Pilot home zone schemes: Evaluation of Morice Town, Plymouth

Prepared for Traffic Management Division, Department for Transport

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CONTENTS

Executive Summary

Morice Town, Plymouth is one of nine home zone schemes in a pilot programme set up by the Department for Transport (DfT). The programme's aim was to evaluate the potential benefits, particularly in regard to shared road space, of a wide range of home zones in different parts of England and Wales.

Morice Town is in an area of the City adjacent to the Devonport naval base. It has a mix of private, council and social housing, comprising of 155 terraced houses and 253 flats. Within the home zone there are also 5 public houses, 3 businesses, Morice Town Primary School a Salvation Army Hall and a children's playground. The total length of the road network is 2.2km.

Morice Town is a very mixed area, it has private owner-occupied housing but also pockets of deprivation evident by crime rates, and a lack of day to day facilities. Until recently, there was no bus service to the home zone and some roads suffered from 'rat running' and speeding traffic. Consultation with the residents revealed that their main concerns were traffic speeds, parking, security and safety, dog fouling, vandalism, anti social behaviour, litter, lack of play areas and community facilities and general quality of life issues.

The home zone proposal was originally conceived as a road safety initiative though went on to evolve as a comprehensive regeneration project.

The City of Plymouth and Morice Town Community Advisory Group have both been involved in the home zone project from inception in 1998 through to completion. The home zone has cost £2.3 million over four years. It was jointly funded by Plymouth City Council Local Transport Plan, Single Regeneration Budget (SRB) and the Government Home Zone Challenge Fund. Construction began in March 2002, a formal launch in June 2002 and was completed in April 2003.

TRL was commissioned by the DfT to assess the effectiveness of the pilot home zone schemes in achieving the aims of home zones. As part of this, TRL carried out 'before' and 'after' studies which included household surveys with adults and children, traffic flow and speed surveys, analysis of accident data and video recording.

Home zone measures

The creation of the Morice Town Home Zone was achieved through a number of works on site. These included:

- Vertical and horizontal traffic calming measures to manage vehicle speeds.
- Raising the height of the of the carriageway to that of the footway, creating a new single level 'shared surface'.
- Installing planters and providing other soft landscaping areas.
- Tree and shrub planting.
- Hard landscaping works using quality materials.
- On-street play facilities.
- Creation of informal and formal community space.
- Resident and visitor car parking management.
- Gateway features at all entry points to the home zone.

The development of the home zone was phased. It began with the building of nine gateway features followed by other measures which would reduce speed and change the environment of the area and create a sense of space. In place of straight roads lined with cars, the streets have been redesigned as shared spaces to be populated by people. Low blocked, slate topped planters double up as benches, providing a meeting point for residents.

One local resident commented *'Along Charlotte Street and Herbert Street there's a herringbone pattern printed into plastic resin. It's really colourful, with grey, red and yellow'*. The streets are now used for public gatherings, both formal and impromptu. Morice Town hosts an annual street fair (resurrected from an event that used to take place in the early 1900s) in August and a Christmas carol service.

Residents support for the home zone scheme

The majority of the adult residents (76%) who were interviewed in Morice Town were supportive of the home zone. Residents have welcomed the home zone concept, seeing it as an opportunity to take ownership and responsibility for their local area. The enthusiasm of local people has been encouraging, they have come forward with their own ideas for the home zone such as allowing local people to maintain the planted areas outside their homes. It was even suggested that a burnt-out garage could be converted into a community greenhouse where people could exchange, grow and share plants. A community café could even be developed in the derelict shop next door. Groups formed together to plan shared gardens in what were desolate streets. Local children helped to design a new play area on an empty piece of grass.

Most of the residents thought that the home zone has had a positive impact in terms of: the appearance of shared surface, walking within the home zone, speeding vehicles, danger from traffic, and the way they drove within the home zone.

As with the adults, almost all the children interviewed said they thought the street looked nicer now that it was a home zone.

About half the adult respondents thought that the changes to the streets were sufficient to make the home zone work. Additional things that were thought to be needed included a safe area for children to play in, further traffic calming or traffic restrictions, more planting, and more streets to have a 'shared surface'.

On-street parking spaces

One of the main concerns raised by residents during the home zone consultation process was that of parking, particularly regarding the space available for on-street parking and the desire to park vehicles near the home due

to fear of crime. From the outset, careful consideration was given to the home zones likely impact upon reducing on-street car parking supply.

In the 'after' survey 48% of the respondents who drove thought that parking outside their home was more of a problem, 31% thought that it had made no difference and 21% thought that it was less of a problem. This shows that parking is a problem for about half of the respondents with cars.

Traffic flows within the home zone

In the 'before' situation, mean daily (24 hour) two-way vehicle flows averaged just over 1600 on Charlotte Street. This is quite a challenging number for a prospective home zone road which is the main north-south route across the home zone. Traffic counts on other streets showed that there were nearly 900 2-way vehicle movements in a 24 hour period on Herbert Street and about 560 on Balfour Terrace. Herbert Street and Balfour Terrace are both the main east-west routes across the home zone. The flow on Cross Hill, a north-south route on the eastern fringe of the zone, was 534 vehicles which is similar to Balfour Terrace. Victoria Place and Vincent Street, which forms a north-south route to the east of the zone, carried flows of 1548 and 1402 vehicles respectively which is similar to those on Charlotte Street.

Following scheme implementation, mean daily two-way flows fell by around a third on Charlotte Street, to 1096 vehicles. Flows fell by around a quarter both on Cross Hill and Herbert Street to 398 and 653 vehicles respectively. Balfour Terrace, experienced a fall of 40% in mean daily two-way traffic flows to 336 vehicles.

Outside the home zone, the flow was little changed on Vincent Street, though on Victoria Place, the flows doubled to 3150 vehicles, indicating a transfer of some traffic to this road.

Once the home zone works had been completed and residents had got used to the zone, 'max speed 10 (mph)' supplementary plates were erected. After they had been erected, flows varied across the home zone. On Balfour Terrace, there was little change, mean daily (24 hour) two-way flows increased by 5%, though this was just 16 vehicles. Similarly on Herbert Street there was little change, two-way flows decreased by 5%, or 30 vehicles. The largest changes were on Charlotte Street northbound, into the home zone, where flow rose by around a fifth or 129 vehicles, by contrast flow in the opposite direction southbound actually fell, by 7% (36 vehicles). The overall reduction on Charlotte Street compared to the 'before' survey was a reduction of 26%. On Cross Hill, flows in both directions rose by a quarter, almost back to the 'before' levels.

Traffic speeds within the home zone

The home zone measures achieved an overall reduction in both the mean and 85th percentile vehicle speeds on all roads within the home zone. There was a wide variation in the changes between roads and this is outlined below.

Herbert Street

The greatest reduction was on Herbert Street where mean speed fell from 22.9 mph in the 'before' situation to 12.8 mph in the 'after', a fall of 10.1 mph. On Herbert Street 85th percentile speed also fell from 29.0 mph in the 'before' to 16.0 mph in the 'after' survey.

Balfour Terrace

On Balfour Terrace, mean speed fell from 21.5 mph 'before' to 15.9 mph 'after', a fall of 5.6 mph. The 85th percentile speed fell by 8.1 mph from 28.0 mph 'before' to 19.9 mph 'after'.

Charlotte Street

The fall in speed on Charlotte Street was slightly better than Balfour Terrace, mean speed fell by 7.7 mph from 22.8 mph 'before' to 15.1 mph 'after', a drop of 7.7 mph. The 85th percentile speed fell by 9.2 mph from 28.5 mph 'before' to 19.3 mph 'after'.

Cross Hill

On Cross Hill the changes in vehicle speeds were smaller, however this is because speeds in the 'before' situation were already low. The mean speed fell from 16.9 mph 'before' to 14.9 mph 'after', a fall of 2.0 mph, 85th percentile speed fell by a similar amount, 1.9 mph, from 20.8 mph 'before' to 18.9 mph 'after'.

Speeds after 'max speed 10 (mph)' supplementary plates installed

The installation of the 'max speed 10 (mph)' supplementary plates had some but minimal further impact on vehicle speed over and above that already achieved by the home zone works themselves. The mean speed on Balfour Terrace fell by a further 0.6 mph. The fall in mean speed on Charlotte Street was 0.1 mph. Mean speed after the 10 mph signs on Cross Hill and Herbert Street both rose very slightly by 0.5 mph and 0.6 mph respectively. The 85th percentile speed on these two roads both showed increases of about 1 mph.

