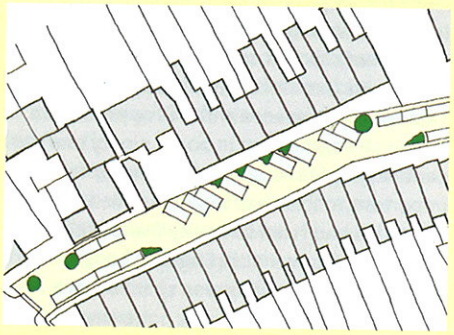
# HOW SAFE ARE HOME ZONES?

*Mike Biddulph reviews the safety performance of UK schemes*





## INTRODUCTION

Home zones became an approved designation for residential streets in 2000 (England and Wales) and 2001 (Scotland), and subsequently through the initial pilot projects and subsequent Home Zones Challenge, a number of streets in the UK, but especially England, have been retrofitted. The treatment has also been firmly endorsed in the Manual for Streets. Despite the money spent on them, and the endorsements that have been forthcoming, few have been properly monitored. This article simply examines how safe completed home zones are by looking at the evidence for road traffic accidents in 14 completed schemes.

The projects are across England, and their completion dates range from March 2002 until the most recently completed in June 2006. Accident data was therefore requested for the streets from the relevant local or police authorities for a period from 1996 until 2009. This allows an impression of how the circumstances of the streets have changed. Data was not collected for neighbouring streets, and so no displacement effects can be judged, but this was felt appropriate as typically the streets are relatively quiet routes and a destination for residential traffic.

## SAFETY AND DESIGN

The schemes vary in their design qualities and the extent to which they embrace the potential of the home zone concept. Some, such as Lewsey Farm Green in Luton really appear to be glorified traffic calming schemes with a sign designation but no radical transformation of the environment. In contrast the Bristol schemes for the Dings and Southville get closer to the vision. The character illustrations give a visual indication of how the design features of the schemes might be judged, breaking down the environments into areas of design concern. Essentially schemes can have good, moderate or indifferent entrance, highway, streetscape, social-space and interface qualities.

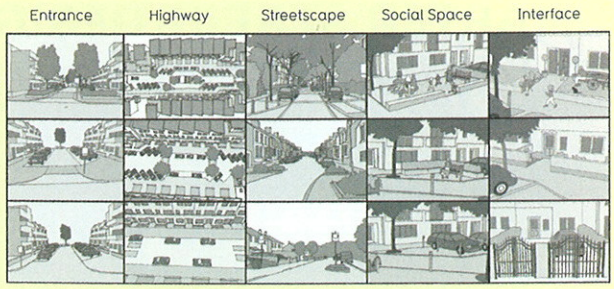
It is not possible to illustrate and discuss each scheme here, but to provide some sense of how comprehensive these schemes are, and Table A provides a numerical assessment. Qualities that are indifferent are given 0. Qualities that are moderate are given 1. Qualities that are good are given 2. Summing these qualities gives you a quick sense of which schemes are the most ambitious in design terms. Readers are encouraged to use Google Map and Street View to explore the scheme themselves and search terms are given below. Looking at the column totals we can see the extent to which schemes have been dominated by themes concerned with traffic, whilst the creation of social space for sitting or playing has been rarely achieved. Schemes discussed below have their *mark out of 10* for design comprehensiveness in brackets after the name. Given that we are essentially judging whether the street designs are more or less safe, this understanding helps us to explore to what extent the nature of the designs has affected the results. (Note the Victoria Estate in Bury has not been assessed, but its safety record is still discussed below).

## ACCIDENT RESULTS AND ANALYSIS

Table B summarises the accident data for each scheme. It is a little daunting, but simply shows the number of accidents each year relative to the year of construction which is highlighted. The final three columns provide some analysis. There is an annual average both before and after the projects, and then finally an assessment of impact. This final figure simply subtracts the before average from the after average, so a plus figure shows a decrease in accidents. The data refers to personal injury accidents reported to the police. The year of construction is included in the after figures. Each scheme covers a different area so it is not possible to make comparisons between schemes.

If we start with the accident figures it is evident that few accidents occurred on many streets either before or after

↙↙↙ Lewsey Farm Green, Luton
↙↙ The Dings, Bristol
↙ Southville, Bristol
→ Home zone design qualities
↘ Numerical assessment of the comprehensiveness of home zone designs
↘↘ Personal injury accident data for English streets retrofitted with home zones design features




| | Entrance | Highway | Streetscape | Social Space | Interface | Total |
|---|---|---|---|---|---|---|
| The Dings, Bristol | 2 | 2 | 2 | 0 | 1 | 7 |
| Cavell Way, Sittingbourne | 1 | 1 | 1 | 2 | 1 | 6 |
| Five Roads, Ealing | 1 | 1 | 0 | 0 | 1 | 3 |
| Ivydale Road, Bognor Regis | 1 | 2 | 2 | 0 | 1 | 6 |
| Kennington Road, Nottingham | 0 | 2 | 2 | 0 | 1 | 5 |
| Lewsey Farm Green, Luton | 1 | 0 | 0 | 0 | 0 | 1 |
| Lupton Street, Camden | 0 | 2 | 1 | 1 | 0 | 4 |
| Methley Drive, Leeds | 1 | 2 | 2 | 0 | 0 | 5 |
| Morice Town, Plymouth | 2 | 2 | 2 | 1 | 1 | 8 |
| Normanton, Derby | 2 | 2 | 2 | 0 | 1 | 7 |
| Northmoor, Manchester | 2 | 2 | 2 | 2 | 1 | 9 |
| Southville, Bristol | 2 | 2 | 2 | 1 | 2 | 9 |
| Westleigh, Warminster | 1 | 2 | 2 | 0 | 1 | 6 |
| Total emphasis across projects | 16 | 22 | 20 | 7 | 11 | |

