even mix between areas of least and most deprivation.

An analysis of 20 mph zone and limit locations within the case study LHAs identified a correlation with the presence of schools, with over half the



schemes being located next to, or adjacent to, an educational institution. However, no correlation was identified in relation to hospitals, which also act as significant trip generators in urban areas.

Implementation dates were collated from case study LHAs and used to produce cumulative delivery timelines. Figure 1 (LHAs outside London) illustrates variations in absolute implementation levels between LHAs, although the average rate of increase over the period 2000 to 2008 is similar. The overall levels of coverage also varied. During the 2001/03 period, there was an injection of funding by the DfT for the specific development of 20 mph schemes. On this timeline graph this period of growth in scheme provision can be seen, although the rise in implementation numbers tends to be higher in some authorities than others.

### Zone characteristics

The attributes of the case study LHA 20 mph zones were assessed, to determine a typology of interventions. It was found that 96% of the zones reviewed contained a majority of vertical traffic calming measures, such as road humps, speed tables or cushions and rumble strips, and 3% contain a mix of vertical and horizontal. Only 1% of surveyed zones were formed mainly from horizontal traffic calming measures, such as narrowed lanes, chicanes, curb extensions and pedestrian refuges. In addition to this, 10% of the schemes surveyed were 20 mph limits and were designated by signing only.

The length of each 20 mph scheme in the case study LHAs was assessed using GIS datasets and zone boundaries. The average length of a 20 mph scheme, defined as all road sections within a designated scheme, is 2.7 km. The network length coverage of schemes varied from less than 1 km to over 25 km. There was no significant correlation identified between the authority type and the length of the zones and limits implemented.

### Strategic approach to zone implementation

Case study consultations revealed two main approaches to decisions on 20 mph zone and limit implementation. Some authorities took highly 'active' approaches based predominantly on funding availability and set targets for the number of zones to be implemented each year. In these authorities the use of casualty evidence to justify scheme was often a secondary consideration. Other authorities relied more heavily on evidence of high casualty levels to justify investment in 20 mph zones or limits.

### Barriers to implementation

The barriers to 20 mph zone implementation can be split into two main categories, internal and external. Internal constraints include wider authority resource considerations and priorities, staff availability and skill levels. Concerns regarding the ongoing maintenance costs of zones, again in the context of wider LHA investment priorities, slowed zone delivery in some case study

areas. External constraints included gaining key stakeholder support and the availability of funding.

### **Partnership working**

Both internal and external partnership working were identified as central to the efficient delivery of 20 mph zones and limits. Successful delivery mechanisms in selected case study areas included the coordination of 20 mph zone implementation with routine maintenance operations, thereby maximising efficiencies for internal resource allocation. Establishing local area ownership of zones, particularly through partnership working with schools, has also proven to be successful in securing the delivery of schemes.

### **About the project**

This review study was undertaken as part of the wider three-year evaluation of local road safety delivery in England. The wider study has included the liaison and analysis of the internal and external processes that are integral to local road safety

delivery, through the selection of 14 case study LHAs. These have been selected to represent four categories of LHA (London borough, metropolitan, unitary and county) and to provide a range of road safety issues, challenges and approaches.

In-depth interviews were undertaken in January 2009 with road safety officers at each case study LHA, to explore their strategies and progress to 20 mph zone and limit delivery.

To supplement this primary information collation, the Department's LTP1 Allocation Expenditure and Delivery Database (2001/2–2005/6) has been used to provide an England-wide view of 20 mph zone delivery. Adjustments have been made to selected elements of the database, following a rationalisation exercise using case study delivery reports. This data has been used to generate an estimate of the number of 20 mph zones implemented in England, both during the LTP1 period (2001–6) and in the periods immediately before and after this time.

### **Further information**

The full report by AECOM will be published the Department for Transport in 2011 (ISBN and price to be confirmed).

You can download further free copies of these Findings from [www.dft.gov.uk/pgr/roadsafety/research/rsrr](http://www.dft.gov.uk/pgr/roadsafety/research/rsrr)

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Although this research was commissioned by the Department for Transport, the findings and recommendations are those of the authors and do not necessarily represent the views of the DfT.