The greatest impact of the home zone on vehicles speed can be shown by the percentage of vehicles exceeding 20 mph in the 'before' and 'after' situations. On Charlotte Street 'before', 74% of vehicles exceeded 20 mph and in the 'after' situation this fell to just 10%. Similarly on Balfour Terrace where the percentage exceeding 20 mph 'before' was 62% falling to 12% 'after'. On Herbert Street, 73% of vehicles exceeded 20 mph 'before', falling to just 5% 'after'. On Cross Hill where speeds were already relatively low, 13% of vehicles exceeded 20 mph 'before' compared to 11% 'after'.

Reducing vehicle speeds was one of the objectives of the scheme.

Impact of the home zone on driver behaviour and perceived safety

For many adult respondents, the home zone appeared to have made an impact on their perception of traffic using

the street, particularly regarding the speed of vehicles. As a result, substantially fewer respondents were bothered by speeding vehicles, the amount of traffic and danger to children in the 'after' survey (44%, 35% and 49% respectively) than in the 'before' survey (67%, 60% and 71% respectively).

When asked how considerate motorists were to children playing since the home zone was introduced, 68% of respondents thought they were considerate and 21% thought they were not considerate. The corresponding 'before' values were 50% and 42% showing that the driving has improved.

The perceived safety from traffic of adults walking or cycling was also thought to have increased slightly with 84% of respondents in the 'after' survey thinking that it was very or 'fairly safe' for adults walking in their street compared with 81% in the 'before' survey. Also, there was a substantial increase in the perception of safety, 68% of respondents in the 'after' survey thought that it was 'very safe' or 'fairly safe' for children cycling in their street compared to 49% in the 'before' survey.

With regard to danger from crime, most adult respondents (84%) in the 'before' survey believed that adults were 'very safe' or 'fairly safe' from crime. In the 'after' survey, 85% of respondents thought that it was 'very safe' or 'fairly safe' from crime for adults walking or cycling in the home zone. Ten per cent thought it was 'not very safe' or 'not at all safe', and gave the reasons as vehicles travelling too fast, muggings, stones are thrown and general society.

In the 'before' survey 72% of adult respondents thought that it was 'very safe' or 'fairly safe' from crime for children walking or cycling in the home zone. Sixteen per cent thought it was 'not very safe' or 'not at all safe', and gave the reasons as drug problems, vehicles travelling too fast, robbery, no pavements and bullying. In the 'after' survey the corresponding values were 71% and 14% respectively showing that their views were similar ie no substantial change in perception.

Crime statistics supplied by Plymouth City Council showed that from April 2001 to March 2002 there were 92 recorded crimes in the Morice Town zone. In 2002/03 there were 142 recorded crimes during the construction of the zone and there were only 9 recorded crimes in the year 2003/2004 since the zone was completed. This shows that there has been a 90% reduction in recorded crime between the before and after periods. Violent crime was reduced by 62%, vehicle crime by 96%, other crimes by 73%, criminal damage by 100%, domestic burglary by 100% and other theft by 100%.

Impact of the home zone on adult journeys and activities

About half the respondents owned or had access to a car or van. The proportion who had access to a vehicle has decreased 'after' by 4% from 52% to 48% but there has been an increase from 12% to 22% of the respondents who had access to two or more vehicles. In the 'before' survey, cars/vans were used by respondents twice a week or more to go to work (22%), to go out for leisure purposes (29%), to visit friends (26%) and to go to the shops (27%). In the 'after' survey, most of the adult respondents felt that since the introduction of the home zone motorists drive less often. They drive along their street to the shops (4% less often), to accompany children to school (6% less often), to visit friends (4% less often), and for leisure purposes (1% less often). However, there has been an increase of 7% in frequency of journeys to work by car.

For most respondents, the introduction of the home zone did not appear to make a large difference to the overall frequency of walking trips. Walking to the shops was still the most popular with over 50% walking there daily. There was only a marginal increase in frequency 'after' of 2% of adult respondents who walked to the shops. The frequency of those who walked to all other places has decreased slightly after the implementation of the home zone.

Before the home zone was introduced, most adult respondents either thought that pedestrians should have priority (42%) in their streets or all road users should be equal (54%). Very few (3%) thought that motorists should have priority.

In the 'after' survey, about 25% of the respondents felt that pedestrians took priority, 31% considered that pedestrians and motorists now had equal priority and 38% said that motorists took priority.

In the 'before' and 'after' surveys only 15% and 10% of adult respondents had access to a bicycle, cycle use was very low in both surveys. Cycles were mainly used for occasional journeys to work, to visit friends or for leisure purposes. For most respondents owning bicycles, the introduction of the home zone made no difference to how often they cycled along their street.

Most adult respondents (75%) said that the home zone had made no difference to the amount of time they spent outside the front of their home when the weather was reasonable. Twenty-two per cent spent more time outside and only 3% spent less time outside.

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

Over three-quarters (81%) of children said they played outdoors near their home. Sixty-five percent of children mentioned that they play outdoors daily, 19% play outdoors 2 to 4 times a week. After the implementation of the home zone, 35% child respondents said they play outdoors more often than before the scheme. Thirty-five percent of the children said they had changed where they played, examples given were: the new basketball park, football area, playground. A few children have mentioned the benefits of the new basketball park for basketball and riding bikes,

In the 'after' survey, nearly three-quarters (71%) of child respondents said that they walked to and from school. Nineteen percent of child respondents feel that their journey to and from school has improved since the implementation of the home zone, 65% feel their journey is the same and 10% feel that it is worse. One reason given by a child who feels their journey is better states '*you can walk anywhere now the cars don't take up so much room'*. The overall redesigning of the street appears to have improved conditions for children walking. Two children

mentioned, '*The appearance of the street is more pleasant to walk through'*. Two children have mentioned low traffic flow and speeds which have made walking conditions better *'easier to cross the road as not many cars around', 'cars go slower'*.

Road traffic injury accidents

Information on the number and type of reported road traffic injury accidents (STATS19) within the home zone boundary, at the junctions leading into the zone (Albert Street with Charlotte Street, Ross Street and Healy Place), and on perimeter roads (Keyham Road, Albert Road, Victoria Place and Vincent Street) was sought from TRL's database for the period January 1st 1995 to March 31st 2003. At the time of writing, however, insufficient data are available for the 'after' period (April 2003 onwards).

The 'before' injury accident frequencies were 0.8 accidents per year within the home zone, and 6.5 per year on the perimeter roads, of which 1.2 per year were at the junctions leading into the zone.

1 Introduction

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. Genuine and effective consultation with all sectors of the community, including young people, is important. This can help ensure that the design of the home zones meets the needs and aspirations of local residents.

Morice Town, Plymouth is one of nine home zone schemes in a pilot programme originally set up by the Department of the Environment, Transport and the Regions (DETR) now the Department for Transport (DfT). The programme's aim is to evaluate the potential benefits, particularly in 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 of this report gives details of the streets forming the Morice Town Home Zone, the consultation and implementation timetable.
- Section 3 describes the measures used in The Morice Town to create a home zone.
- Section 4 and appendices A and B provide details of the data collected.
- Section 5 considers the impact of home zone on residents and traffic.
- Section 6 contains a summary and draws conclusions from the project.

1.2 Home zones and woonerven

Conventional traffic calming schemes and 20 mph zones have shown that reducing the mean speeds of traffic in urban areas to below 20 mph can have a substantial beneficial effect on road safety (Webster and Mackie, 1996) and (Webster and Layfield, 2003). 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 (residential precinct) to drive at a walking pace and make allowance 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 out 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/rider behaviour and speeds would be reduced to a walking pace. The need for conventional road engineering traffic calming measures would then 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, (DETR, 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 Government's Road Safety Strategy and Speed Policy Review (DETR, 2000), as well as Planning Policy Guidance Note 3, Housing, (DETR, 1999 and 2001) and Planning Policy Guidance Note 13, Transport, (DETR, 2001) reinforced the Government's commitment to home zones.

The Transport Act 2000 makes provision for home zones in England and Wales. This came into effect in February 2001, local authorities now have a specific power to designate home zones in their area. They are also able to make orders regarding 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, sixty-one 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 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 2003. The timing of the 'after' surveys and reporting has

been dependent on the implementation progress of the individual home zone schemes. The first home zone to be completed was in The Methleys, Leeds, the results for this zone are reported in TRL Report TRL586 (Layfield, Chinn and Nicholls, 2003).

