Pilot home zone schemes: evaluation of Nobel Road, Nottingham

Prepared for Traffic Management Division, Department for Transport

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Background
The Nobel Road estate is situated approximately 6 km south-west of Nottingham City Centre. The estate is bounded by Barton Lane (A453) and Clifton Lane. The housing stock is primarily semi-detached town houses. The estate has been identified as a priority area for environmental improvement. High proportions of both young and older residents live on the Nobel Road estate; 30% of residents are under 16 years of age and 17% of households comprise a pensioner living alone. The area also has higher levels of unemployment than the Nottingham average; 18% of economically active people are unemployed compared to 15% in Nottingham City as a whole. It was hoped that the creation of a home zone would help to improve the quality of life for all residents.

About 65% of households have no access to a car, but the estate is well served by public transport. Seven different bus services operate along Nobel Road providing a frequency of 12 buses per hour in either direction. Continuing access to bus services is seen as an intrinsic part of the home zone.

There is a community centre situated within the estate that is currently under-used, although there are short and long term proposals to increase its use. The area adjacent to the community centre is considered to be in need of improvement to link it more closely with surrounding housing. Much of the open space in the estate appears to be poorly utilised and there is a shortage of designated play space, leading to tensions between the young and older residents. There are local concerns over vandalism and car crime, particularly 'joy riding'. It was considered that these problems could be addressed in part by providing designated play areas and the use of traffic calming measures respectively.

Given the high proportion of young and old vulnerable road user groups on the estate, it was considered that the creation of a home zone in the Nobel Road area would help create a safe and secure local environment. The cost of the scheme, so far, is estimated to be £445,000 for Nobel Road and a further £70,000 on Chamberlain Close and Richardson Close.

TRL was commissioned by the Department for Transport (DfT) to assess the effectiveness of the pilot home zone schemes in achieving the aims of home zones. As part of this process, TRL carried out ‘before’ and ‘after’ monitoring including interview surveys with adults and children, collection of traffic flow and traffic speed data, and analysis of accident data.

Home zone measures
The home zone measures involved traffic calming and landscaping along Nobel Road, including the creation of a 20 mph zone. The works on Nobel Road consist of two gateway features and seven single carriageway speed humps together with tree planting. The features are designed to reduce vehicle speeds to 20 mph or less and reinforce pedestrian crossing points across the road, whilst being ‘bus-friendly’.

The positioning of the home zone gateway signs at either end of Nobel Road might lead to some confusion as they are not adjacent to the place where the ‘mini’ home zone were eventually built. When the home zone was originally designated it was intended to extend the full length of Nobel Road and the cul-de-sacs leading from it. However, owing to budgetary constraints, it would have been prohibitively expensive to create shared space with all associated hard and soft landscaping works along the full length of Nobel Road and each of the cul-de-sacs. In the event, home zones in the purest sense were only created in Chamberlain Close and Richardson Close as discussed in this report. Whilst the home zone technically starts where the home zone signs are currently located, the built environment does not read as a home zone until Chamberlain Close and Richardson Close are entered.

The measures on Chamberlain Close and Richardson Close mini home zones include:
- New road layout including surface treatments and ‘pinch points’.
- Increased parking for residents and visitors.
- New landscaped garden area and tree planting.
- Upgrade/adaptation of existing street lighting and street furniture.
- New pedestrian access from Richardson Close to Barton Lane.
- New boundary treatments to residential properties.

Residents’ support for the home zone
In both ‘before’ and ‘after’ surveys, about sixty per cent of adult respondents supported the home zone, thinking that it was a good idea. The majority of the remainder were undecided.

Over three-quarters of adult respondents interviewed in the ‘after’ survey thought that the home zone had improved the appearance of the streets. The elements contributing towards this were considered to be trees and other planting, new fencing, general cleanliness/tidiness, block paving, improved street lighting, parking, a statue, being pedestrian friendly and the provision of a play area.

Many residents who were interviewed mentioned extending and finishing the scheme.

Impact of the home zone on the availability of on-street parking spaces
Nearly three-quarters of all respondents and over eighty per cent of car drivers perceived no difference in parking in the ‘after’ survey. Only four per cent of those driving a car mentioned that it was more of a problem parking outside their home for themselves, family or visitors.
Impact of the home zone on traffic speeds and traffic flow

**Traffic speeds**
The largest reductions in mean and 85th percentile speeds were observed along the southern and middle sections of Nobel Road. On the southern section, the mean vehicle speed decreased by 6.9 mph to 16.1 mph and the 85th percentile speed was reduced by 8.0 mph to 21.2 mph. Similarly, on the middle section, the mean speed decreased by 4.2 mph to 20.4 mph and the 85th percentile speed was reduced by 5.6 mph to 25.5 mph.

Along the northern section of Nobel Road the reductions in mean and 85th percentile speeds were much smaller; only 0.5 mph and 0.9 mph respectively. It was noted, however, that at this monitoring location ‘before’ mean and 85th percentile speeds of 19.4 mph and 25.1 mph respectively, were already comparatively low, probably owing to the proximity to the junction with Clifton Lane.

**Traffic flows**
The ‘before’ two-way 24 hour vehicle flows averaged about 1400 vehicles per day along the northern section of Nobel Road; along the middle and southern sections of Nobel Road, the recorded flows were significantly lower at about 900 vehicles per day. The ‘after’ flows recorded in July 2001 showed a reduction of about 10% along the middle and northern sections of Nobel Road. There was a small increase of about 2% along the southern section. Relatively small numbers of vehicles were recorded in the flow measurements. The observed ‘before’ and ‘after’ variability was not substantial and did not appear indicative of any major change.

Ideally, home zone streets should have two-way traffic flows of no more than about 100 vehicles per hour in the afternoon peak. This is usually the time of day when there is most conflict between vehicles and people, including children playing (CROW, 1998 and IHIE, 2002).

Flow measurements taken after scheme installation indicate that this criterion was largely met on the southern and middle sections of Nobel Road with afternoon mean peak flows of up to 90 vehicles per hour, but on the northern section flow increases were up to 115 vehicles per hour. Nobel Road was not considered to be a ‘short cut’ or ‘rat-run’ and therefore the home zone traffic calming measures along Nobel Road were not designed to manage traffic.

Impact of the home zone on driver behaviour and perceived safety

Respondents were asked how considerate motorists in the home zone were towards children and adults walking, crossing the road and cycling. In all cases over two-thirds of respondents thought that drivers tended to be considerate rather than inconsiderate. About thirty per cent of respondents thought that motorists were more considerate towards children playing in the street and only one per cent thought that they were less considerate.

About three-quarters of respondents thought that it was safe for adults walking or cycling in the home zone. The majority of the fifteen per cent who considered it unsafe thought it was because vehicles were travelling too fast, though a few mentioned the amount of traffic and inconsiderate drivers. About two-thirds of respondents thought that it was safe for children walking or cycling within the home zone.

About half of the children were either ‘worried a lot’ or ‘worried quite a lot’ about traffic and stranger danger after the home zone was built.

Impact of the home zone on adult journeys and activities

Over three-quarters of adult respondents perceived no change in the ease of day-to-day journeys in the home zone. Most of the remainder thought that their journeys were easier, saying it was because of lower speeds, more buses and its easier to cross the road. The few who thought that their journeys were more difficult said that Nobel Road was too narrow, the humps were uncomfortable and the humps damaged the car.

About three-quarters of respondents perceived no change in walking conditions within the home zone. Nearly all of the remainder thought that walking was more pleasant, the main reasons given being the overall design of the home zone, including the provision of trees, plants and fencing. The few who thought it was less pleasant cited the amount of traffic and cyclists on the footway.

Of 19 respondents who cycled, 11 perceived no change in cycling conditions and 6 found it more pleasant owing to planted trees, the scheme’s appearance, slower/more patient drivers, fences and the resurfaced road. Two respondents said that their cycling was spoilt by motorcycles and four wheeled ‘quad’ motorcycles using the ‘path’, and by discomfort cycling over the humps.

Ninety per cent of respondents spent no more time than before outside the home. Most of the remainder spent some more time than before engaged in various activities such as gardening, chatting to friends/neighbours, cleaning/repairing the car, working on the outside of the house, watching over children playing, or playing games with other adults/children. The most popular outside activities amongst over eighty per cent of respondents were cleaning/decorating the outside of the house, gardening in the front garden and chatting to neighbours/friends.

Impact of the home zone on outdoor activities and journeys to school

In the ‘after’ survey, respondents were asked whether children should play in the street now that it is a home zone. Over half thought they should because ‘they have to play somewhere’ and ‘there is nowhere else to play’. Over a quarter of respondents thought the children should not play in the street, because ‘the amount of traffic is unsafe’, ‘it is unsafe generally’ and ‘they should play in the parks’. Fifteen per cent had mixed feelings because ‘they need supervision’, ‘some traffic is too fast’, ‘I want to know where they are’ and because of ‘abusive children’.

Respondents were asked how safe they thought it was for children to play/spend time unsupervised by an adult in their street since it became a home zone. Seventy per cent thought it was unsafe for pre-school-aged children, 53%
for primary school children and 12% for secondary school children to play unsupervised in the street. These proportions were similar to those in the ‘before’ survey except for primary school aged children for whose safety fears appear to have increased amongst the respondents from one-third to over half.

For pre-school and primary school-aged children the main dangers in both surveys were thought to be the speed and amount of traffic, more particularly in the ‘before’ survey, ‘stranger danger’ and not being old enough. For 10-12% of respondents with children, mugging, assault and bullying from other children were the main concerns in both surveys. For secondary school children bullying and ‘stranger danger’ were the main concerns of their parents.

Of 21 children answering a question about their journey to school, all but one said that it was no different from before the home zone was installed. One child said it was worse, blaming the road humps for slowing their journey.

Road traffic injury accidents

Only one STATS19 injurious accident was recorded by the police in the 5 years before the zone was built. Both the ‘before’ and ‘after’ questionnaire surveys revealed a similar level of reported personal involvement of respondents in accidents or ‘near misses’ in the year prior to the survey and the year after the home zone was installed.
1 Introduction

Home zones are residential areas with streets designed to be places for people, instead of just for motor traffic. The aim is to change the way that streets are used in order to improve the quality of life in residential streets. The intended outcome will be that they are places for people to walk, cycle or for children to play, not just for traffic. Introducing a home zone will allow scope for a wider range of activities in the street space that was formerly considered to be for the exclusive use of vehicles. Changes to the layout of the street should emphasise this change of use, so that motorists perceive they should give informal priority to other road users. Good and effective consultation with all sectors of the community, including young people, is important, and can help ensure that the design of individual home zones meets the needs and aspirations of the local residents.

The Nobel Road Home Zone in Nottingham is one of nine home zone schemes in a pilot programme set up by the Department for Transport (DfT). The programme’s aim is to evaluate the potential benefits, particularly with regard to shared road space, of a wide range of home zones in different parts of England and Wales.

1.1 The report structure

- Section 1 describes the development of the home zone concept in the UK and the DfT pilot home zone programme.
- Section 2 gives details of the streets forming the Nobel Road Home Zone and the consultation and implementation timetable.
- Section 3 describes the measures used in the Nobel Road Home Zone to create it.
- Section 4 and appendices A and B provide details of the data collection.
- Section 5 considers the impact of the home zone on residents and traffic.
- Section 6 discusses some of the issues raised in the home zone design.
- Section 7 contains the summary and conclusions.

1.2 Home zones and woonerven

Conventional traffic calming schemes and 20 mph zones have shown that reducing the mean speed of traffic in urban areas to below 20 mph can have a substantial beneficial effect on road safety (Webster and Mackie, 1996; Barker and Webster, 2004). However, the traffic function of such streets may still predominate at the expense of other activities. The concept of shared road space within a safe residential area or ‘home zone’ is widespread in many parts of Europe. It originated in the Netherlands as woonerven (residential precincts) in which the residential function clearly predominates over any provision for traffic. This principle is expressed in the design and layout of the residential areas. The road space is shared between motor vehicles and other road users, with the needs of pedestrians, including children and cyclists, coming first. The regulations require drivers within a woonerf to drive at a walking pace and make allowances for the possible presence of pedestrians, including children at play (ANWB, 1980).