| | Project Date | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | Annual average before | Annual average after | Impact |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| The Dings, Bristol | Jun-06 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.50 | 0.00 | 0.50 |
| Cavell Way, Sittingbourne | Apr-03 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0.14 | 0.29 | -0.14 |
| Five Roads, Ealing | Apr-04 | 2 | 2 | 4 | 4 | 2 | 3 | 1 | 4 | 1 | 2 | 1 | 1 | 0 | | 2.75 | 1.00 | 1.75 |
| Ivydale Road, Bognor Regis | Nov-05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| Kennington Road, Nottingham | Oct-03 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.14 | 0.00 | 0.14 |
| Lewsey Farm Green, Luton | Sep-05 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.11 | 0.00 | 0.11 |
| Lupton Street, Camden | Jun-04 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0.50 | 0.50 | 0.00 |
| Methleys, Leeds | Mar-02 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.17 | 0.00 | 0.17 |
| Morice Town, Plymouth | Apr-03 | 8 | 2 | 1 | 3 | 10 | 5 | 6 | 4 | 4 | 3 | 2 | 4 | 0 | 2 | 5.00 | 2.71 | 2.29 |
| Normanton, Derby | Aug-06 | 1 | 2 | 1 | 1 | 2 | 4 | 0 | 3 | 3 | 5 | 5 | 6 | 2 | 1 | 2.20 | 3.50 | -1.30 |
| Northmoor, Manchester | May-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0.13 | 0.33 | -0.21 |
| Southville, Bristol | Dec-05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 | 0.00 |
| Westleigh, Warminster | Apr-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.13 | 0.00 | 0.13 |
| Victoria Estate, Bury | Jan-05 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0.22 | 0.60 | -0.38 |
| Average overall impact for all projects per year | | | | | | | | | | | | | | | | | | 2.80 |

the treatments. This is certainly the case for six projects, Ivydale Road (6/10), Kennington Road (5/10), Lewsey Farm Green (1/10) (see Haymarket Road, Luton on Google Maps), Methley Drive (5/10), Southville (9/10) and Westleigh (6/10). It reminds us that home zones were introduced to improve street liveability, rather than reduce accidents. The Dings (7/10) (visit Tyler Street, Bristol in Google Street View) has seen a small reduction in accidents, but also from a low level. Since project completion a one year old child has had their foot run over by a passing car and its parent wasn't pleased!

We can also judge that the degree of design comprehensiveness is not a factor affecting road safety. For example three areas had a poor accident record before treatment. Five Roads in Ealing (3/10) had an annual average of 2.75 accidents per year. After treatment this was reduced to 1 per annum. As a relatively conservative scheme we can judge that the traffic calming methods introduced (humps, chicanes and re-orientated parking) have positively affected safety (see Broughton Road, Ealing in Google Street View). Morice Town in Plymouth (8/10) had a very poor record, although the area is relatively large in comparison to others. It had an average of 5 accidents per year before, but after treatment this reduced to 2.71. This more radical scheme had the greatest impact on safety of the projects studied with a reduction of 2.29 accidents per year after treatment (see Charlotte Street, Plymouth in Google Maps). Interestingly this project was promoted and championed by the council's road safety officer.

The project in Normanton, Derby (7/10) also had a poor record with an average of 2.2 accidents in its area prior to the scheme, and after the project this increased to 3.50. 11 accidents occurred alone during the 2 years following the project's completion. Further analysis of the case showed that between 2006 and today 11 accidents had occurred at 2 junctions (see Cameron and Duncan Roads and Randolph and Duncan Roads, Derby on Google Street View). On the edge of the project these junctions had road narrowing and ramp treatments introduced but no give way markings. Subsequently give ways marking have been introduced because the designs alone were clearly not encouraging careful approaches at the junction. In subsequent years the accidents have reduced.

Three schemes have had a small negative impact on accident levels. The projects at the Victoria Estate (see Victoria Avenue, Bury in Google Maps), Northmoor (9/10) (visit Prout Street, Manchester on Google Street View) and Cavell Way in Sittingbourne (6/10) ultimately show a negative effect on safety. Accident levels are generally low in all schemes. Victoria Estate is relatively large, and has only one accident every 2 years. Northmoor also covers a comprehensive area, and is one of the most celebrated schemes, both it and Cavell Way now having one accident every 3 years. These latter projects have also had no accidents for 3 and 4 years respectively, suggesting residents may have adapted their driving behaviour following the schemes' construction.

## CONCLUSIONS

In general it is worth remembering that home zones were not introduced for safety reasons, but in order to improve their liveability for residents. The impact of these schemes on liveability is discussed elsewhere (Biddulph 2010). In terms of road safety, however, we can critically conclude that home zones are not dangerous, and that the design features have typically either maintained or improved safety for users of the streets. This should be an important finding for all designers and engineers concerned in principle with the safety of such treatments.

Importantly, the comprehensiveness of the designs has not been a factor affecting street safety, suggesting that the combination of traffic calming methods adopted in Ealing, for example, has had as much effect as the more elaborate and environment changing projects in other locations. In addition, however, the Normanton case reminds us that each scheme needs to be understood within its context, that poorly designed features can be problematic, and that designs should be subjected to ongoing monitoring and revision. Further research is required, however, to determine by observation, exactly whether patterns of street use and activity have also changed, or whether street users are still sticking to the edges of the street and not venturing out to share the space with vehicles.

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Biddulph M (2010) Evaluating the English Home Zone Initiatives, in *Journal of the American Planning Association*, Volume 76(1)