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 pilot schemes, priority was given to schemes with: innovative ideas, strong support from residents' associations, transferable results and a commitment to achieve implementation within the study time scale. 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 working group endeavoured to include a range of scheme types in the pilot programme reflecting the variety and geographic spread of the 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 road safety schemes but aim to influence 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, design workshops. The nine home zone schemes are being designed and funded by local authorities. 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 which is to allow all road users to coexist in a pleasant safe environment; to come to a view on the need for additional legislation; and to identify and disseminate good practice guidance.

The main success criteria for Plymouth City Council include the achievement of the following:

- Has the home zone scheme improved quality of life, how residents now feel about their area?
- Has it changed the way pedestrians use the area?
- Has it changed the activities of the community?
- Is there an improvement in visual quality of the area?
- Has there been a reduction in speed and improvements in road safety?

2 The site

Morice Town is a small neighbourhood within Devonport situated 2.5km North West of Plymouth City Centre. The Naval Dockyard and river Tamar is to the west (Figure 2.1). Morice Town was developed in the 19th Century on land owned by Sir William Morice to house dockyard employees.

The home zone consists of a 2.2km network of 12 streets and contains about 400 dwellings, either houses or flats. Morice Town covers an area of about 250 by 500 metres or 12.5 hectares (Figure 2.2). The home zone is bounded on the north by a continuous wall, on the east by the Plymouth-Penzance railway line and on the south by Albert Road, a local distributor road. Albert Road and its house and shop frontages are not included in the home zone. The western edge of the home zone is the back alley behind the houses that front onto Charlotte Street, most of which are included within the home zone. The road layout forms a grid pattern with a dockyard railway station at the north east corner. There is a steep east to west downhill gradient across the site. Before the installation of the home zone, a bus service ran on or just outside its proposed boundary to the south on Albert Street and to the west on Keyham Road.

Some of the 19th Century terraced housing remains, but the majority of these houses have been replaced by post-war social housing. This social housing consists of three and four storey blocks of flats. The main housing areas are:

- flats in the Ross Street/Pentamar Street/Garden Street and Herbert Street/Keat Street/Boscawen Place areas;
- a 1990s social housing development on the site of Dockyard School;
- private housing mainly in Charlotte Street, Herbert Place, and Balfour Terrace.

Morice Town Primary School is situated within the home zone and Parkside Secondary School lies just outside on the opposite side of Albert Road.

Door to door 'before' interview surveys with adult residents found that:

- 52% had access to a car or van.
- 63% of households had children under 17 years of age.
- 14% of residents interviewed were aged 60 or over.
- the occupational group categories of respondents were AB 5%, C1 15%, C2 22%, DE 58% (see Section 4.1.1).

Figures 2.3 to 2.8 show the area before the home zone was implemented. The majority of the streets had a carriageway width of between 6 and 7.5m with the remainder being between 4 and 5m. The footways were mostly 1.8 to 2.5m wide, reaching 3.5m in places on Charlotte Street. Car parking by residents was primarily on-street.

Figure 2.1 Location plan of the Morice Town Home Zone

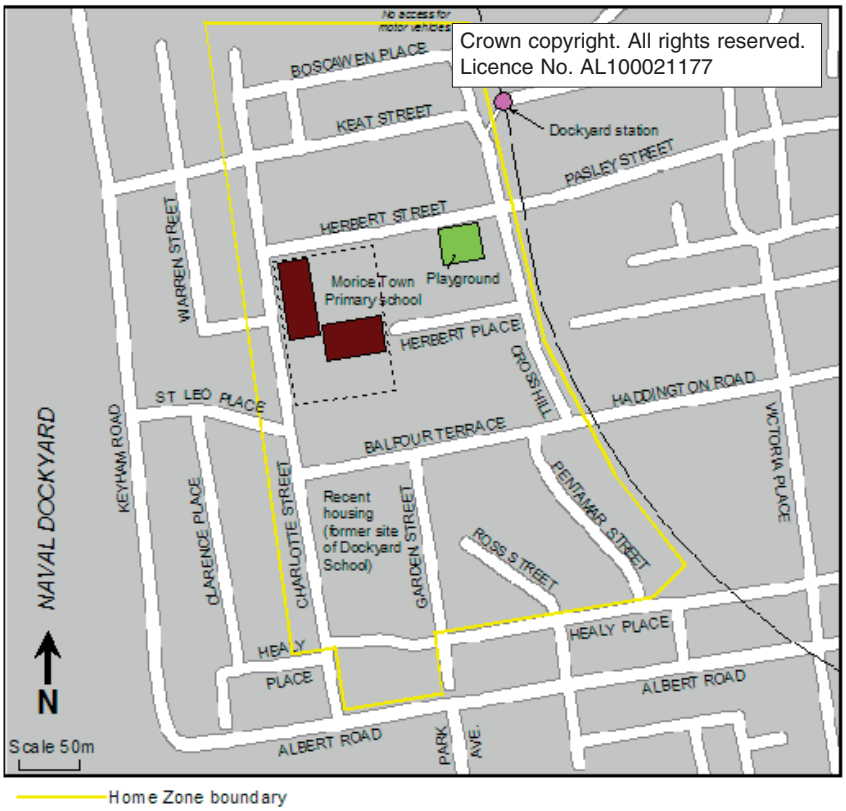

Figure 2.2 Plan of the home zone before scheme installation

Figure 2.3 Charlotte Street (looking north from southern end)

Figure 2.4 Balfour Terrace (looking west from near junction with Cross Hill)

Figure 2.5 Garden Street (looking south)

Figure 2.6 Herbert Street (looking west)

Figure 2.7 Herbert Place (looking west)

Figure 2.8 Keat Street (looking east)

The main measures for the home zone include gateway features, designed by children of Parkside School, on all entrances. The purpose of these was to emphasis to road users that they are entering an area where the built environment gives priority to people. The gateways include signs and features relating to the history of Morice Town. Raised or 'shared surfaces' are a key feature of the home zone, especially in the streets leading to the school. These 'shared surfaces' narrow the road width thereby calming traffic speeds. Further traffic calming has been achieved through horizontal measures including echelon and alternate parking as well as planters, vertical measures have been used to a lesser extent. Street lighting provision has also been reviewed in order to reduce the vandalism and crime rate.

2.1 Background

Prior to the home zone being built, the area had the second lowest car ownership and was designated an area of deprivation in Plymouth. There were crime problems including car theft, burglary, and domestic violence. There were few local facilities though there are a variety of shops on Albert Road, just outside the home zone area. There are five public houses either within or on the boundary of the home zone, a Salvation Army Hall and a playground on Herbert Street. The 1990s housing development also included a small, overlooked, play space and play furniture. There were many grass spaces around the blocks of flats, but the steep site gradient and fouling by dogs detracted from their use as informal play areas. There was no primary health care centre or community centre, and no bus services within the zone.

There was little business/community activity within the home zone, apart from a small business preparing frozen food at the northern end of Charlotte Street. Articulated lorries would need to obtain access to the rear of this site raising the issues of residential amenity and road safety.

There was a residents permit holders' parking scheme for the whole of the area of Devonport operating between 9am and 5pm Monday to Friday. However, the overall availability of daytime parking within Morice Town was becoming less of an issue following the loss of jobs within the neighbouring Dockyard. Nevertheless, there was concern that recently reduced parking for staff and contractors within the dockyard might increase pressure on parking spaces within Morice Town. The limited availability of 'overlooked' parking spaces near to the homes of residents' was considered to be an issue by residents. Plymouth City Council therefore co-ordinated a review of parking for residents with the home zone planning.

In May 2000, a new bus service through the home zone to the City Centre was introduced, running via Pasley Street, Herbert Street, Charlotte Street and Albert Road. There were objections to the bus service from a number of Charlotte Street residents who did not want people on double-deck buses looking in their windows or a bus stop outside their homes. The bus company operated single deck buses and moved the bus layover locations to bus stops outside the home zone. The service was popular with Herbert Street residents, particularly amongst older and disabled people.

The home zone was part of a wider set of initiatives for the area that included a Health Action Zone, Education Zone, and an Employment Action Zone. There was a 'Safer Routes to Schools' project underway at Morice Town and Parkside Schools. Sustainable transport was being encouraged at schools in Plymouth with the development of secure cycle parking.