Home zones were originally suggested for the UK in the 1980s as a low cost measure to reduce casualties to young children in residential areas and allow them to play outside in safety. The idea was to introduce new legislation such that child pedestrians should have priority and drivers who injured children should be presumed negligent. It was anticipated that this new legislation would modify driver/riding behaviour such that speeds would be reduced to a walking pace and that the need for conventional road engineering traffic calming measures would be minimal (Preston, 1992).

The concept of reclaiming residential streets as home zones was given new emphasis by the Children’s Play Council, Transport 2000 and the Child Accident Prevention Trust. They advocated a change in priority between drivers, cyclists and pedestrians, supported by new legislation and lower speed limits. The lower speeds would be enforced by a combination of traffic calming measures and other design features (Children’s Play Council, 1998).

The Government’s Transport White Paper, A New Deal for Transport: Better for Everyone (Department for the Environment, Transport and the Regions, 1998), recognised the value of home zones in improving the places where people live and play. The Government wished to work with local authorities to evaluate the effectiveness of home zones. In order to do so, nine pilot schemes were established in England and Wales.


The Transport Act 2000 makes provision for home zones in England and Wales. This came into effect in February 2001 and local authorities now have a specific power to designate home zones in their area. They will also be able to make orders about the use of roads and about speed reduction measures in home zones, subject to regulations to be made by the Secretary of State (for England) or the National Assembly (for Wales). Similar provisions exist in Scotland.

In order to accelerate the growth of the home zone concept, the Government made available £30 million for a Home Zone Challenge Scheme in England to be spent within the financial years 2001/02 to 2004/05. Local authorities with traffic and/or highway functions were eligible to bid for funding and 61 home zone schemes were selected to receive funding through the Challenge.

1.3 The DfT Home Zone Pilot Programme

TRL was commissioned by the DfT to evaluate the Department’s Home Zone Pilot Programme which is being implemented by nine local authorities in England and Wales. Further details can be found at the home zone website http://www.homezonenews.org.uk.
The Home Zone Pilot Programme started in 1999 and the main ‘before’ surveys were completed in 2000. The major part of the consultation, scheme design and construction took place between spring 2000 and spring 2004. The timing of the ‘after’ surveys and reporting depended on when the work was finished on site. The first home zone to be completed was The Methleys, Leeds; the results for this scheme are reported in TRL Report TRL586 (Layfield, Chinn and Nicholls, 2003). Further reports have been published for Northmoor, Manchester in TRL625 (Tilly, Webster and Buttress, 2005), Cavell Way, Sittingbourne in TRL626 (Webster, Tilly and Buttress, 2005), Magor village, Monmouthshire in TRL633 (Layfield, Webster and Buttress, 2005) and Morice Town, Plymouth in TRL640 (Wheeler, Tilly, Webster, Rajesparan and Buttress, 2005).

Over 30 local authorities in England and Wales put forward around 50 schemes for inclusion in the pilot programme. Many of the schemes had been initiated by residents’ associations with the local authority acting as a catalyst. In the selection of the pilot schemes, priority was given to schemes with innovative ideas, strong support from residents’ associations, the acquisition of sufficient funds and a commitment to implementation within the study timescale. During the sifting process, broad categories of scheme emerged - regeneration projects, large neighbourhood schemes, inner urban schemes and single streets or clusters of small streets. The selection panel endeavoured to include a range of scheme types in the pilot programme reflecting the variety and geographic spread of schemes submitted.

The nine pilot home zone schemes are in Ealing (London), Lambeth (London), Leeds, Manchester, Magor village, Monmouthshire, Wales, Nottingham, Peterborough, Plymouth and Sittingbourne (Kent). Although the home zone sites chosen are very different both in scale and type, none have particularly heavy traffic flows and most have few accidents. Home zones are not principally safety schemes, but are aimed at improving the quality of life.

Extensive consultation has taken place with the local communities on problems within the areas and on the evolving design for the schemes. This has taken many forms: leaflets, interview surveys, public meetings, exhibitions, street events and design workshops. The nine home zone schemes are being designed and funded by local authorities and the implementation timetables for the individual schemes have varied according to the progress with consultation, the size and type of scheme, the extent of the work involved and the acquisition of sufficient funds.

A working group advises the Department on the results of the monitoring effort, including design and implementation issues. Membership of the group included local authorities, the Association of Chief Police Officers, the Disabled Persons’ Transport Advisory Committee, the Children’s Play Council, Transport 2000, TRL, DfT and members of the devolved administrations.

1.4 Study objectives
The DfT’s objectives are to assess the effectiveness of the pilot home zone schemes in achieving the aims of home zones, to come to a view on the need for additional legislation, and to identify and disseminate good practice guidance.

The main success criteria for Nottingham City Council include achievement of the following:
- Reduction of speed on Nobel Road and an improvement in safety.
- Improvement in the quality of life and how residents feel about their area.
- Having community participation in decisions about the design of the home zone scheme and its construction (training and employment opportunities).

2 The site
The Nobel Road area is a distinct and isolated part of Clifton, Nottingham’s largest outer estate, situated about 6 km south-west of the city centre (Figure 2.1). Dating from the 1970s, the Nobel Road area is bounded by the distributor roads of Barton Lane (A453) on the north-west and Clifton Lane on the east, with the A453 forming a link between the M1 and Nottingham City Centre. The area contains approximately 600 dwellings and three complexes for older people on 19 cul-de-sacs linked by Nobel Road. Nobel Road is a D-shaped spine road providing vehicular access to the area at both ends from Clifton Lane. The estimated population of the area was 1,500 in 1999. Photographs of the area before the home zone was implemented are given in Figures 2.2 to 2.7.

The majority of the dwellings comprise two-storey terraced town houses with a number of three-storey maisonettes. Many have off-street car parking provision as parking bays adjacent to the road, parking areas or garages. Most houses have front and/or rear gardens, many with adjacent grassed areas, imparting an open aspect to the area. Social housing makes up two-thirds of the housing stock. There is a shop at each end of Nobel Road and in the centre of the area is the Park Gate Community Centre, with adjoining playground and ‘kick-about’ court. Nearby is a large grassed area known as Angell Green. There is a footpath network within the area enclosed by Nobel Road and Clifton Road. The main paths cross Angell Green, one linking with Clifton Lane. There are no schools within the home zone but there are primary and secondary schools nearby. Nottingham Trent University is situated just to the north.

2.1 Background
The population of Nobel Road has high proportions of both younger and older residents living on the Nobel Road estate, 30% of residents are under 16 years of age and 17% of households comprise a pensioner living alone. The area also has higher levels of unemployment than the Nottingham average; 18% of economically active people are unemployed compared to 15% in Nottingham City as a whole. It was hoped that the creation of a home zone would help to improve the quality of life for all residents.
About 65% of households have no access to a car, but the estate is well served by public transport. Seven different bus services operate along Nobel Road providing a frequency of 12 buses per hour in either direction. Continuing access to bus services was seen as an intrinsic part of the home zone.

There is a community centre situated within the estate. This is currently under-used although there are short and long term proposals for expansion. The area adjacent to the community centre is considered to be in need of improvement to link it more closely with surrounding housing. Much of the open space in the estate appears to be poorly utilised, and there is a shortage of designated play space. This can lead to tensions between the young and older residents.

There were local concerns over vandalism and car crime, particularly ‘joy riding’. It was considered that these problems could be addressed in part by providing designated play areas and the use of traffic calming measures respectively.

Given the high proportion of young and old vulnerable road user groups on the estate, it was considered that the creation of a home zone in the Nobel Road area would help create a safe and secure local environment.

2.2 Consultation and implementation timetable

Partners in the project include Nottingham City Council (NCC), Nobel Road Tenants and Residents Association (NORDTRA) and Barton Lane Community Association (BLCA).

2.2.1 Consultation

- An outline design proposal was approved and submitted to the Department as a bid to be included in the pilot programme. Close liaison was maintained with the Nobel Road Tenants’ and Residents’ Association and the Barton Lane Residents’ Association, both of whom supported the proposal and were keen to be involved in the development of the home zone, its design, its installation and then its maintenance.
- September 1999. A visit to home zones in the Netherlands was made by four representatives of NORDTRA.
- October 1999. A home zone steering group was formed comprising local residents, council officers and local councillors.
- December 1999. A detailed community consultation exercise was undertaken, involving adults, children and
Figure 2.2 Nobel Road, northern end, looking west before the home zone was installed

Figure 2.3 Nobel Road, middle section, near Park Gate Community Centre, looking north, before the home zone was installed

Figure 2.4 Nobel Road, southern end, looking towards Clifton Lane, before the home zone was installed

Figure 2.5 Synge Close before the home zone was installed

Figure 2.6 Richardson Close before the home zone was installed

Figure 2.7 Children's play area near Park Gate Community Centre and Angell Green, before the home zone was installed
young people, to determine the real issues on the estate. The exercise found overwhelming support to reduce traffic speeds on Nobel Road. The full results of the exercise are summarised in a report prepared by NCC Community Services and have been used to shape the preliminary design work on a concept design for the whole estate and to develop the initial feasibility design for the traffic calming of Nobel Road. Consultation on concept design took place with other partners, including bus operators, police and other NCC departments.

- February 2000. Concept design proposals were presented to residents at an open consultation day. Proposals for Nobel Road were popular, but ideas for side roads less enthusiastically received. Parking emerged as a particular issue, and a more detailed parking survey was undertaken by residents – the visibility of vehicles from houses was found to be a key concern.

- April/May 2000. A design workshop was held and a revised feasibility design for Nobel Road produced taking account of parking needs, landscaping, and requirements of bus operators and road safety engineers. The design was presented to residents and agreed by NORDTRA. Consultation with residents on the feasibility design of pilot ‘mini home zones’ in the side roads began, starting with a pilot scheme in Synge Close.

- October to December 2000. Consultation on detailed design for Nobel Road traffic calming was undertaken.

- January to October 2001. Scheme installation on Nobel Road (see Section 2.2.2).

- Nottingham City Council Housing Department negotiated a six-month pilot scheme in partnership with a cable company to provide tenants on the estate with free digital TV and internet access. This scheme enabled tenants to contact the Housing Office in Clifton about repairs and other issues on-line. The Council saw it as an opportunity to explore the use of the internet to communicate with residents about the development of Phase B (see below) through the development of an estate web site. This would be developed as part of a Communications and Publicity Strategy for the estate, with Council-funded input from a resident, and was one of the ways to involve young people in the project.

2.2.2 Implementation

The City Council sees the home zone as a framework for regeneration of the estate, both to develop community skills and relations, and as a means of attracting funding to the area, which has not been eligible for regeneration funding opportunities in the past. The City Council has therefore proposed regeneration and development of the home zone in three distinct phases:

- Phase A included traffic calming and landscaping of the spine road. Nobel Road was completed in October 2001.
- Phase B is a rolling programme, spread over 4 to 5 years, of improvements to the nineteen side roads, subject to funding availability. Work on ‘mini home zone’ areas within two of the nineteen side roads was completed in Spring 2002 at Chamberlain Close and Richardson Close. Subject to funding being available, the City Council intends to improve all of the remaining side roads over the next few years.

The cost of the scheme, so far, was estimated to be £445,000 for Phase A on Nobel Road and a further £70,000 on Chamberlain Close and £70,000 on Richardson Close.

Phase C will address the community/social infrastructure. A bid for improvements to the community facilities and play provision has been submitted for lottery funding.

As work is still on-going, this report relates to progress made so far.

3 Home zone measures

3.1 Nobel Road

Phase A included designating all of Nobel Road and the cul-de-sacs as a 20 mph zone and a home zone. This was complemented by the traffic calming and landscaping of Nobel Road (see Figures 3.1 and 3.2). The main measures included:

- Gateway treatments comprising of a 20 mph zone sign with a plate beneath bearing the text ‘Nobel Road Home Zone’ at the two entry points to Nobel Road.
- Road humps within a narrowed carriageway to slow traffic.

The implemented home zone measures in Nobel Road are given in Figures 3.3 to 3.8.