Plymouth City Council's objectives for the area included:

- greater involvement of the community;
- traffic management - a sustainable transport system including safer routes to school, pedestrian and cycle routes;
- more play facilities and environmental enhancement;
- innovative design for pedestrian priority;
- breaking down division within the community caused by road layout and differences in housing ownership;
- design theme unique to the area creating sense of identity and ownership; and
- commitment to long-term planning and community improvement.

It was envisaged that the proposed home zone should increase residents awareness of their community, helping it to be pedestrian friendly, safe and clean. The new playground being developed would give the children somewhere off-street to play, although the small play areas on-street would be safe for small children, with people using the seating areas to watch and interact with other residents encouraging a stronger community spirit.

2.2 Consultation and implementation timetable

Partners in the project included the City of Plymouth, Morice Town Community Advisory Group and Keyham Business Group. The partnership with the local community and local businesses had been established and nurtured. The home zone proposals were originally instigated by the City Council and despite initial suspicion, the partnership grew in strength. Consultation with residents was achieved through:

- public meetings with residents and 'stakeholders', those with a vested interest in the area;
- questionnaire survey covering areas of social activity, health and transport;
- partnership building and liaison with those who were able to help take the proposals forward;
- the setting up of a 'Community Advisory Group' representing and reflecting the demography and economy of the area;
- production of newsletter starting in January 2000;
- a 'Planning for Real' exercise was carried out in February 2000;
- a Design Workshop was carried out in July 2000 resulting in a detailed plan;
- construction began in March 2002; and
- the zone was formally launched in June 2002 and construction was completed in April 2003.

Specific issues raised during the consultation process included:

- vehicle speeds, especially near the school;
- the number of heavy goods vehicles;
- the number of 'rat running' vehicles;
- precedence and protection of vulnerable road users;
- improvement of parking facilities;
- improvement of appearance of the area;
- creation of community spaces;
- improvement / provision of community facilities;
- provision of suitable play facilities;
- improvement of safety and security;
- improvement of street lighting;
- shared road space between pedestrians, children, cyclists and car drivers; and
- identification of the boundaries of the area.

It is interesting to note that this community capacity building process can be seen to have benefited other home zone developments. The Morice Town Forum Resident Group has often acted as host to visiting residents from areas that are seeking to implement home zone proposals. The Residents Group share knowledge and information with others to facilitate the decision making process. They provide a 'real' and comparative study area for their peers in the home zone development process.

The Morice Town Home Zone scheme was financed by Plymouth City Council Local Transport Plan funding, Home Zone Challenge and SRB (Single Regeneration Budget) funding with additional funding being sought from the European Community.

3 Home zone measures

Overview

A plan of the measures used in the Morice Town Home Zone is shown in Figure 3.1.

The works undertaken included:

- Gateway treatments and home zone signing at all entry points to the home zone. These were designed to have a visual impact and make non-local drivers aware that they are entering an area where people and vehicles share the available space.
- Complete redesign of some streets and junctions to create a single level 'shared surface', reminding motorists that they are now in a different environment and must drive accordingly. 'Shared surfaces' encourage and enable street-based activity.
- Extensive planting and landscaping using herbaceous plants.
- Traffic calming measures on Cross Hill, Garden Street, Pentamar Street and Ross Street.
- The use of different coloured and textured surfaces to help people understand how space is expected to be used, for example:

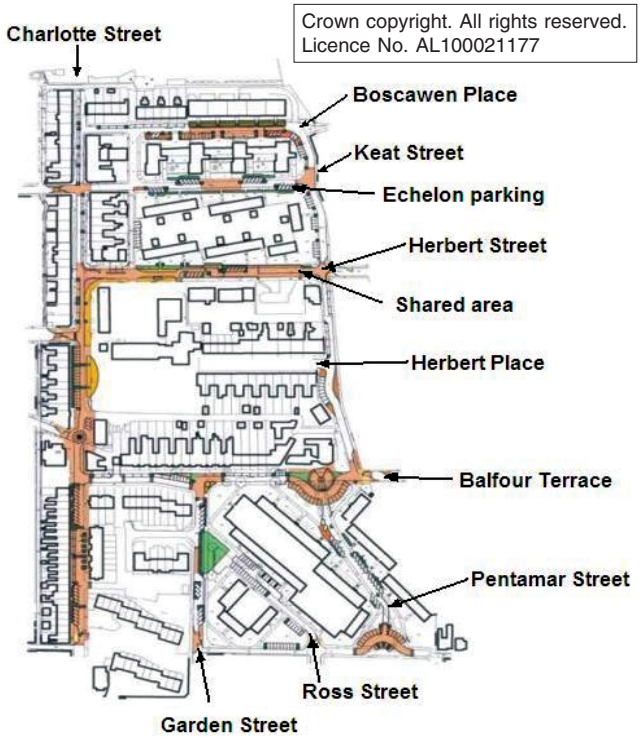

Figure 3.1 Plan of the measures used in Morice Town

- *Grey:* indicates shared surface and through routes, with the provision of passing places where the shared surface is narrowed. Grey is also used at junction tables.
- *Yellow:* to delineate pedestrian, community and play areas, some with measures to prevent vehicle incursion.
- *Bright red:* to show vehicle-overrun areas to be kept clear so that buses and HGVs are able to turn corners.
- *Dark red:* with grey border to mark out parking bays within shared surface areas.

Grey patterned paving is used for the shared surfaces, which have been created across the former carriageway and footways. Passing places have been provided though they should not generally be used for parking as it could block the free passage of vehicles. The yellow and red areas use an imprinted surfacing created by laying a screed of thermoplastic material, typically 20mm thick, and pressing a brick pattern into it while still soft. The paved and imprinted surfaces are generally on the most intensively treated streets in the home zone, namely Charlotte Street, Balfour Terrace, Herbert Street, Keat Street and Boscowen Place. The other streets were not redesigned to the same extent but they are still designated as shared space to be used in a similar way. Herbert Place, a *cul-de-sac* off Cross Hill, and Healy Place, a narrow street along the southern boundary of the zone, were little changed.

All planters in the home zone are constructed of two or three courses of reconstituted stone blocks with slate stone coping slabs. The planters are polygonal, rectangular or triangular and of varying size depending on location.

The measures on Charlotte Street and Herbert Street were completed in the spring of 2002 and the scheme was officially launched on 28th June 2002. Additional funding of £0.5M enabled the installation of the remainder of the scheme, this was completed in April 2003.

3.1 Gateways and home zone signing

Nine gateways have been built, narrowing the carriageway to between 2m and 5.5m, on:

- Charlotte Street, width 3.5m - affecting traffic from Albert Road.
- Garden Street 4.5m, Ross Street 3.0m and Pentamar Street 3.0m - all affecting traffic from Albert Road and Healy Place.
- Haddington Road 5.5m - affecting traffic into Balfour Terrace and Cross Hill.
- Pasley Street 3.0m - affecting traffic into Herbert Street and Cross Hill.
- Keat Street, west of Charlotte Street 2.0m - affecting traffic from Keyham Road.
- Warren Street 2.0m - affecting traffic from Keyham Road.
- St Leo Place 3.0m - affecting traffic from Keyham Road.

The gateways comprise circular, semi-circular or roughly rectangular stone wall features, 3.5 to 4.0m across, built on each side of the carriageway (Figure 3.2). This is with the exception of St Leo Place where the gateway is on one side of the road only. These features are staggered at the gateways on Charlotte Street, Garden Street, Warren Street and Keat Street thereby creating an additional horizontal deflection. Elsewhere they are opposite each other. The walls are made of rough blocks in the style of dry stone walling but they are mortared.

The gateway signing comprises the 'standard' home zone signs (Figure 3.3). In September 2003, 'max speed 10 (mph)' supplementary plates were added to the home zone signs in Morice Town as shown in Figures 3.2 and 3.4. The use of these plates was authorised by DfT as part of a trial to determine what, if any, effect they had on reducing vehicle speed. They are not prescribed for use with the home zone signs.

Courtesy of the Department for Transport

Figure 3.2 Typical gateway features, Warren Street (looking towards Charlotte Street and Morice Town primary school)

Start of home zone

Start of home zone with name of scheme

End of home zone

Figure 3.3 Home zone signs

Courtesy of the Department for Transport

Figure 3.4 'Max speed 10 (mph)' supplementary plates added to the home zone sign

3.2 Traffic calming measures on streets in the zone

A range of traffic calming measures were used within the home zone. These are shown in Figures 3.5 to 3.15.