A 20 mph zone was implemented at the entrances to the zone (see Figures 3.3 and 3.4). A concrete ball feature displaying the message ‘Nobel Road welcomes careful drivers’, silhouettes of an adult and a child and silhouettes of two older people are shown in Figure 3.5. The traffic calming on Nobel Road consists of nine road humps, including two gateway features with dual lane width, and seven single lane width carriageway hump features with tree planting. The features are designed to reduce vehicle speeds to 20 mph or less and reinforce pedestrian crossing points across the road, whilst being ‘bus-friendly’ (see Figures 3.6 to 3.8). They have buff clay tactile block paving crossing points and Baggeridge Blue clay block paving in a 45 degree herringbone pattern. The new trees at the hump features are Pyrus calleryana ‘Chanticleer’.

3.2 Cul-de-sac roads

Having landscaped and traffic-calmed Nobel Road in Phase A, in Phase B, the designs for ‘mini home zones’ in the Chamberlain Close and Richardson Close cul-de-sacs were developed in close consultation with the residents. They included environmental improvements to the properties such as new fencing and tree planting, as well as changes to the road layout to slow down traffic and create community spaces.

3.2.1 Chamberlain Close

The measures used in Chamberlain Close to create the ‘mini home zone’ are summarised below and a plan is given in Figure 3.9:

- New road layout including surface treatments.
- Increased parking for residents and visitors.
- New landscaped community area and tree planting.
- Upgrade/adaptation of existing street lighting and street furniture.
Figure 3.1 Nobel Road home zone traffic calming measures in phase A (Courtesy of Nottingham City Council)
Figure 3.2 Detail of a hump feature on Nobel Road (Courtesy of Nottingham City Council)

Figure 3.3 Nobel Road 20 mph and home zone sign

Figure 3.4 Northern entrance to Nobel Road
3.2.2 Richardson Close

The measures used in Richardson Close to create the ‘mini home zone’ are summarised below and a plan is given in Figure 3.10:

- New road layout including surface treatments and ‘pinch points’.
- Increased parking for residents and visitors.
- New landscaped garden area and tree planting.
- Upgrade/adaptation of existing street lighting and street furniture.
- New pedestrian access from Barton Lane.
- New boundary treatments to residential properties.

Figures 3.11 to 3.18 show some of the measures in the cul-de-sacs. A typical entry to a cul-de-sac is given in Figure 3.11. This shows the narrowed road, the humped crossing point for pedestrians and the four new trees. Figure 3.12 shows a mosaic on the footway, Figure 3.13 shows a garden in Prize Close and Figure 3.14 shows an example of a resident’s front garden. Figures 3.15 shows the new fencing in Richardson Close and Figure 3.16 shows the new fencing in Synge Close. Figure 3.17 and Figure 3.18 show examples of the flowerbeds and garden fencing in Richardson Close.

4 Data collection

The ‘before’ and ‘after’ monitoring programme carried out by TRL comprised:

- Attitudinal surveys of adults and children living within the home zone, the results of which form the main basis for determining whether the aims of the home zone have been achieved.
- Collection of traffic flow and speed data.
- Video recording to produce a ‘before’ drive-through video and to record general street activity.
Accident data analysis, but low accident numbers were unlikely to give a statistically significant result.

The main ‘before’ surveys were carried out by TRL between June and September 2000 with the ‘after’ surveys being between April and September 2004. The ‘after’ traffic surveys were carried out in July 2001 and April/May 2004.

4.1 Interview surveys

4.1.1 Interviews with households within the home zone

‘Before’ face-to-face household interview surveys took place during July 2000, with adults and children living within the proposed home zone area. Following scheme implementation, the same respondents, where possible, were interviewed in September 2004. Their children aged 7-16 were interviewed using a questionnaire that concentrated on street activities and behaviour within the home zone.

In both the ‘before’ and ‘after’ surveys, adults living within the home zone were asked about:

- The characteristics of their household.
- Perceptions of traffic speeds and traffic flows.
- Traffic noise and traffic pollution inside the home zone.
- Bicycle and car ownership.
- Parking issues.
- Mode and frequency of travel for different purposes.
- Safety on the roads from traffic and personal safety from crime.
- Involvement in traffic accidents and near miss incidents.
- How their children travel to school.
- Where their children play within the area.
- Safety in the street for playing.
- On-street activities undertaken within the home zone.
- The degree of priority given by drivers to pedestrians or cyclists.

Figure 3.9 Engineering measures in Chamberlain Close (Courtesy of Nottingham City Council)
Figure 3.10 Engineering measures in Richardson Close (Courtesy of Nottingham City Council)

Figure 3.11 Typical entry to cul-de-sac (Richardson Close)

Figure 3.12 Mosaic on footway in Chamberlain Close
Figure 3.13 Garden in Prize Close

Figure 3.14 Example of a resident’s front garden

Figure 3.15 New fencing in Richardson Close

Figure 3.16 New fencing and planting in Synge Close

Figure 3.17 Example of flower beds and garden fencing in Richardson Close

Figure 3.18 Example of flowerbeds in Richardson Close
In the ‘after’ surveys, adults were also asked about perceived changes in traffic speeds, traffic flow, traffic noise and traffic pollution; mode of travel; parking provision; safety; playing and other activities within the home zone. They were also asked about the visual appearance of the home zone; the measures used to control traffic; the effect on accessibility to their home by different modes; and the need for further ‘things which are needed’.

Interviews were also conducted along some streets which did not have home zone measures at the time of the ‘after’ survey. Every address within the proposed home zone received a minimum of three calls at varying times of the day and week, including weekends, before being abandoned as a non-contact. Child interviews were selected from households where an adult had completed an interview.

Only one adult and one child were selected for interview from any given household. Adults were specified as 17 years old or over. Only those living at the address for at least 6 months for the ‘before’ survey and two years for the ‘after’ survey were eligible. The adults who were selected were the ‘head of household’ then the partner of the ‘head of household’ at alternate addresses. As already mentioned, the children selected for interview were between 7 and 16 years old. If there was more than one qualifying child in the household, then the child whose birthday fell next in the calendar year was interviewed. The interview was always conducted after the adult interview in each household preferably with the adult present.

4.1.2 Characteristics of the adult survey

The ‘before’ interviews were carried out in July 2000 with 98 adults living in the area of the proposed home zone (see Table 4.1). The ‘after’ surveys were carried out in September 2004 with 73 adults living in the same streets, 36 of whom had been interviewed in the ‘before’ surveys.

Table 4.1 contains the addresses of those that took part in the household surveys. It should be noted that none had Nobel Road as an address owing to the way that the properties were arranged (see Figure 3.1).

Table 4.2 shows the numbers of respondents by age, gender, occupational group, length of time at address, household composition, and car ownership. About a third of respondents in the ‘before’ survey and half in the ‘after’ survey were 45 years old or over. About half had lived in the street for 10 years or more and about half had children under 17 years old at their address. About a third of households owned at least one car in both surveys.

About 70% of the respondents lived in terraced housing with the remainder living in semi-detached houses or in flats.

4.1.3 Characteristics of the child survey sample

The addresses of the children interviewed in the ‘after’ survey are given in Table 4.3.

The characteristics of the child respondents are shown in Table 4.4. ‘Before’ interviews were carried out in July 2000 with 47 children, and ‘after’ interviews took place about four years later with 22 children, 11 being interviewed in both surveys.

<table>
<thead>
<tr>
<th>Street name</th>
<th>‘Before’ survey</th>
<th>‘After’ survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angell Green</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Appleton Close</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Barkla Close</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Blackett Walk</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Chamberlain Close</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dirac Close</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Eliot Walk</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fleming Gardens</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Florey Walk</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Gabor Court/Close</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Harden Court</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Haworth Court</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Hinselwood Court</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Hodgkin Close</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Kendrew Court</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Kipling Close</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Krebs Close</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Medawar Close</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Porter Close</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Prize Close</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Raleigh Close</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Richardson Close</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Robinson Gardens</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Sanger Gardens/Close</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Shaw Gardens</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Sherrington Close</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Syne Close</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Todd Court/Close</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Wilkins Gardens</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

4.2 Traffic flows and speeds

TRL commissioned the collection of traffic flow and speed data during school term-time, using automatic traffic counters (ATCs) with tube detectors. ‘Before’ and ‘after’ data were collected over 2 to 3 weeks in July 2000 (‘before’), June/July 2001 (‘after’) and April/May 2004 (following completion of the initial mini-home zones) at the following locations (shown in Figure 4.1):

- Northern section of Nobel Road (near Richardson Close).
- Middle section of Nobel Road (near Hodgkin Close).
- Southern section of Nobel Road (near Syne Close).

The ATCs stored speed information by allocating speeds within given ranges known as ‘bins’ (e.g. 0 to 5 mph, 6 to 10 mph, 11 to 15 mph, etc). For this study, the ‘bins’ were set to provide adequate detail on lower speeds, below 20 mph, as well as higher speeds. The measured changes in daily traffic flows and vehicle speeds are given in Sections 5.5.1 and 5.5.2. Appendix A contains bar charts of mean hourly traffic flows.

4.3 Video records

Before the implementation of the scheme, video recordings were made using lamp post mounted cameras at a variety of locations within the home zone. Recording occurred between 07:00 and 19:00 hours on a weekday and on a...
The locations of the video cameras are given in Figure 4.1. The video footage from these cameras was reviewed but levels of street activity and external behaviour within the home zone were very low, very weather dependent and changes were expected to be difficult to detect, even when many hours of data were collected. It was considered that the data from the video recordings were unlikely to be reliable as a quantitative measure unless the changes in activity were very large. Therefore, in Nobel Road ‘after’ video recording was not taken. The information about changes in street activity and behaviour provided by the interview surveys was thought to be sufficiently representative of the prevailing situation.

### 4.4 Traffic accidents

Information about road traffic injury accidents recorded by the police, referred to as STATS19 (DfT, 2004), for accidents occurring within the home zone and surrounding the home zone area, were obtained from the TRL database for January 1, 1996 to December 31, 2000.
Figure 4.1 Nobel Road, Nottingham: site monitoring positions (Courtesy of Nottingham City Council)
Further information on accidents (injury and damage only) and near misses ‘before’ and ‘after’ the installation of the scheme has been obtained from the interview surveys. Respondents living within the home zone were asked whether, as a pedestrian, cyclist or car user, they had been involved in any accidents or near misses within the area covered by the home zone. Details were obtained from those giving positive responses.

Because of problems with exact definitions of accidents/near misses and uneven recollection, these data are unlikely to provide a reliable indicator of changes in the numbers of accidents or in accident frequency. However, this will help in understanding the types of accidents/near misses that may be associated with a home zone and highlight any operational problems. The data also provides supporting evidence for information collected on changes in perceived safety.

5 Impact of the home zone

The majority of the adult residents who were interviewed were supportive of the home zone and were positive about its appearance. Traffic speed was considered by the children to be lower and safety was considered by them to be improved. Adults thought walking and cycling in the home zone were safer.

Summary of 98 adult residents’ views towards the home zone:

Over half the adult residents interviewed thought that:
- It had improved the appearance of the street (78%).
- Danger from road traffic for adults walking or cycling was less (73% thought ‘safe’).
- Danger from road traffic for children walking or cycling was less (65% thought ‘safe’).
- Motorists had changed the way they drove within the home zone (63%).
- The residents were in favour of the home zone now (62%).
- Children should not play in the street even if it is safe enough (58%).

There were roughly equal responses to:
- There was sufficient consultation (38% yes, 33% no, 29% don’t know).
- The views of residents were taken into account (32% yes, 37% no, 32% don’t know).