Charlotte Street

Previously the busiest road in the home zone, Charlotte Street runs north from Albert Street and intersects with all the east-west roads in the home zone. The majority of the houses are 19th Century, some fronting directly onto the street. Morice Town Primary School is situated about halfway along, with access gained from Charlotte Street and Herbert Street.

The gateway, at the junction with Healy Place, includes a 5.5m and 3.0m diameter stone wall feature on either side of the carriageway, though each offset from one another (Figure 3.5). The larger 5.5m feature has been filled with plants.

The shared surface treatment, on Charlotte Street, extends between the gateway and Herbert Street. Along much of the street, the width available for vehicles has been reduced by angled parking bays, planters, community space and dedicated play areas. Widths vary from 2.5m, along those sections with angled parking, to 4.5m. The granite kerbstones removed to create the shared surface were salvaged and then used as a hard landscaping feature. They were fixed in to the ground and placed on end in positions, to prevent incursion by vehicles on to the community spaces and grass verges (Figures 3.6 and 3.7).

South of Balfour Terrace, 20 parking bays in two groups of 10 angled at 60° to the street have been provided, separated by six parallel bays (Figure 3.8). Between St Leo Place and Herbert Street there are three angled parking bays on the east side, followed on the west side by 17 right-angled parking bays and four parallel bays. North of Herbert Street parallel marked bays are provided.

Planters have been installed at intervals in between the parking bays, taking up the same width of parking bays regardless of orientation. Planters also fill the triangular spaces between the angled bays on the frontage side (also seen in Figure 3.8). Further planters narrow the vehicle route opposite the parallel parking bays.

There are two large areas of yellow imprinted surfacing outside the school, one of these areas extends into Herbert Street. They are protected from vehicles by planters and upright kerbstone blocks.

The splay at the junction with Herbert Street has been reduced by the use of red imprinted material to reduce cornering speeds and serve as an overrun areas for large vehicles. A low wall has been built on the corner on the school side (Figure 3.9).

The junction with St Leo Place features a roundabout island 10m across, finished in red and grey imprinted material in an alternating radiating pattern. It has a lamp column in the centre (Figure 3.10). There are planters round the edge of the junction.

The junctions of Keat Street and Kemwell Place, which becomes Boscawen Street, have been raised and block paved. North of Keat Street there has been no other treatment except for marked parking bays.

Balfour Terrace

Intersecting with Garden Street and Pentamar Street, Balfour Terrace links Charlotte Street and Cross Hill and becomes Harrington Road outside the gateway on the eastern boundary of the zone. The north side of the street is lined with 19th Century private housing with small front gardens. The Salvation Army Hall is adjacent to the junction with Cross Hill. On the south side of the street is the 1990's social housing development to the west of Garden Street and the Ross Street/Pentamar Street flats to the east.

A gateway has been installed at the junction with Cross Hill, where Balfour Terrace becomes Haddington Road (Figure 3.11). For incoming traffic this is preceded by a build-out, with stainless steel reflector posts, halving the width of the carriageway.

A shared surface has been laid on the eastern half of Balfour Terrace including the junction with Garden Street, with the width available to vehicles reduced to 4.5m. Major alterations have been carried out at the eastern end of the street, the focal point being a 20m diameter area of yellow imprinted surfacing outside the Salvation Army Hall. This has ornamental lighting in the centre (Figure 3.12). To make way for this, the street had to be substantially realigned. Ornamental railings have been installed to enclose the area and segregate it from traffic. Although this area is primarily community space, access has been provided, via lockable gates, for the Salvation Army minibus. The right is reserved to lock the gates if the facility is abused. On the opposite side of the street, 17 right-angled parking bays have been installed, divided into two groups by the paved entrance to Pentamar Street with a planter each side (Figure 3.13). A low wall carrying further railings was built to separate the parking bays from landscaping of grass, plant beds and planters. On the remainder of the shared surfaced section of Balfour Terrace, parallel parking bays, interspersed at intervals with planters, have been installed on the north side.

At the junction with Garden Street, a substantial horizontal deflection to vehicles has been introduced by realigning the street and installing a large planter and grassed area, thereby sheltering four angled parking bays close to the junction. Yellow imprinted surfacing has been laid between these bays and the footway. The junction splay has been removed by additional imprinted surfacing edged with stone blocks.

West of Garden Street, tarmacadam surfacing has been retained with parallel marked parking bays on the north side.

Herbert Street

Herbert Street runs parallel to Balfour Terrace between Charlotte Street and Cross Hill. Blocks of flats with grassed areas stand on the north side of the street, whilst on the south side there is a public house, a rebuilt playground, a small group of 19th Century houses and the northern frontage of the school.

The street continues eastwards via a gateway as Pasley Street beyond Cross Hill. The gateway features are very similar to those on Haddington Road. Using red imprinted surfacing, the splay has been reduced at the junction with Cross Hill and a 3m diameter island installed.

Courtesy of the Department for Transport

Figure 3.5 Gateway with planting, Charlotte Street (looking north)

Figure 3.6 Shared surface, Charlotte Street, outside school (looking south)

Figure 3.7 Recycled kerbstones protecting verge from vehicles, Charlotte Street

Courtesy of the Department for Transport

Figure 3.8 Angled parking bays and planters, Charlotte Street

Figure 3.9 Wall and overrun area, junction of Herbert Street and Charlotte Street

Figure 3.10 Decorative island feature at junction of Charlotte Street and St Leo Place

Courtesy of the Department for Transport

Figure 3.11 Gateway into Balfour Terrce (looking west) from Haddington Road

Courtesy of the Department for Transport

Figure 3.12 Community and parking space for users of Salvation Army Hall, Balfour Terrace (looking west)

Courtesy of the Department for Transport

Figure 3.13 Community space and parking facilities, junction of Balfour Terrace and Pentamar Street (looking west)

Figure 3.14 Shared surface, parking bays and planters, Herbert Street (looking east)

Figure 3.15 Refurbished playground with community space/play area in front, Herbert Street (looking west)

The whole length has a shared surface with a width of 3 to 4m available for motor vehicles (Figure 3.14).

Parking comprises two groups of 60° angled parking bays on alternate sides of the street on the middle section and a block of four parking bays near the Charlotte Street end outside the school.

Large areas of yellow imprinted surfacing have been laid outside both the school and the playground mentioned above (Figure 3.15). Stone blocks were removed and replaced by railings to prevent dog fouling and provide protected space (Figure 3.16).

Keat Street

Parallel to Herbert Street, Keat Street provides a through route from Cross Hill to Keyham Road. Blocks of flats stand on both sides of the street. The gateway west of the junction with Charlotte Street features grey imprinted surfacing extending through the gateway and the junction. The available width for vehicles along the street has been reduced to between 3m and 4.5m.

A tarmacadam surface has been retained except on a 27m centre section and at junctions. The centre section is 7m wide between stone blocks and provides a passing place for vehicles.

Four groups of angled parking bays have been installed on alternate sides of the street. The outer and intermediate groups are angled at 60° and 45° respectively with planters at the ends of each group.

Boscawen Place

Boscawen Place is the most northerly road in the zone, running parallel to Keat Street beyond the end of Cross Hill.

Most of the road and its junctions feature shared surfacing with the available width for vehicles reduced to between 3m and 4.5m. Tarmacadam has been retained on the western section.

On the south side of the street, ten parking bays angled at 60° and in three groups have been installed, with parallel bays where the street becomes Cross Hill. All bays are finished in red imprinted surfacing mostly with a yellow imprinted background. Planters have been installed mainly at the accesses to the flats on the south side and around the areas of yellow imprinted surfacing.

Landscaping, comprising plant beds, protected by ornamental railings, extends along the shared surfaced section (Figure 3.17). Marked parallel parking bays are provided on the western tarmacadam section and on Kemyell Place.

Cross Hill

Cross Hill follows the eastern boundary of the zone and is crossed by traffic entering and leaving the zone, via Pasley Street and Haddington Road. The tarmacadam surface was retained except at the junctions, all of which were raised and finished in grey block paving. Flat-top humps have been installed between the junctions, again in grey block paving. The spacing between these vertical features does not exceed 30 metres.

Marked parking bays have been installed, the majority at right angles to the street, providing space for 25 cars in four separate groups. Planters, yellow imprinted surfacing and/or planted trees are provided at the ends of each block.

A wide section south of the junction with Herbert Place has been narrowed by the installation of right-angled parking bays on one side and a build out over 30m long on the other, reducing the width to 6m from a maximum width of 14m.

Garden Street

Garden Street runs parallel to Charlotte Street towards Albert Street, though without access to/from the latter. Garden Street forms a junction with Healy Place, an already narrow street which was left unaltered.

Just north of Healy Place, a gateway with a flat top hump in grey patterned paving is negotiated. Garden Street is unaltered except for a centre section where a grassed build out nearly 40m long has been installed. The centre section of the build-out features yellow imprinted surfacing. Alongside the build-out an 8m long flat-top hump in grey block paving has been installed.

Courtesy of Plymouth City Council

Figure 3.16 Grass protected from vehicle incursion by railings, Herbert Street

Courtesy of the Department for Transport

Figure 3.17 Landscaping on Boscawen Place (looking west)

Ross Street

Ross Street, which is a *cul-de-sac*, is unaltered except at the southern end. Here a gateway with stone wall features has been installed along with 15m of raised patterned paving. The gateway is surrounded by paving slabs. Seventeen right angled marked parking bays, four for disabled drivers, have been installed in groups of five and twelve. There are five parallel bays opposite the latter at the end of the street.

Pentamar Street

Pentamar Street runs between Healy Place and Balfour Terrace, it is entered via a gateway with a flat-top hump at the southern end. The next 60m has retained the tarmacadam surfacing with two flat-top humps. The northern 50m of the street has been treated with the shared surface with three parallel and two 45° parking bays finished in red imprint surface. Slab paving has been installed along the parallel bays, together with an area of yellow imprinted surfacing around the 45° bays. The northern exit to the street is flanked by planters. Ten marked parking bays angled at 45°, some with planters at the rear, are provided on the middle section of the street.

4 Data collection

TRL's 'before' and 'after' monitoring programme, (the results of which are in Section 5) comprised a range of qualitative and quantitative survey techniques which are shown below:

- Attitudinal surveys of adults and children living within the home zone, the results of which will form the main basis for determining whether the aim of the home zone has been achieved.
- Collection of traffic flow and speed data.
- Video recording to determine pedestrian counts and classified traffic counts. Information was also gathered on general street activity and pedestrian behaviour.
- Investigation of the accident history. However, low accident numbers are unlikely to give statistically significant results.

The 'before' TRL survey work was supplemented by attitudinal, traffic and pedestrian information gathered independently by Plymouth City Council. The attitudinal data was taken from interview surveys conducted as part of the consultation with residents.

The main 'before' and 'after' surveys were carried out by TRL in March/April 2000 and May/July 2003 respectively.

4.1 Interview surveys

Adult and child door to door home interview surveys took place during April 2000 and July 2003. Where possible, the same people were interviewed once the home zone had been built. However, residents who had completed Plymouth City Council's own questionnaire survey were excluded. The children, aged 7 to 16 years old were interviewed using a modified questionnaire, concentrating more on street activities and behaviour within the home zone.

In both the 'before' and 'after' surveys, questions to adult respondents included:

- The characteristics of their household members.
- The perceived level of traffic speed, flow, noise and pollution within the home zone.
- Cycle ownership, car or van ownership/access and where vehicle parked.
- Frequency of journeys for different purposes by walking, cycling and car.
- Safety within the home zone and on surrounding roads.
- Involvement in accidents or near misses.
- How their children travel to school and whether accompanied by adults.
- Where their children play within the gardens and street area of the home zone.
- What types of play activity take place.

- Safety of the street for playing.
- What on-street activities they undertake within the home zone.
- The degree of priority given by drivers to themselves, and their children, when they are using the street as pedestrians or cyclists.

In the 'after' surveys, respondents were asked about their perceptions of changes in vehicle speeds, traffic flow, noise, pollution, mode of travel, parking provision, safety, playing and other activities within the street. Respondents were also asked about the visual appearance of the home zone; the measures used to control traffic; the effect on accessibility to their home and the need for further measures.

Interviews were conducted in those streets which were to become part of the home zone. A target of 100 adult and 50 child interviews was set, the child interviewees to be selected from households where an adult had completed an interview. For the 'before' surveys, quotas were set for each street to ensure that the interviews were spread fairly evenly across the home zone area. Every selected address received a minimum of three calls at varying times of the day and week, including weekends, before being abandoned as a 'non-contact'.

Adults eligible to be surveyed were specified as 17 years old or over, having lived at the address for at least 6 months. 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 child interview was always conducted *after* the adult interview. For each child interview an adult member of the household was present. The child questionnaire covered topics such as attitudes to the street, travel modes, outdoor activities and play within the street, and attitudes to the proposed home zones.

4.1.1 Characteristics of the adult survey sample

The 'before' interviews of adult residents living within, or on the edge of the proposed home zone, were carried out in April 2000. The 'after' interviews took place during July 2003. They included interviews with adults living in the 14 streets given in Table 4.1 which were surveyed before the scheme was introduced.

Table 4.1 Number of adults interviewed in streets within the home zone

Street name	*'Before'*	*'After'*
Keat Street	16	15
Ross Street	9	6
Atherton Place	1	2
Pentamar Street	7	6
Boscowan Place	1	0
Rowland Matthew Court	4	6
Kennyall Place	3	3
Herbert Place	6	4
Herbert Street	10	8
Cross Hill Villas	1	1
Balfour Terrace	10	10
Garden Street	5	5
Henley Place	9	9
Charlotte Street	14	16
Total	96	91

Table 4.2 gives details of the age, gender, occupational group, and length of time at their address of all respondents. Information on car ownership at the interviewed households and ages of household members is also given.

Table 4.2 Characteristics of adult respondents and households in 'before' and 'after' surveys

	% of respondents	
Characteristics of adult respondents	*'Before' survey*	*'After' survey*
Age of respondent		
17 – 21 years old	4	2
22 – 29 years old	10	10
30 – 44 years old	45	35
45 – 59 years old	27	33
60+ years old	14	19
Gender of respondent		
Male	35	31
Female	65	69
Occupational group*		
AB	5	3
C1	15	9
C2	22	24
DE	58	64
Length of time at this address		
Between 6 – 12 months	9	1
Between 1 – 5 years	53	37
Between 5 – 10 years	15	27
Between 10 – 20 years	18	23
20 years or more	5	11
Total number of respondents	96	91
	% of interviewed households	
	'Before' survey	*'After' survey*
Age of members of household		
Any children under 17 years old	63	51
Any 17 – 21 years old	16	22
Any 22 – 25 years old	6	15
Any 26 years old and over	99	90
Households owning one or more cars	52	48
Respondents with members of their household suffering from: *(note: household members may have more than one of the conditions listed)*		
Breathing problems	36	23
Heart problems	10	12
Sight problems	10	5
Hearing problems	6	8
Learning difficulties	2	2
Other problems affecting mobility outside the house	4	25
Total number of households	68	91

** Occupational groups (AB = Senior/middle managers, C1 = Junior managers; C2 = Skilled manual; D = Semi-skilled / unskilled manual workers; E = State dependent).*

4.1.2 Characteristics of the child survey sample

The characteristics of the sample of children living in the home zone who were interviewed are given in Table 4.3. 'Before' interviews were carried out in April 2000 with children aged between 7 and 16 years old. The 'after' interviews took place, just under two years later. The 'after' surveys included 6 children who had been interviewed previously, and 3 'adults' now aged 17 to 19 years old.

Table 4.3 Characteristics of the children interviewed

	Number and per cent of respondents				
	'Before' (B) survey		*'After' (A) survey*		*(A – B)*
Characteristics of children	*Number*	*Per cent*	*Number*	*Per cent*	*Per cent*
Age					
7-9 years old	13	33	3	10	-23
10-12 years old	12	30	12	39	+9
13-16 years old	12	30	9	29	-17
17-19 years old*	0	0	3	10	10
Age not known	3	7	4	13	+6
All children	40	100	31	100	0
Gender					
Male	22	55	16	52	-3
Female	18	45	14	45	0
Not known	0	0	1	3	3

** Adults included in the 'after' child survey because they had been interviewed as children in the 'before' survey.*

4.2 Traffic flows and speeds

Traffic flow and speed data were collected during school term-time by TRL using automatic traffic counters (ATCs) with tube detectors. Both the 'before' and 'after' traffic flow and speed surveys were on site for 3 weeks. The 'before' surveys took place during March 2000, the 'after' during May 2003. These surveys took place at the following locations as shown in Figure 4.1:

- Balfour Terrace, flow and speed.
- Charlotte Street, flow and speed.
- Cross Hill, flow and speed.
- Herbert Street, flow and speed.
- Victoria Place, flow only.
- Vincent Street, flow only.