Over half the adult residents interviewed thought that there was no change in the following:
- How often they walked along their street (97% saying ‘the same’).
- The friendliness of people in the street (95%).
- The time spent by adults outdoors (90%).
- The time spent by their children outdoors (89%).
- How often motorists drive along their street (88% same).
- Traffic pollution (87%).
- Parking problems for motorists (84% no change).
- Poor driving standards/behaviour (83%).
- The ease of their day-to-day journeys within the home zone (82% no change, 12% easier).
- The amount of traffic (79% no change, 8% increase, 13% decrease).
- Traffic noise (79%).
- Whether driving along the street was more pleasant (73% same, 25% more pleasant).
- Whether walking along the street was more pleasant (73% same, 25% more, 3% less).
- Parking problems for all respondents (71% no change).
- Whether motorists were more considerate towards children playing in or near the street (69% same, 30% more).
- Danger to children from traffic (65% same, 10% increase, 26% less).
- Whether cycling along the street was more pleasant (62%).
- The danger from crime for children walking or cycling (61%).
- The danger from crime for adults walking or cycling (61%).
- Making a difference to the street (57% no, 38% yes better, 4% yes worse, 1% don’t know).
- The speed of traffic in the street (57% same, 5% increase, 37% less).

Summary of 22 children’s views on changes since the home zone was implemented:

The home zone had the biggest impact on:
- Traffic speed (better 11, worse 2, no answer 9).

Most of the children thought there was no change in following:
- How much fun it is when playing outside (same 21, less fun 1).
- Where they played outside (same 20, changed 2).
- Their journey to and from school (same 20, worse 1).
- How people drive in the street (no change 14, slower 4, more careful, faster 1).
- How safe they felt when outdoors (same 14, safer 5, less safe 3).
- Frequency of outdoor play near their home (same 14, more 2, less 2).
- How friendly people are to each other (same 11, better 3, worse 1).

Children thought that traffic speeds were better but other things were little changed. Adults thought that the appearance of the streets had improved. Children’s views were similar to the adults’ in that many thought that the streets looked more attractive and that they were safe for adults and children walking and cycling. Both adults and children thought that many things had not changed.
5.1 Residents’ support for the home zone, consultation and changes to the street.

5.1.1 Adult residents living in the home zone

In both ‘before’ and ‘after’ surveys, over half of respondents supported the home zone. In the ‘before’ survey 59% thought that the home zone was ‘a good idea’, 6% thought it was not and 35% were undecided. In the ‘after’ survey 62% were in favour of the home zone, 15% were against and 23% were undecided.

Between the ‘before’ and ‘after’ surveys, residents’ perceptions of the advantages of the home zone were changed (see Figure 5.1). In particular, more respondents thought that the home zone had an impact on the appearance of the area than was anticipated in the ‘before’ survey, but on the other hand, they expected the impact on traffic safety to be greater than that achieved.

Figure 5.1 Perceived advantages of the home zone by adult respondents

In the ‘before’ survey, the most commonly perceived advantages of the home zone amongst the adult respondents were related to traffic and safety issues - slower traffic (36%), safety generally (31%), safety for children (38%) and children able to play in the street (16%). Only 12% thought that it would make the area look better and only 9% thought that it would be safer for older and disabled people.

In the ‘after’ survey the main advantages were considered to be slower traffic (43%), making the area look better (33%) and making it safer in general (11%).

When asked about disadvantages of the home zone (Figure 5.2), 15% of respondents in the ‘after’ survey mentioned that it ‘may not get done’ compared to 1% in the ‘before’ survey, possibly referring to the remaining cul-de-sac treatments. Four per cent of respondents thought that the scheme was a waste of money compared to none in the ‘before’ survey.

Figure 5.2 Perceived disadvantages of the home zone by adult respondents

Figure 5.3 shows the percentages of respondents who mentioned the types of people they thought to benefit from the home zone. In the ‘before’ survey, 53% of respondents thought all residents would benefit from the scheme. Others thought to benefit were children (26%), older people (13%), parents with young children (11%), pedestrians (8%) and cyclists (3%). In the ‘after’ survey respondents were less positive regarding all residents, children, older people and the disabled, but 10% thought residents with new fencing had benefited.

Figure 5.3 People perceived by adult respondents to benefit from the home zone
Over a third of the respondents living within the home zone thought that there had been enough consultation with residents before work on the scheme began (38% ‘yes’, 33% ‘no’, 29% ‘don’t know’). About one-third thought that the views of residents were adequately taken into account in the design of the scheme (32% ‘yes’, 37% ‘no’, 32% ‘don’t know’).

Over half of the respondents said that the changes to the streets were not enough to make the home zone work in practice but 38% thought the opposite.

Respondents were asked about other changes they thought were needed. Many of these concerned finishing the scheme and included:

- Including all streets and finishing the scheme (29%).
- More designated play areas (12%).
- Improving security/levels of policing (10%).
- Slowing cars/more traffic calming, (4%).
- Removing bad tenants (3%).
- Improving parking (3%).
- More planting, more 20 mph signs and access for emergency vehicles (all 1%).

There is a clear impression from the ‘after’ survey that many residents who were interviewed regarded extending and finishing the scheme as unresolved issues at the time of the ‘after’ survey.

### 5.1.2 Children living within the home zone

Seven of the children interviewed in the ‘after’ survey felt that their street had changed since becoming a home zone and believed it was better overall, saying it was neater, referring to the planted trees, the raised kerbs and the new fencing.

There were sixteen suggestions for improving the home zone, with calls for play areas free of traffic, a youth club, police patrols at night, CCTV and extension of the zone.

### 5.2 Satisfaction with the street

#### 5.2.1 Adults living in the home zone

Overall adult respondents living within the home zone were positive about where they live, with most people in both ‘before’ and ‘after’ surveys rating their street as satisfactory. The mean rating for satisfaction (on a scale of 0 to 6, i.e. ‘definitely unsatisfactory’ to ‘definitely satisfactory’) was 3.9 in the ‘before’ and 3.6 in the ‘after’ survey.

For many of the respondents, it appears that the home zone has improved the street where they live. When asked if they felt the home zone had made much difference to the street as a place to live, 38% said it was ‘better’, 4% said it was ‘worse’ and 57% said it was ‘the same’. Of those respondents saying the home zone had made a positive difference to their street, the reasons cited were fences around gardens (16%), plants and trees (11%), slower traffic (11%), wardens on patrol (3%), community spirit (3%), layout (1%) and improved housing (1%). Negative responses cited were too fast traffic (3%), increased difficulty for police owing to the humps (1%) and wasted time going to meetings claiming that ‘nothing happened’ (1%).

### 5.2.2 Children living in the home zone

Four children thought that car drivers drove slower, one thought that some drove faster, one thought that they drove more carefully and 14 thought that there was no change in how they drove.

In an unprompted question about what children liked about living in the street, many of the children interviewed in the ‘after’ survey said they liked living in their street because it was friendly with good neighbours, the roads were quiet and they had space to play (see Table 5.1).

#### Table 5.1 What children liked about living in their street

<table>
<thead>
<tr>
<th>Children liked</th>
<th>‘Before’ [n=47]</th>
<th>‘After’ [n=22]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number % (B)</td>
<td>Number % (A)</td>
</tr>
<tr>
<td>Friendliness, good neighbours</td>
<td>28 60</td>
<td>9  41</td>
</tr>
<tr>
<td>Park/playing field</td>
<td>11 23</td>
<td>1  5</td>
</tr>
<tr>
<td>Convenience for shops/school and facilities</td>
<td>9  19</td>
<td>0  0</td>
</tr>
<tr>
<td>Playing out/space to play</td>
<td>7  15</td>
<td>4  18</td>
</tr>
<tr>
<td>Quiet/no trouble/tidy</td>
<td>5  11</td>
<td>4  18</td>
</tr>
<tr>
<td>House/Family</td>
<td>2  4</td>
<td>1  5</td>
</tr>
</tbody>
</table>

More than one response was possible.

When asked how friendly are people now, eleven of the 22 children interviewed thought the people were as friendly after the home zone was installed, three children thought that people were more friendly, one child thought they were less friendly and seven children did not know.

After implementation of the home zone, a few children mentioned street crime and bullying (Table 5.2). A few children mentioned disliking the traffic in the home zone, vandalism, noise, drink/drugs and people.

#### Table 5.2 What children disliked about living in their street

<table>
<thead>
<tr>
<th>Children disliked</th>
<th>‘Before’ [n=47]</th>
<th>‘After’ [n=22]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number % (B)</td>
<td>Number % (A)</td>
</tr>
<tr>
<td>Street crime/bullies</td>
<td>5  11</td>
<td>4  18</td>
</tr>
<tr>
<td>Nothing to do/boring</td>
<td>5  11</td>
<td>0  0</td>
</tr>
<tr>
<td>Vandalism/graffiti</td>
<td>6  13</td>
<td>2  9</td>
</tr>
<tr>
<td>Traffic</td>
<td>5  11</td>
<td>4  18</td>
</tr>
<tr>
<td>Looks horrible/dirty/needles</td>
<td>4  9</td>
<td>0  0</td>
</tr>
<tr>
<td>Noise</td>
<td>6  13</td>
<td>2  9</td>
</tr>
<tr>
<td>Park ‘babyish’</td>
<td>5  11</td>
<td>0  0</td>
</tr>
<tr>
<td>Drugs/drink</td>
<td>2  4</td>
<td>1  5</td>
</tr>
<tr>
<td>People/neighbors</td>
<td>2  4</td>
<td>1  5</td>
</tr>
</tbody>
</table>

More than one response was possible.

### 5.3 Environment

#### 5.3.1 Adults living in the home zone

Over three-quarters of adult respondents living within the home zone thought that its streets were more attractive
(60% ‘a little more attractive’; 18% ‘a lot more attractive’). The preferred elements mentioned were plants, flowers and trees (59%); new fencing (38%), general cleanliness/tidiness (10%), block paving (5%), improved street lighting (3%), parking (3%), statue (3%), pedestrian friendly (1%) and play area (1%). Only one respondent thought that the area was now less attractive.

Traffic noise and pollution were not major areas of concern for most of the residents interviewed and the home zone measures were perceived to have had little impact on these issues. Over three-quarters of the respondents thought that there was no change in traffic noise (79%) or traffic pollution (87%) in their street.

One third of the residents who said how long they had lived in their street had lived there for at least 20 years and knew their neighbours by name. Eighty-nine per cent of the respondents living within the home zone said that they knew at least one person by name in two or more households in their street, and about three-quarters said that they knew at least one person by name in at least five households in their street.

Nearly half of the respondents (47%) said that they ‘occasionally’ spent time chatting to friends or neighbours in the street and a further 37% said that they ‘often’ spent time chatting. When asked whether the street had become friendlier or less friendly since becoming a home zone, almost all respondents (95%) thought there had been no change, only one respondent saying it had become friendlier.

5.3.2 Children living in the home zone

Only three of the 22 children interviewed thought that the streets looked better since scheme installation, but two thought that the streets now looked worse. The children mentioned the gardens, plants, fences, gates, raised kerbs, parking, neatness and tidiness.

5.4 Car parking

Household access to a car or van was very low in both surveys at about 35% and therefore car parking was not generally a problem (see Figures 2.2 to 2.6).

5.4.1 Residents’ perception of car parking issues

The majority of respondents (71%) perceived no change in parking problems in the home zone. One third, however, were still ‘very’ or ‘quite’ bothered about parking problems in their street compared to about half, 45%, in the ‘before’ survey.

Of those who drove a car, 84% perceived no difference in parking outside their home for themselves, their family or visitors; 12% said it was less of a problem with the remaining 4% saying that it was more of a problem.

Those who said parking was more of a problem claimed it was because of parking by users of the community centre. The reasons given by those who said it was less of a problem were ‘more spaces’ and ‘fewer cars’. However, when asked what they thought they were the main disadvantages of the home zone, nobody mentioned parking issues compared with 8% in the ‘before’ survey who thought parking would be a disadvantage of the home zone.

When asked whether the changes to the streets were sufficient to make the home zone work and what other things might be needed, about a third of respondents suggested that the scheme should be ‘extended and completed’ (implying treatment of all the cul-de-sacs) and only three per cent mentioned improved parking.

5.5 Traffic, driver behaviour and safety

5.5.1 Measured changes in traffic flows

Mean daily (24-hour) two-way vehicle flows on Nobel Road before and after installation of the home zone are summarised in Table 5.3. The ‘before’ and ‘after’ survey positions were the same, except for the middle section point which was moved to a location about 30 metres south of Hodgkin Close rather than 10 metres north as in the ‘before’ survey. This change was so that the measurements were taken midway between two flat-top hump features rather than on the feature (see section 5.5.2). As mentioned above, bar charts of mean hourly flows on weekdays, Saturdays and Sundays during the ‘before’ and ‘after’ monitoring periods are presented in Appendix A.