Flow only measurements were undertaken just outside the home zone on roads to which traffic might divert. This is considered important for schemes like Morice Town, where the reduction of through traffic is one of the aims. It was considered that traffic using Herbert Street or Balfour Terrace as 'rat runs' might avoid the home zone, possibly diverting on to Victoria Place and Vincent Street.

ATCs store speed information by allocating speeds within given ranges known as 'bins', for example 0-5 mph, 5-10 mph and so on. For this study, the speed 'bins' were set on the ATCs to provide adequate detail on lower speeds, below 20 mph, as well as higher speeds.

Further measurements were carried out in March 2004 to monitor the effect of the 'max speed 10 (mph)' supplementary plates introduced in September 2003.

4.3 Video records

Video recordings were made using lamp post mounted cameras, 'before' and 'after' the implementation of the scheme, at a variety of locations within the home zone. These were filmed on a weekday and Saturday during term time and lasted for 12 hours, 7am to 7pm.

The locations chosen (Figure 4.1) took account of the range of measures and environmental features that were proposed during the design of the home zone scheme. The 'before' video recording locations were as follows:

- Location 1: Balfour Terrace, looking westwards.
- Location 2: Charlotte Street, looking southwards.
- Location 3: Herbert Street, looking eastwards.
- Location 4: Keat Street, looking eastwards.
- Location 5: Garden Street, looking southwards.

In the 'after' survey, a camera was again positioned at Location 4 but the cameras at Locations 1, 2 and 3 were moved slightly to give better views of the new home zone features. An additional camera was located looking eastwards into Balfour Terrace. The camera location in Garden Street was not used.

The video records were used to determine pedestrian and classified traffic counts as well as to provide information upon street activity and pedestrian behaviour. Changes in street activity and behaviour within the home zones may be small, weather dependent and difficult to detect, even if many hours of data are collected. Therefore, the data from the video recordings is unlikely to be reliable as a *quantitative* measure unless the changes in activity are very large. However, the video recordings will give a *qualitative* measure of the location and type of activity and behaviour taking place. This information will be related to changes in street activity and behaviour provided by the interview surveys.

4.4 Traffic accidents

Information on the number and type of reported road traffic injury accidents (STATS19) within the home zone boundary, at the junctions leading into the zone (Albert Street with Charlotte Street, Ross Street and Healy Place), and on perimeter roads (Keyham Road, Albert Road, Victoria Place and Vincent Street) was sought from TRL's database for the period January 1st 1995 to March 31st 2003. At the time of writing, however, insufficient data are available for the 'after' review period (April 2003 onwards). Details of the injury accidents are given in Appendix B.

5 Impact of the home zone

The majority of the adult residents who were interviewed were supportive of the home zone, and thought that it had a positive impact in terms of the appearance of the shared surface, speeding vehicles, danger from traffic and the way people drove (see Table 5.1). Most of the adult respondents also thought that the frequency of their journeys along their

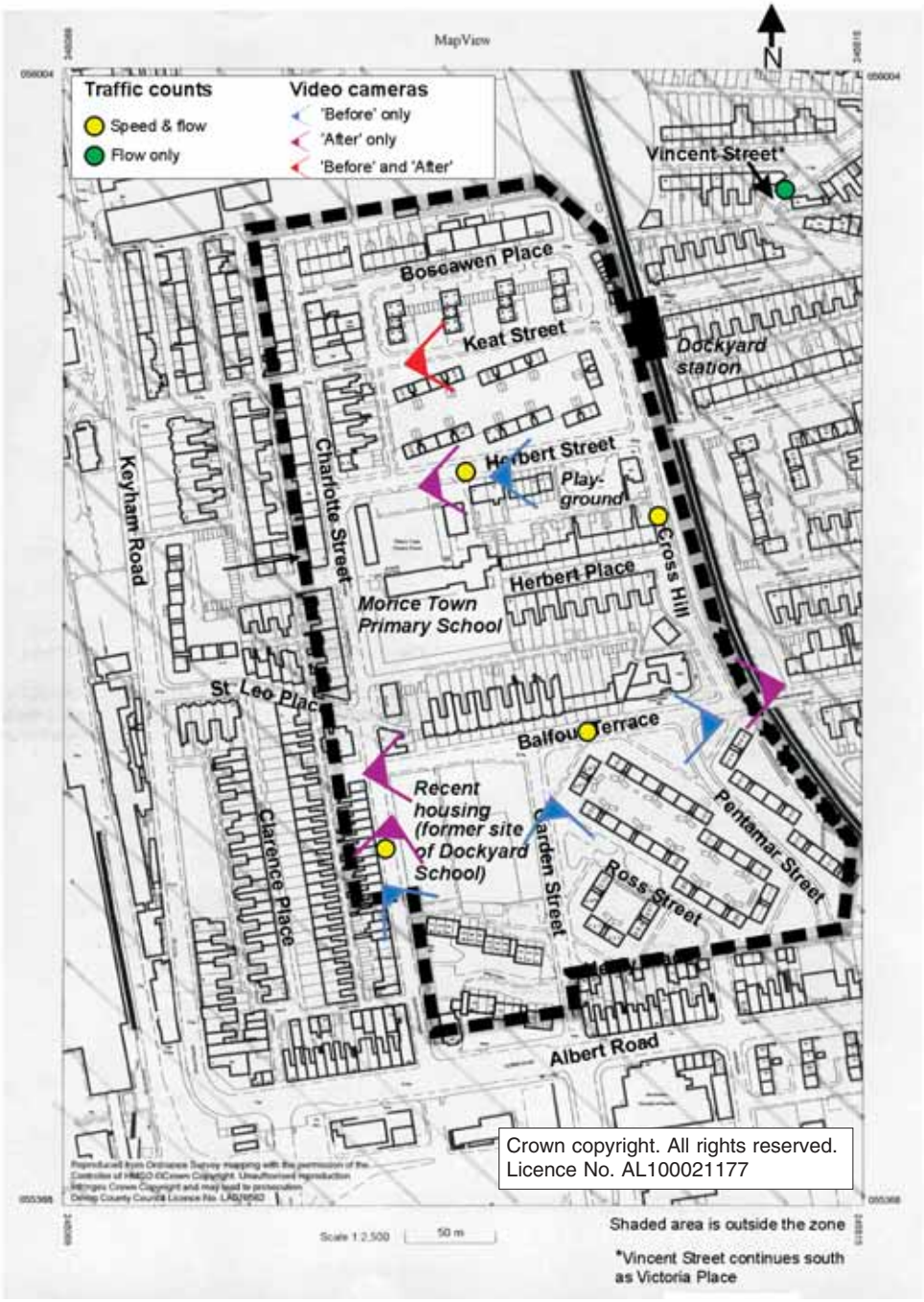

Figure 4.1 Morice Town Home Zone – site locations for automatic vehicle-counts / speed-measurements and for fixed video cameras

street, the time they spent outside the front of their home, and the time spent by their children outdoors had not changed greatly since the home zone scheme was introduced.

Children's views were similar to adults (see Table 5.2) in that many of them thought the streets looked nicer, motorists had changed the way they drove and they felt safer. However, most children interviewed thought there had been little change.

5.1 Residents' support for the home zone, consultation and changes to the street

Adults

In both the 'before' and 'after' surveys residents were asked what they thought are the main advantages and disadvantages of the home zone. This was an 'open ended' question that provided qualitative information. In many cases the answers given were similar allowing them to be grouped into subjects. Figure 5.1 presents a summary of the answers to this question for both the 'before' and 'after' situation.

In the 'before' surveys the most commonly perceived advantage of the home zone was that it would be safer for children, 54% of respondents. However, in the 'after' survey, only 14% of respondents mentioned that it was safer for children. In the 'before' survey, that the area now looked better was considered the main advantage, this was mentioned by 33% of respondents compared to 57% 'after'. In the 'before' surveys, 39% of respondents

Table 5.1 Summary of adult residents' views towards the home zone

Over half of the adult residents interviewed thought that:

- It had improved the appearance of the street (93%).
- Safer from crime for adults walking or cycling (85%).
- The home zone was a good idea for Morice Town (76%).
- Safer from crime for children walking or cycling (71%).
- Motorists are more considerate to children playing in the streets (68%).
- The changes are sufficient to make the home zone work in practice (59%).
- Speed of traffic decreased (57%).
- Safer from traffic for adults walking or cycling (54%).
- Safer from traffic for children walking or cycling (51%).