<table>
<thead>
<tr>
<th>Table 5.3 Summary of ‘before’ and ‘after’ traffic flows</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td><strong>Direction of traffic flow</strong></td>
</tr>
<tr>
<td>Eastbound</td>
</tr>
<tr>
<td>Westbound</td>
</tr>
<tr>
<td>Two-way</td>
</tr>
<tr>
<td><strong>Nobel Road (Southern section near hump)</strong></td>
</tr>
<tr>
<td>Eastbound</td>
</tr>
<tr>
<td>Westbound</td>
</tr>
<tr>
<td>Two-way</td>
</tr>
<tr>
<td><strong>Nobel Road (Middle section, between two humps)</strong></td>
</tr>
<tr>
<td>Northbound</td>
</tr>
<tr>
<td>Southbound</td>
</tr>
<tr>
<td>Two-way</td>
</tr>
<tr>
<td><strong>Nobel Road (Northern section 20m from gateway hump)</strong></td>
</tr>
<tr>
<td>Eastbound</td>
</tr>
<tr>
<td>Westbound</td>
</tr>
<tr>
<td>Two-way</td>
</tr>
<tr>
<td><strong>Nobel Road (Average of all sites)</strong></td>
</tr>
<tr>
<td>To the north</td>
</tr>
<tr>
<td>To the south</td>
</tr>
<tr>
<td>Two-way</td>
</tr>
</tbody>
</table>

1 The location described is for the ‘after’ survey.
Road; along the middle and southern sections of Nobel Road, the recorded flows were somewhat lower at about 900 vehicles per day.

The ‘after’ flows recorded in July 2001 showed a reduction of about 10% along the middle and northern sections of Nobel Road and a small increase of about 2% along the southern section. The overall average reduction of the three sites was about 7%.

Nobel Road was not considered to be a ‘short cut’ or ‘rat-run’ and therefore the home zone traffic calming measures on Nobel Road were not designed as a high flow traffic management tool.

Relatively small numbers of vehicles were recorded in the flow measurements. The observed ‘before’ and ‘after’ variability was not substantial and did not appear indicative of any major change.

Ideally, home zone streets should have two-way traffic flows of no more than about 100 vehicles per hour in the afternoon peak. This is usually the time of day when there is most conflict between vehicles and people, including children playing (CROW, 1998 and IHIE 2002).

Flow measurements taken after scheme installation indicate that this criterion was largely met on the southern and middle sections of Nobel Road with afternoon mean peak flows up to 90 vehicles per hour, but on the northern section these flows were up to 115 vehicles per hour.

### 5.5.2 Measured changes in traffic speeds

The ‘before’ and ‘after’ monitoring positions were the same, except for the middle section point (see Section 5.5.1) near Hodgkin Close. The change was so that the measurements were taken midway between two hump features, rather than on the feature which could have given lower vehicle speeds which might not have been representative of that section as a whole. The changes in mean and 85th percentile speeds at the three monitoring positions ‘before’ and ‘after’ scheme installation are shown in Table 5.4. The 85th percentile speed is the speed below which, 85% of the sampled vehicles travelled.

The largest reductions in mean and 85th percentile speeds were observed along the southern and middle sections of Nobel Road. On the southern section, the mean vehicle speed decreased by 6.9 mph to 16.1 mph and the 85th percentile speed reduced by 8.0 mph to 21.2 mph. Similarly, on the middle section, the mean speed decreased by 4.2 mph to 20.4 mph and the 85th percentile speed reduced by 5.6 mph to 25.5 mph.

Along the northern section of Nobel Road the reductions in mean and 85th percentile speeds were much smaller at 0.5 mph and 0.9 mph respectively. It was noted, however, that at this monitoring location, probably owing to its proximity to the junction with Clifton Lane, the ‘before’ mean and 85th percentile speeds of 19.4 mph and 25.1 mph respectively, were already comparatively low.

Table 5.5 and Figures 5.4 to 5.7 show vehicle speed distributions ‘before’ and ‘after’ home zone scheme installation at the three monitoring sites along Nobel Road (northern, mid and southern):

- On Nobel Road (northern section), the percentages of vehicles which were travelling faster than 10 mph, 16 mph and 20 mph were 95%, 70% and 47% respectively in the ‘before’ period and 93%, 73% and 43% after installation of the home zone measures. This speed profile was little changed compared to the ‘before’ and is consistent with the corresponding small changes in mean and 85th percentile speeds at this monitoring location.
- On Nobel Road (middle section), the percentages of vehicles which were travelling faster than 10 mph, 16 mph and 20 mph had been reduced from 98%, 90% and 78% respectively to 96%, 79% and 49%.

<table>
<thead>
<tr>
<th>Table 5.4 Summary of ‘before’ and ‘after’ traffic speeds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Direction of traffic flow</strong></td>
</tr>
<tr>
<td>Nobel Road (Northern section 20m from gateway hump)</td>
</tr>
<tr>
<td>Eastbound</td>
</tr>
<tr>
<td>Westbound</td>
</tr>
<tr>
<td>Two-way</td>
</tr>
<tr>
<td>Nobel Road (Middle section, between two humps)</td>
</tr>
<tr>
<td>Northbound</td>
</tr>
<tr>
<td>Southbound</td>
</tr>
<tr>
<td>Two-way</td>
</tr>
<tr>
<td>Nobel Road (Southern section near hump)</td>
</tr>
<tr>
<td>Eastbound</td>
</tr>
<tr>
<td>Westbound</td>
</tr>
<tr>
<td>Two-way</td>
</tr>
<tr>
<td>Nobel Road (Average of all sites)</td>
</tr>
<tr>
<td>To the north</td>
</tr>
<tr>
<td>To the south</td>
</tr>
<tr>
<td>Two-way</td>
</tr>
</tbody>
</table>

1 The location described is for the ‘after’ survey.

<table>
<thead>
<tr>
<th>Table 5.5 The percentage of vehicles travelling faster than a given speed (up to 30 mph) on roads within the home zone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Nobel Road (Northern section 20m from gateway hump)</td>
</tr>
<tr>
<td>‘Before’ (B)</td>
</tr>
<tr>
<td>‘After’ (A)</td>
</tr>
<tr>
<td>Nobel Road (Middle section, between two humps)</td>
</tr>
<tr>
<td>‘Before’ (B)</td>
</tr>
<tr>
<td>‘After’ (A)</td>
</tr>
<tr>
<td>Nobel Road (Southern section near hump)</td>
</tr>
<tr>
<td>‘Before’ (B)</td>
</tr>
<tr>
<td>‘After’ (A)</td>
</tr>
<tr>
<td><strong>A – B</strong></td>
</tr>
</tbody>
</table>

1 The location described is for the ‘after’ survey.
On Nobel Road (southern section), the percentages of vehicles which were travelling faster than 10 mph, 16 mph and 20 mph had been reduced from 98%, 88% and 70% respectively to 89%, 46% and 19%.

5.5.3 Accidents and near misses

Road accidents from STATS19 data

Information about ‘before’ injurious accidents (STATS19) within the home zone area was obtained from the TRL database. The ‘before’ period from January 1, 1996 to December 31, 2000 covered the five years prior to the scheme installation. Just one accident was identified which resulted in a serious injury to an adult pedestrian. Full details are given in Appendix B.

A further four injurious accidents were recorded in the ‘before’ period but these all occurred outside the home zone at the junctions of Nobel Road with Clifton Lane. An additional five accidents occurred along the boundary road of Clifton Lane.

Road ‘accidents’ and ‘near misses’ mentioned by respondents

In the ‘before’ survey, respondents were asked how many accidents or near misses they had been involved in during the previous year, and in the ‘after’ survey they were asked how many they had been involved in since the area became a home zone. Sixteen respondents said in the ‘before’ survey that they had been involved in an accident or ‘near miss’, which represented 16% of the respondents. In the ‘after’ survey, ten respondents said that they had been involved in an accident or ‘near miss’ since the home zone was installed which represented 14% of respondents. Clearly, this is only indicative because of the sampling method. However, the fact that respondents in the ‘after’ survey reported being involved in slightly fewer incidents is encouraging.
5.5.4 Residents’ perceptions of changes in traffic, driver behaviour and safety

Adults’ views

About three-quarters of respondents thought that it was ‘very safe’ or ‘quite safe’ for adults walking or cycling in the home zone. Fifteen per cent thought it was ‘not very safe’ or ‘not at all safe’, giving the reasons as being vehicles travelling too fast (11%), too much traffic (3%), inconsiderate drivers (3%), children having no road sense (1%) and cyclists on the pavement (1%).

Respondents were asked how safe they felt it was within the home zone for children walking or cycling. Sixty-five per cent thought it was ‘very safe’ or ‘quite safe’ and 25% thought it was ‘not very safe’ or ‘not at all safe’.

In the ‘before’ survey, respondents were asked how safe it was for walking or cycling on their street. Thirty-seven per cent had thought it was ‘very safe’ or ‘fairly safe’, and 55% had thought it was ‘not very safe’ or ‘not at all safe’. The main causes for concern were children having no road sense (12%), parked vehicles (11%), too much traffic (10%), vehicles being driven too fast (9%) and inconsiderate drivers (8%).

Respondents were asked how much they were bothered by various traffic problems in their own street since the home zone was introduced, and whether those problems had increased or decreased as a result of the scheme. The main things that bothered respondents ‘very much’ or ‘quite a lot’ were danger to children from road traffic (45% of respondents), poor driving standards (38%), speed of traffic (35%) and parking problems (33%). Nineteen per cent of respondents thought that parking problems had increased since the home zone was introduced.

For many adult respondents, the home zone appeared to have made an impact on their perception of traffic using the streets, particularly the amount of traffic (Table 5.6). Thirty-seven per cent of respondents thought that vehicle speeds had decreased, but 57% thought that there had been no change and 5% thought they had increased. Thirteen per cent of respondents thought that the amount of traffic had decreased, but 79% thought that it had not changed and 8% thought it had increased.

Traffic noise, traffic pollution and poor driving standards were all thought to have decreased slightly but over three-quarters of respondents thought that these things had not changed. Ten per cent of respondents thought that parking problems had decreased, but about three-quarters perceived no change and 19% thought that they had increased.

Respondents were asked how considerate motorists in the home zone were towards children and adults in various activities, i.e. children/adults walking or crossing the road, children/adults cycling and children playing on or near the street (Table 5.7). On average for these activities, about three-quarters (73%) of respondents in the ‘after’ survey thought drivers were considerate, compared with 59% in the ‘before’ survey. The largest increase in perceived motorists’ consideration was for children playing on or near the street (up from 50% to 75% between the two surveys). About thirty per cent of respondents thought that motorists were more considerate towards children playing in the street and only one per cent thought that they were less considerate.

Table 5.6 Perception of respondents on the effect of the home zone on traffic in their street

<table>
<thead>
<tr>
<th>Activity or category</th>
<th>‘Increased’ (%)</th>
<th>‘No change’ (%)</th>
<th>‘Decreased’ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed of traffic</td>
<td>5</td>
<td>57</td>
<td>37</td>
</tr>
<tr>
<td>The amount of traffic</td>
<td>8</td>
<td>79</td>
<td>13</td>
</tr>
<tr>
<td>Danger to children</td>
<td>10</td>
<td>65</td>
<td>26</td>
</tr>
<tr>
<td>Traffic noise</td>
<td>9</td>
<td>79</td>
<td>13</td>
</tr>
<tr>
<td>Traffic pollution</td>
<td>4</td>
<td>87</td>
<td>9</td>
</tr>
<tr>
<td>Poor driving standards/behaviour</td>
<td>5</td>
<td>83</td>
<td>11</td>
</tr>
<tr>
<td>Parking problems</td>
<td>19</td>
<td>71</td>
<td>10</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>9</strong></td>
<td><strong>74</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>

Table 5.7 Perception of respondents on the consideration of motorists towards child and adult road users

<table>
<thead>
<tr>
<th>Road user activity</th>
<th>Before (%)</th>
<th>After (%)</th>
<th>(A - B) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children walking or crossing the road</td>
<td>61</td>
<td>73</td>
<td>+12</td>
</tr>
<tr>
<td>Children cycling</td>
<td>54</td>
<td>71</td>
<td>+17</td>
</tr>
<tr>
<td>Children playing on or near the street</td>
<td>50</td>
<td>75</td>
<td>+25</td>
</tr>
<tr>
<td>Adults walking or crossing the road</td>
<td>66</td>
<td>77</td>
<td>+11</td>
</tr>
<tr>
<td>Adults cycling</td>
<td>62</td>
<td>69</td>
<td>+7</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>59</strong></td>
<td><strong>73</strong></td>
<td><strong>+14</strong></td>
</tr>
</tbody>
</table>

Children’s views

Danger from traffic caused 38% of children to ‘worry a lot’ and 14% to ‘worry quite a lot’. The other 48% were ‘not worried much’ or ‘not at all worried’.

5.6 Perceived danger from crime

5.6.1 Adults’ views

Most adult respondents in the ‘before’ survey believed that adults and children were ‘fairly safe’ from the danger of crime when walking or cycling in their street. About 13% of respondents, however, were unsure.

In the ‘after’ survey 39% of adult respondents thought that the danger from crime was now lower for both children and adults, but 61% thought that it was unchanged for both children and adults. No respondents thought that there was more danger from crime.

In both surveys, respondents were asked whether they had been a victim of crime in the last year or so. In the ‘before’ survey, 25 adults interviewed had been victims of 15 household crimes (15%), 8 car crimes (8%) and 2 muggings (2%). In the ‘after’ survey, 19 adults interviewed had been victims of crime in the home zone.
since its introduction. These comprised 12 household crimes (16%), 6 car crimes (8%) and 1 mugging (1%), indicating that crimes are still occurring at similar rates for each type of crime.

In the ‘before’ survey, only two respondents said their household was a member of a Neighbourhood Watch scheme and in the ‘after’ survey, no respondents were members.

5.6.2 Children’s views

Of the 16 children who said in the ‘after’ survey that they used bikes, one child (6%) was ‘bothered a lot’ about the likelihood of their bike being stolen, two (13%) were ‘bothered quite a lot’, nine (55%) children were ‘not bothered much’ and four (25%) were ‘not bothered at all’. This is slightly encouraging because in the ‘before’ survey four (11%) of the 38 who said that they used bikes were ‘bothered a lot’ about the bike being stolen and 12 (26%) were ‘bothered quite a lot’.

Concern about mugging or other physical assault was still a problem with three children (19%) ‘bothered a lot’ compared with three children (6%) in the ‘before’ survey. It was slightly encouraging that six (38%) in the ‘after’ survey were ‘not at all bothered’ about the fear of these crimes compared with ten (21%) in the ‘before’ survey.

Stranger danger caused 30% of children to worry a lot and 15% to worry quite a lot. The other 55% were not worried much or not at all worried.

5.7 Using the street

In the ‘before’ survey, adult respondents were asked who should have priority in their streets once the home zone was introduced. Forty-four per cent thought that all road users should have equal priority and 48% thought that pedestrians should have priority. Only 5% of respondents thought that motorists should have priority.

In the ‘after’ survey, these expectations were only partially met. When respondents were asked who takes priority in practice in the home zone streets, 33% felt that pedestrians and motorists had equal priority in the street. Twenty-one per cent said that pedestrians were taking priority and forty-two per cent of respondents felt that motorists were taking priority.

Over three-quarters (82%) of adult respondents living within the home zone thought that the ease of day-to-day journeys within the home zone had not changed. Most of the remainder (12%) thought that their journeys were easier. Only 3 respondents (4%) thought that their journeys were more difficult giving the reasons as follows: road too narrow (1 respondent), damage to car from humps (1 respondent) and uncomfortable humps (1 respondent).

The main reasons given by the respondents who thought that journeys were easier were as follows: safer or slower vehicles (4 respondents), buses more frequent (4 respondents) and easier to cross the road (1 respondent).

5.7.1 Walking

Nearly three-quarters of respondents (73%) said that they walk to the shops ‘at least twice a week’ along streets in the home zone, with two-fifths (41%) going to the shops ‘daily’ or ‘every weekday’. Almost all the respondents (97%) said that the introduction of the home zone had made ‘no difference’ to how often they walk on the streets within the home zone. None said they walked ‘more often’ and only two said they walked ‘less often’.

Walking within the home zone was thought to be ‘more pleasant’ by 25% of respondents; the reasons stated being trees, plants and flowers (by 15%), the new fences (8%) and liking of the design (5%). One respondent mentioned a cleaner area, slower traffic, speed tables that could be used for crossing the road, and friendliness.

About three-quarters of the respondents (73%) thought that the home zone had made walking ‘neither more nor less pleasant’ than before. Three per cent thought that walking in the home zone was ‘less pleasant’ than before; the reasons given being a lot of traffic (one respondent) and cyclists on the pavement (one respondent).

5.7.2 Cycling

Adults

In the ‘before’ and ‘after’ surveys, 29% and 26% of respondents respectively said that they owned or had access to a bicycle that they used. In the ‘after’ survey, two respondents said that they cycled to work every day and 13 said that they used their cycles for leisure purposes.

Most of those who had access to a bicycle said that the introduction of the home zone had made ‘no difference’ to how often they cycled within the home zone area (17 respondents). One said that they cycled ‘more often’, and one said that they cycled ‘less often’.

Six respondents thought that cycling in the home zone was ‘more pleasant’ than before, because of the presence of the trees, ‘nice’ appearance, slower more patient drivers, fences and the resurfaced road. Two thought it was ‘less pleasant’ owing to ‘motorcycles and four wheeled quad motorcycles using the path’ and ‘being uncomfortable over the bumps’. The remaining 11 respondents thought that cycling in the home zone was ‘no different’ than before.

Children

Sixteen children either had a bike or one that they could borrow. Of these, 11 used it the ‘same’ amount as before the home zone was built, four used it ‘less often’ and only one used it ‘more often’. Three children thought that it was ‘more fun’ riding their bike near their home but 13 thought that the level of fun was ‘about the same’ as before.

5.7.3 Driving

Over one-third of respondents (35%) living within the home zone had access to a car or van. Of these, 16% drove to work every weekday. Eighty-eight per cent of respondents said that the home zone had made no difference to how often they drove their car or van. Two said that they drove ‘more often’ and one said that they drove ‘less often’.

Nearly two-thirds of the car or van users (63%) said that they had changed the way they drove within the home zone since it was built. Sixteen per cent of these
respondents mentioned that they now drove more slowly. Other comments made included having to be more cautious, more alert and be ready to give way.

Respondents said that they drove more cautiously because of the presence of children.

Half of the car/van users thought that driving within the home zone was ‘more pleasant’ than before though seven (29%) perceived ‘no difference’. Five car/van users (21%) thought that driving within the home zone was ‘less pleasant’ than before.

The main reasons given for driving being ‘less pleasant’ were that the speed humps damage cars (three respondents); driver and passenger discomfort caused by the speed humps (two respondents). Those perceiving driving in the zone to be more pleasant gave reasons including the presence of trees and plants (six respondents); more patient drivers (two respondents), slower traffic (two respondents), no gangs and looking better/cleaner (one respondent each).

5.7.4 Activities in the street / outside the house

Adults

Respondents were asked how often they spent time outside their house engaged in the following activities: chatting to neighbours/friends; watching over children playing; gardening at the front of the home; washing/mending the car; or playing games with other adults/children. The activities most often pursued were gardening at the front of the home (40% of respondents), chatting to neighbours and friends (37%), cleaning or decorating the home (31%), watching over children playing (21%) and playing games (14%). The most popular occasional activities were cleaning/decorating the home (54%), chatting (47%), gardening in the front of the home (44%), watching over children playing (30%) and washing/mending the car (30%). Ninety per cent said there had been no change in the amount of time spent outside the home since the home zone was introduced. Seven per cent said they spent more time outside and 3% said they spent less time.

Children

The most popular outdoor activities were chatting and ‘hanging out’ (ten respondents), football type games (eight respondents), riding bikes or scooters (seven respondents), hide and seek (two respondents), chasing games, skipping, roller blades and other ball games (one respondent each).

5.7.5 Children in the street

Adults’ views

Respondents in the ‘after’ survey had a total of 63 children between them. The school ages of the children in the ‘before’ and ‘after’ surveys are shown in Table 5.8; the ‘after’ sample contained a higher percentage of older children and a lower percentage of younger children.

Location of play

In the ‘before’ survey, 63% played in their own back garden, 51% played in their own front garden, 58% played in open spaces, 32% played in the back garden of someone else, 30% played in the street outside their own home, 28% played in a play area in their own street and 22% played in the front garden of someone else. Additional areas were in own street but not outside own home (17%), play area in other street (15%), parking area (7%), other street (7%), local shops (5%), around doorways (3%) and did not play outside (3%).

In the ‘after’ survey, the respondents were asked where the children played/spent time outdoors. Of the 63 children, 48% played in their own back garden, 32% played in the back garden of someone else, 33% played in the street outside their own home, 28% played in open spaces, 24% played in their own front garden and 19% played in another street. Other places where children spent time were in the front garden of someone else (14%), in their own street but not outside their own home (13%) and in an alley behind their home (5%). One 14 year old child did not play outside.

Frequency of play

Respondents were asked how often their children played in the street since it became a home zone. In the ‘before’ and ‘after’ surveys, respectively 68% and 70% of the children often or occasionally spent time in the street. Correspondingly, 21% and 19% never did so. When asked whether the children spent more or less time outdoors in the street since it became a home zone, 89% of respondents said there had been no change, with only 9% spending ‘more time’.

Play in the street

Respondents in the ‘before’ survey were asked whether children should play in the street ‘if it is safe enough’. Thirty-two per cent thought they should not, stating that: ‘the amount of traffic is unsafe’ (5% of these respondents), ‘children should play in parks’ (3%), ‘traffic is too fast’ (3%), there is ‘nowhere else to go’ (3%), ‘there are parked cars’ (1%), ‘a play area should be provided’ (1%) and there was ‘nothing to do’ (1%). Fifty per cent thought that children should play in the street because ‘we would know that they are safe’ (15%), ‘it would give them more freedom’ (13%), ‘I want to know where they are’ (5%), there is ‘nowhere else to play’ (7%), and they ‘have to play somewhere’ (2%). Seventeen per cent had mixed feelings about the issue because the ‘traffic amount is unsafe’ (3%), ‘a play area should be provided’ (3%) and they ‘should play in the parks’ (1%).
In the ‘after’ survey, respondents were asked whether children should play in the street now that it is a home zone. Fifty-eight per cent thought they should because: ‘they have to play somewhere’ and ‘there is nowhere else to play’. Twenty-seven per cent of respondents thought the children should not play in the street, because ‘the traffic amount is unsafe’, ‘it is unsafe generally’ and ‘they should play in the parks’. Fifteen per cent had mixed feelings because ‘they need supervision’, ‘some traffic is too fast’, ‘I want to know where they are’ and because of ‘abusive children’.

**Child safety in the street**

Respondents were asked how safe they thought it was for children to play/spend time unsupervised by an adult in their street since it became a home zone. Seventy per cent thought it was ‘not very safe’ or ‘not at all safe’ for pre-school-aged children to play unsupervised in the street. The main perceived dangers were thought to be that their children are not old enough (48%), ‘stranger danger’ (41%), the speed of traffic (36%) and the amount of traffic (19%). Twelve per cent were concerned about mugging or physical assault, and 12% were concerned about bullying from other children. In the ‘before’ survey, 78% had thought it was ‘not very safe’ or ‘not at all safe’ to play unsupervised in the street with the main reasons being speed of traffic (56%), the amount of traffic (43%) and ‘stranger danger’ (41%).

Fifty-three per cent of respondents thought that it was ‘not very safe’ or ‘not at all safe’ for primary school-aged children to spend time unsupervised by an adult in the street since it became a home zone. The main dangers again were speed of traffic (32%), ‘stranger danger’ (27%), the children are not old enough (21%) and the amount of traffic (15%). Twelve per cent were concerned about mugging or physical assault, and 10% were concerned about bullying from other children. However, 46 % of respondents thought it was ‘very safe’ or ‘quite safe’ for primary school-aged children to spend time unsupervised in the street since it became a home zone.

In the ‘before’ survey, 32% of respondents thought it was ‘not very safe’ or ‘not at all safe’ with the main reasons speed of traffic (24%), the amount of traffic (19%) and ‘stranger danger’ (16%).

Eighty-nine per cent of respondents thought it was ‘very safe’ or ‘quite safe’ for secondary school-aged children to spend time unsupervised in the home zone streets. Six per cent thought it was ‘not very safe’ and 6% thought that it was ‘not at all safe’. The main reasons given by respondents were bullying from other children, ‘stranger danger’, mugging and traffic. In the ‘before’ survey 13% thought it was ‘not very safe’ or ‘not at all safe’, with respondents citing crime, ‘stranger danger’ bullying and traffic as the reasons.

**Children’s views**

The most popular places for children playing were: in the street outside own home (eight of 22 children), open spaces (seven children), other streets (six children), own front garden (three children), someone else’s back garden (three children), own back garden (two children), some

one else’s front garden (two children), play area in own street, in parking area, in alley behind home and in own street but not outside own home (one child each).

Of the twenty-two children, 18 ‘played or spent time outside their own home’, two ‘played or spent more time’ outside near their home, two ‘played or spent less time’ and 14 ‘played or spent the same time’ outdoors after the home zone was implemented.

Twenty-one children answered a question regarding their journey to school. Twenty said that their journey was the ‘same as before’ and one child thought it ‘was worse’ (because it was slower owing to the humps).

**6 Discussion**

The Nobel Road Home Zone is an example of a home zone introduced into existing roads rather than created as part of a new housing scheme. The area has many positive features promoting its selection as one of the DfT pilot home zone schemes. It is an area where most houses have gardens, many with adjacent grassed areas. The area has an open aspect which may encourage speeding on the spine road and ‘joy riding’ in the area. Residents in the area also had concerns about vandalism and car crime.

The scheme was designed to reduce speeds, improve safety, improve the quality of life and involve residents in decisions about the design of the scheme.

**Home zone boundary and signing**

Informative ‘home zone’ and ‘home zone ends’ signs are included in the Traffic Signs Regulations and General Directions 2002 (TSRGD, 2002) and can be used if the home zone is designated according to the Transport Act 2000 (see Figure 6.1). These standard home zone signs have not been used for this home zone. Instead the Council used a 20 mph zone sign with a plate beneath bearing the text ‘Nobel Road Home Zone’ (see Figure 3.3). These have been erected at either end of Nobel Road at its junction with Clifton Lane. Technically, this is in the correct location as it marks the point where both the designated 20 mph zone and home zone begin. However, recent design guidelines (IHIE, 2002) suggest that the target speed of 10 mph within home zones will be achieved more easily where there is a stepped reduction in speed created by a 20 mph zone surrounding a home zone. In this instance though, the 20 mph zone and home zone start at the same point.

The home zone gateway signs are located at either end of Nobel Road. Their positioning there may lead to some confusion as they are not where the ‘mini home zones’ were eventually built. When the home zone was originally designated it was intended to extend the full length of Nobel Road and the cul-de-sacs leading from it. However, owing to budgetary constraints, it would have been prohibitively expensive to create shared space with all associated hard and soft landscaping works along the full length of Nobel Road and each of the cul-de-sacs. In the event, home zones in the purest sense were only created in Chamberlain Close and Richardson Close, as discussed in
this report. Whilst the home zone technically starts where the home zone signs are currently located, at either end of Nobel Road, the built environment does not ‘read’ as a home zone until Chamberlain Close and Richardson Close are entered. An alternative location for the signs would have been at the junctions of Nobel Road and Chamberlain Close and Richardson Close, though in these locations, the signs themselves might have been visually intrusive, detracting from the money spent enhancing the appearance of the estate.

Despite these anomalies regarding sign location, it should be borne in mind that the purpose of the signing is to warn drivers of the zone and make them more aware of their surroundings. Provided the 20 mph signs and home zone signs are both clearly visible there should be no problems.

7 Summary and conclusions

Background

The Nobel Road estate has high proportions of both younger and older people, and compared to Nottingham as a whole, higher levels of unemployment. Eighteen percent of economically active people are unemployed, compared to 15% in Nottingham City as a whole. In addition, about 65% of households have no access to a car, though the estate is well served by public transport. There were issues regarding anti-social behaviour including vandalism and car crime. Whilst the estate had a community centre, this was becoming neglected. There was also a lack of open space and play facilities.

Home zone measures

The home zone works included traffic calming, hard and soft landscaping of Nobel Road, and the creation of a 20 mph zone. The works along Nobel Road consisted of nine flat-top hump features, comprising two gateway features and seven single carriageway flat-top humps with tree planting.

The measures on Chamberlain Close and Richardson Close include:

- New road layout including surface treatments and ‘pinch points’.
- Increased parking for residents and visitors.
- New landscaped garden area and tree planting.
- Upgrade/adaptation of existing street lighting and street furniture.
- New pedestrian access from Richardson Close to Barton Lane.
- New boundary treatments to residential properties.

Residents’ support for the home zone

In both ‘before’ and ‘after’ surveys, about sixty per cent of adult respondents supported the home zone, thinking that it was a good idea. The majority of the remainder were undecided.

Over three-quarters of adult respondents interviewed in the ‘after’ survey thought that the home zone had improved the appearance of the streets. The elements contributing towards this were considered to be trees and other planting, new fencing, general cleanliness/tidiness, block paving, improved street lighting, parking, a statue, being pedestrian friendly and the provision of a play area. Many residents who were interviewed mentioned extending and finishing the scheme.

Impact of the home zone on the availability of on-street parking spaces

Nearly three-quarters of all respondents and over eighty per cent of car drivers perceived no difference in parking problems in the ‘after’ survey, with only four per cent of those driving a car saying that it was more of a problem parking outside their home for themselves, family or visitors.

Impact of the home zone on traffic speeds and traffic flow

Traffic speeds

The largest reductions in mean and 85th percentile speeds were observed along the southern and middle sections of Nobel Road. On the southern section, the mean vehicle speed decreased by 6.9 mph to 16.1 mph and the 85th percentile speed was reduced by 8.0 mph to 21.2 mph. Similarly, on the middle section, the mean speed decreased by 4.2 mph to 20.4 mph and the 85th percentile speed was reduced by 5.6 mph to 25.5 mph.

Along the northern section of Nobel Road the reductions in mean and 85th percentile speeds were much smaller at 0.5 mph and 0.9 mph respectively. It was noted however
that at this monitoring location, probably due to its proximity to the junction with Clifton Lane, the ‘before’ mean and 85th percentile speeds of 19.4 mph and 25.1 mph respectively, were already comparatively low.

Traffic flows
The ‘before’ 24 hour two-way vehicle flows averaged about 1,400 vehicles per day along the northern section of Nobel Road; along the middle and southern sections of Nobel Road, the recorded flows were somewhat lower at about 900 vehicles per day.

The ‘after’ flows recorded in July 2001 showed a reduction of about 10% along the middle and northern sections of Nobel Road and a small increase of about 2% along the southern section. Relatively small numbers of vehicles were recoded in the flow measurements. The observed ‘before’ and ‘after’ variability was not substantial and did not appear indicative of any major change.

Ideally, home zone streets should have two-way traffic flows of no more than about 100 vehicles per hour in the afternoon peak hour. This is usually the time of day when there is most conflict between vehicles and people, including children playing (CROW, 1998 and IHIE, 2002). Flow measurements taken after scheme installation indicate that this criterion was largely met on the southern and middle sections of Nobel Road with afternoon mean peak flows up to 90 vehicles per hour, but on the northern section these flows were up to 115 vehicles per hour.

Impact of the home zone on driver behaviour and perceived safety
Respondents were asked how considerate motorists in the home zone were towards children and adults when walking or crossing the road and cycling, and towards. In all cases, over two-thirds of respondents thought that drivers were now considerate. About thirty per cent of respondents thought that motorists were more considerate towards children playing in the street. Just one per cent thought that they were less considerate.

About three-quarters of respondents thought that it was safe for adults walking or cycling in the home zone. The majority of the fifteen per cent who considered it unsafe thought it was because vehicles were travelling too fast, with a few mentioning the amount of traffic and inconsiderate drivers. About two-thirds of respondents thought that it was safe for children walking or cycling within the home zone.

Impact of the home zone on adult journeys and activities

Of 21 children answering a question about their journey to school, all but one said that it was no different from before the home zone was installed. One child said it was worse, blaming the road humps for slowing their journey. About three-quarters of respondents perceived no change in walking conditions within the home zone. Nearly all of the remainder thought that walking was more pleasant, the main reasons given being the provision of trees, plants and fencing, and good design. The few who thought it was less pleasant cited the amount of traffic and cyclists on the footway.

Of 19 respondents who cycled, 11 perceived no change in cycling conditions and 6 found it more pleasant, owing to planted trees, the scheme’s appearance, slower/more patient drivers, fences and the resurfaced road. Two respondents said that their cycling was spoilt by ‘quads’ and motorcycles using the ‘path’ and discomfort cycling over the humps.

Impact of the home zone on outdoor activities and journeys to school
In the ‘after’ survey, respondents were asked whether children should play in the street now that it is a home zone. Over half thought they should because ‘they have to play somewhere’ and ‘there is nowhere else to play’. Over a quarter of respondents thought the children should not play in the street, and fifteen per cent had mixed feelings.

Respondents were asked how safe they thought it was for children to play/spend time unsupervised by an adult in their street since it became a home zone. Seventy per cent thought it was unsafe for pre-school-aged children, 53% for primary school children and 12% for secondary school children to play unsupervised in the street. These proportions were similar to those in the ‘before’ survey.

Of 21 children answering a question about their journey to school, all but one said that it was no different from before the home zone was installed. One child said it was worse, blaming the road humps for slowing their journey.

Road traffic injury accidents

Only one injurious accident (STATS19 recorded by the police) occurred in the 5 years before the zone was installed. The home zone is still being completed and therefore it is not possible to carry out an ‘after’ survey of the accidents. Both questionnaire surveys revealed similar levels of personal involvement in accidents or ‘near misses’ in the year prior to the survey and the year after the home zone was installed.

Meeting the study objectives
There were four main success criteria set out by the local authority. These were as follows:

- To explore the use of the home zone concept as a framework for community regeneration through the creation of safe and attractive people-orientated living environments.
- To demonstrate the value of community consultation and participation to address local problems.
- To demonstrate a coordinated approach to tackling these issues involving the local community and other partners.
- To use the Nobel Road estate as an opportunity to explore appropriate measures to achieve a change of priority for pedestrians, children and cyclists for possible application elsewhere in Nottingham.

Monitoring the home zone pilot has resulted in the following:
- The area is now regarded as being safer from traffic, safer from crime and having a more attractive appearance.
- The surveys showed that more respondents thought that there had been enough consultation rather than not enough consultation.
- Almost two-thirds of respondents were in favour of the home zone after it had been installed.
- With the scheme installed, less than half of the respondents thought that motorists now take priority, a third thought that all users now take equal priority and less than a quarter thought that pedestrians were now taking priority on the home zone streets.

Conclusions
The local authority’s original objectives have largely been met however, owing to budgetary constraints, home zones in the purest sense were only created in Chamberlain Close and Richardson Close:

1. The surveys carried out indicate that the appearance of the home zone in the Nobel Road area has been improved. The main attractive elements mentioned were the plants, flowers, trees, cleanliness and fencing.

2. Over 60% of the respondents supported the home zone thinking that it was a good idea and most of the rest were undecided.

3. There was little change in the amount of time that residents spent outside, but walking in the home zone was thought to be more pleasant by about a quarter of respondents. Most children spent the same amount of time playing outdoors.

4. Of the adult cyclists who expressed an opinion, most thought that cycling was more pleasant after the home zone had been installed. Some children thought that it was more fun riding their bike near their home.

5. About half of the children were either worried a lot, or worried quite a lot, about traffic and stranger danger after the home zone was installed.

6. The home zone measures had little effect on parking for most respondents. Most of those who thought it had changed considered that parking was less of a problem.

7. The majority of respondents thought that children should play in the street, even before it became a home zone. Some were concerned about the amount of traffic and some thought that children should play in parks. However, about 30% of respondents thought that motorists were more considerate towards children playing in the street since the home zone had been built.

8. Vehicle speeds were relatively low before the home zone was installed and the measures used had the effect of reducing the speeds by 1 to 8 mph to a level acceptable for the 20 mph speed limit in Nobel Road. Speeds were not measured in the cul-de-sacs, but the measures should aim to reduce mean speeds to below about 10 mph on these streets.

9. Traffic flows at the northern end and midway along Nobel Road were lower after the installation of the home zone, but they were little changed on the southern section. Most respondents thought that the amount of traffic had not changed.

10. Injurious accidents were not a problem within the Nobel Road Home Zone. Accidents and near misses mentioned by respondents in both surveys, before and after the home zone, suggested that the level of occurrence of these incidents was similar.

8 Acknowledgements
The work described in this report was commissioned and funded by the Department for Transport and carried out in the Transportation Division of TRL Limited. The authors are grateful to Wayne Duerden from the Department for Transport and the staff of Nottingham City Council for providing plans and background information on the home zone scheme. Thanks are also given to Claire Vance of TRL who carried out the quality review and auditing of this report and Roger Layfield of TRL.

9 References


Other references
Appendix A: Traffic flows by time of day

Figure A1 Nobel Road (northern section) – ‘Before’
(a) Nobel Road (north): ‘After’ 2-way vehicle flow by time of day (weekdays) 16-20 July 2001

(b) Nobel Road (north): ‘After’ 2-way vehicle flow by time of day (Saturday) 14, 21 July 2001

(c) Nobel Road (north): ‘After’ 2-way vehicle flow by time of day (Sunday) 15, 22 July 2001

Figure A2 Nobel Road (northern section) – ‘After’
Figure A3 Nobel Road (middle section) – ‘Before’
Figure A4 Nobel Road (middle section) – ‘After’
(a) Nobel Road (south): ‘Before’ 2-way vehicle flow by time of day (weekdays)
10-14, 17-21 July 2000

(b) Nobel Road (south): ‘Before’ 2-way vehicle flow by time of day (Saturdays)
1, 8, 15, 22 July 2000

(c) Nobel Road (south): ‘Before’ 2-way vehicle flow by time of day (Sundays)
2, 9, 16, 23 July 2000

Figure A5 Nobel Road (southern section) – ‘Before’
Figure A6 Nobel Road (southern section) – ‘After’
Appendix B: Road traffic accidents and incidents

B.1 Road traffic injury accidents
Information about ‘before’ injurious accidents (STATS19) within the home zone area was obtained from the TRL database. The ‘before’ period from January 1, 1996 to December 31, 2000 covered the five years prior to scheme installation. Just one accident which resulted in a serious injury to a pedestrian was identified as follows:

- A bus was in collision with an adult pedestrian; this resulted in serious injury to the pedestrian. The accident occurred on March 16, 1996 near the Medawar Close/Nobel Road junction. This junction is about half way along Nobel Road not far from the Park Gate Community Centre bus stop (see Figure 4.1).

A further nine injury accidents were also recorded in the ‘before’ period, but these all occurred outside the home zone along the boundary road of Clifton Lane. A total of four of these accidents occurred at the junctions with Nobel Road as follows:

At the northern junction of Nobel Road with Clifton Lane:
- A cyclist turning hit the kerb and was seriously injured.
- A car turning was in collision with a taxi. Both drivers were slightly injured.

At the southern junction of Nobel Road with Clifton Lane:
- A cyclist was seriously injured in a collision with a car.
- A car turned into the path of a bus. The car driver and two bus passengers were slightly injured in the collision.

‘After’ data are not available at present as the home zone is still being implemented. Even if there are changes in accident frequency, these are unlikely to be statistically significant because of the small numbers of accidents expected. However, the data given in Appendix B2 may help in understanding the types of accidents that may occur after the installation of a home zone and highlight any problems associated with the zone operation. The data also provide support for information collected about changes in perceived safety.

B2 Road traffic incidents in home zone area mentioned by respondents
The road traffic incidents reported in this appendix were mentioned by the respondents of the questionnaire, and therefore must be treated with caution as they are anecdotal, but they may be indicative of the potential for occurrence of road traffic incidents.

B2.1 Incidents which resulted in accidents
There were eight accidents which occurred in the ‘before’ period and two accidents in the ‘after’ period (see Table B1). The ‘before’ accidents involved four respondents while they were walking, two while cycling and two while in a car. The ‘after’ accidents occurred to the respondents while both were walking. The reduction of accidents from 8% in the ‘before’ period to 3% in the ‘after’ period could imply an encouraging trend. It should be noted that one of the ‘after’ accidents actually occurred on the border of the home zone, but it is relevant because the child concerned was playing with a ball in the home zone in Raleigh Close and went to retrieve the ball through a broken fence (see full accident details for accident no. 7 in the descriptions given in Section B2.5).

B.2 Road traffic incidents in home zone area mentioned by respondents
The road traffic incidents reported in this appendix were mentioned by the respondents of the questionnaire, and therefore must be treated with caution as they are anecdotal, but they may be indicative of the potential for occurrence of road traffic incidents.

B2.2 Incidents which resulted in ‘near misses’
It is clear that the perception of a ‘near miss’ is open to individual interpretation, but these anecdotes provide an insight to overall safety. The results showed that ‘near misses’ appear to have hardly changed with eight incidents (8%) in the ‘before’ period and eight incidents (11%) over a similar time period of about a year. There were fewer ‘near misses’ involving respondents in cars, but more occurring to respondents while walking. There were very few cycling incidents; only one was mentioned in the ‘after’ survey.

B2.3 Incidents which resulted in accidents or ‘near misses’
This gives a total of sixteen ‘incidents’ (16%) in the ‘before’ period and ten ‘incidents’ (14%) in the ‘after’ period which may indicate an encouraging trend. It appears that respondents experienced more incidents while walking, but fewer incidents while in a car.

B2.4 Overall summary of results of incidents mentioned by respondents
- Combining all of the incidents shows 16% of respondents reported incidents in the ‘before’ period and 14% of respondents reported incidents in the ‘after’ period which indicates little change. Clearly, this is only

Table B1 Accidents and near misses in home zone area from respondents’ questionnaires

<table>
<thead>
<tr>
<th>Incident type</th>
<th>Incident occurred while</th>
<th>Difference (A – B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Period</td>
<td>Walking</td>
</tr>
<tr>
<td>Accident</td>
<td>‘Before’ (B)</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>‘After’ (A)</td>
<td>3%</td>
</tr>
<tr>
<td>Near miss</td>
<td>‘Before’ (B)</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>‘After’ (A)</td>
<td>6%</td>
</tr>
<tr>
<td>All incidents</td>
<td>‘Before’ (B)</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>‘After’ (A)</td>
<td>9%</td>
</tr>
</tbody>
</table>

1 ‘Before’ and ‘after’ periods were about 1 year or so before or after the home zone was completed.
2 The percentage of respondents are given because there were 98 respondents in the ‘before’ survey and 73 respondents in the ‘after’ survey.
indicative information because it was taken from anecdotes, however, there is no indication of any discouraging trends.

B2.5 Summary of incidents mentioned by respondents (after survey)

The incidents mentioned by the respondents are summarised in Tables B2 and B3. These show that the two accidents are likely to have happened even if the home zone had not been installed.

The near misses are difficult to assess as they rely on the respondents’ recollection and interpretation of the incident. It is clear that respondents thought that six of the incidents were attributable to speeding vehicles. This might be because the respondents expected the speed to be lower, rather than it being actually above the speed limit. In one incident, a car was travelling slowly enough to avoid a cyclist who fell off their bicycle into the road in front of the car.

Table B2 Incident reference number and description

<table>
<thead>
<tr>
<th>No.</th>
<th>Description of incident given by respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motorbike on pavement knocked us down.</td>
</tr>
<tr>
<td>2</td>
<td>I was riding my motorcycle and I lost traction on the hump and on braking found there was not enough space left for braking.</td>
</tr>
<tr>
<td>3</td>
<td>My son was riding his bike on the pavement, and he came off and fell into the road. A car came and swerved to avoid him. The car was fortunately travelling slowly.</td>
</tr>
<tr>
<td>4</td>
<td>A car came round the corner at speed causing the children to jump out of the way.</td>
</tr>
<tr>
<td>5</td>
<td>A speeding car came round the corner and had to apply his brakes quickly as we had started to cross the road.</td>
</tr>
<tr>
<td>6</td>
<td>I was walking on the grass and a car came onto the green to drop off a friend - I had to dive out of the way.</td>
</tr>
<tr>
<td>7</td>
<td>He was playing in Raleigh Close and there were two fence panels missing, the ball went over and he ran to get it and a car ran over his foot.</td>
</tr>
<tr>
<td>8</td>
<td>Had to swerve to the side of one of the ramps as someone was going too fast.</td>
</tr>
<tr>
<td>9</td>
<td>When coming home from work a car came at speed and mounted the pavement, he had to jump out of the way and was extremely shaken.</td>
</tr>
<tr>
<td>10</td>
<td>A car came down the street at speed and the driver slammed his brakes on.</td>
</tr>
</tbody>
</table>

Accidents are highlighted and ‘near misses’ are not highlighted.

Table B3 Location, time and month/year of incident given by respondents

<table>
<thead>
<tr>
<th>No.</th>
<th>Location</th>
<th>Time</th>
<th>Month/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nobel Road</td>
<td>Saturday pm</td>
<td>March 2004</td>
</tr>
<tr>
<td>2</td>
<td>Nobel Road/Barkla Close</td>
<td>Pre 16:00 hrs</td>
<td>September 2004</td>
</tr>
<tr>
<td>3</td>
<td>Raleigh Close</td>
<td>15:15 hrs</td>
<td>September 2004</td>
</tr>
<tr>
<td>4</td>
<td>Barkla Close</td>
<td>16:00 hrs</td>
<td>August 2004</td>
</tr>
<tr>
<td>5</td>
<td>End of Shaw Gardens</td>
<td>15:30-16:00 hrs</td>
<td>April 2004</td>
</tr>
<tr>
<td>6</td>
<td>Barkla Close</td>
<td>07:50 hrs</td>
<td>Winter</td>
</tr>
<tr>
<td>7</td>
<td>A453 (Raleigh Close)</td>
<td>16:30-17:00 hrs</td>
<td>April 2004</td>
</tr>
<tr>
<td>8</td>
<td>Nobel Road</td>
<td>16:00 hrs approx.</td>
<td>Summer</td>
</tr>
<tr>
<td>9</td>
<td>Chamberlain Close/Prize Close</td>
<td>18:30 hrs</td>
<td>March 2004</td>
</tr>
<tr>
<td>10</td>
<td>Hodgkin Close</td>
<td>16:00 hrs</td>
<td>July 2003</td>
</tr>
</tbody>
</table>

Accidents are highlighted and ‘near misses’ are not highlighted.
Abstract

Home zones are residential areas where the built environment is designed to be places for people, not just for motor traffic. Their aim is to change the way that streets are used in order to improve the quality of life for residents including children and those that walk or cycle. A home zone allows a wide range of activities to take place in the street on space that was formerly considered to be exclusively for vehicles. Changes to the layout of the street should emphasise this change of use, so that motorists perceive they should give informal priority to other road users. Both hard and soft landscaping are appropriate.

Nobel Road, Nottingham is one of nine home zone schemes in a pilot programme set up by the Department for Transport (DfT). TRL was commissioned by DfT to assess the effectiveness of each pilot home zone scheme in achieving it’s aims. In order to determine their impact, a comprehensive ‘before’ and ‘after’ monitoring programme was devised. This included attitudinal surveys of residents both adults and children, collection of traffic flow, traffic speed, accident data and video recording. This report presents a comparison of the results of these ‘before’ and ‘after’ surveys and reaches a conclusion regarding the impact the home zone has had upon resident’s lives.

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