Over half the adult residents interviewed thought that there was no change in the following issues listed below:

- How often adults cycled along the street to the shops, work and for leisure purposes (88%).
- Walking in the home zone (77%).
- Time spent outdoors (75%).
- Traffic pollution (64%).
- Traffic noise (62%).

There were roughly equal responses to:

- Is driving in the home more or less pleasant (more 44%, less 39%).
- Do you think children should play in the street now it's a home zone (yes 39%, no 46%).
- Do you think the views of residents were taken into account in the design (yes 32%, no 42%, don't know 26%).
- Parking problems after implementation (increased 42%, decreased 28% no change 31%).

Table 5.2 Summary of children's views on changes since the home zone

Most of the children thought that the home zone had the biggest impact on:

- Appearance of the street improved (90%).
- Children play outside near their home (81%).
- General safety improved (80%).
- The speed of vehicles slower (65%).
- Children spend time outdoors every day (65%).

Most of the children thought there was no change in the following:

- Their journey to and from school (better 19%, same 65%, worse 10%, no answer 6%).
- Where they played outside (changed 35%, same 61%, no answer 3%).
- How much fun it is when playing outside (more fun 39%, same 55%, less fun 6%).
- How friendly people are to each other (more friendly 43%, same 50%, less friendly 7%).

considered that an advantage of the home zone would be slower traffic. Once the home zone had been built, this perceived advantage actually materialised as in the 'after' survey a similar number, 40% considered slower speeds to be an advantage of the home zone. This indicates that with regard to the speed of traffic the expectation of residents in the 'before' survey were realised.

In the 'before' surveys, many residents (19%) envisaged that an advantage of the home zone would be that children would be able to play in the street and 12% thought they would require less supervision. However, those

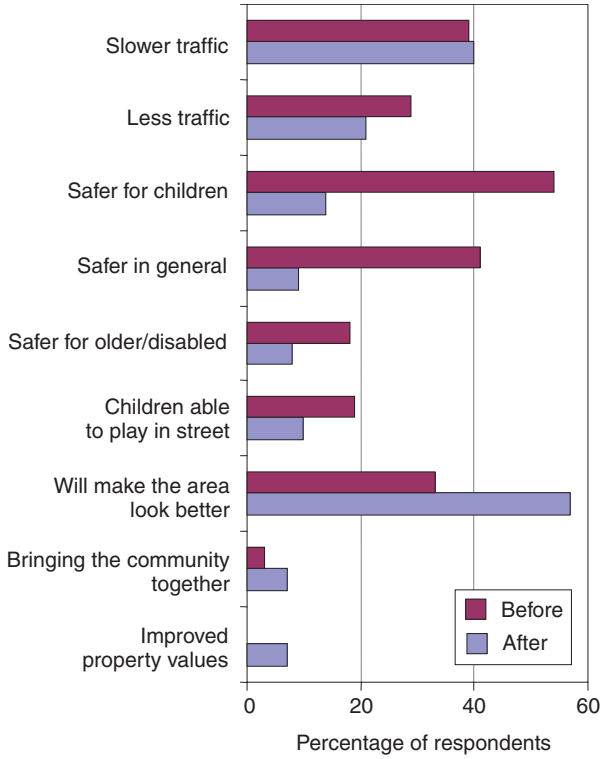

Figure 5.1 Perceived advantages of the Morice Town Home Zone (adult respondents)

mentioning these subjects in the 'after' surveys fell to 10% and zero respectively in the 'after' situation. This was probably due to the fact that children '*could not distinguish between the pavement and the road and also that the planters were dangerous to youngsters*'. Nevertheless, slightly more people in the 'after' survey mentioned bringing the community together, improved property values and drivers being more considerate as an advantage that had done in the 'before' surveys.

In the 'before' survey, advantages of the home zone related to less traffic (29%); safety – with children and the disabled/older people being specifically mentioned (54% and 18% respectively); children able to play in the street (19%); and bringing the community together (3%). In the 'after' survey, drivers are more considerate (9%); improved parking (8%); it brought the community together (7%) and it improved property values (7%).

The perceived advantages mentioned which were lower in the 'after' survey were: safety in general (41% 'before', 9% 'after') especially where children are concerned there is a reduction from 54% to 14%; perceived safety for the older and disabled people (18% 'before', 8% 'after'). Fewer respondents felt that there is less crime after implementation (12% 'before', 1% 'after'). It may be that people's expectations were too high.

It would seem that after implementation of the home zone, the majority of adult respondents thought that the main advantages of the home zone were making the area look better, slower traffic and less traffic. However, fewer respondents in the 'after' survey than in the 'before' survey considered the advantages of the home zone to be, safety related issues and children playing in the street. In the 'after' survey there were also more concerns about children/gangs from outside the area.

The percentage of respondents who mentioned disadvantages regarding the home zone are given in Figure 5.2.

Figure 5.2 shows that the biggest concerns 'after' were that there were no pavements/footways (16%) and the planters (18%). Parking problems (21%) in the 'after' survey was slightly higher than the 'before' survey value of 12%. The percentage of respondents who thought that there were no disadvantages fell from 44% to 16% which is encouraging.

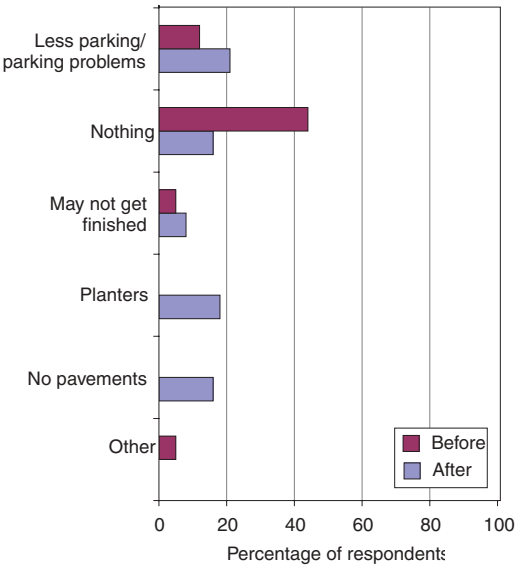

Figure 5.2 Perceived disadvantages of the Morice Town Home Zone (adult respondents)

The percentages of respondents who mentioned categories of people thought to benefit from the home zone are given in Figure 5.3.

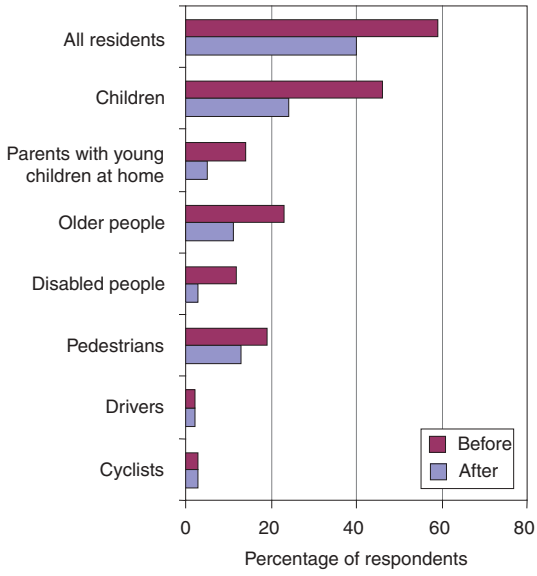

Figure 5.3 People perceived to benefit from the Morice Town Home Zone (adult respondents)

Figure 5.3 shows that in the 'before' survey, adult respondents mentioned: all residents (59%); children (46%); older people 23%; parents with young children at home (14%); disabled people (12%) and pedestrians (19%). In the 'after' survey, fewer people mentioned all residents (40%), older people (11%), children (24%) and disabled people (3%).

More than half of the adult respondents interviewed in the 'after' survey said that the home zone had made a difference to their street. The main changes mentioned were that the street looks better / greener (52 respondents); that the traffic was slower (36 respondents); improved parking provision (7 respondents); property values had increased (6 respondents) and that it had brought the community together (6 respondents).

Children

More than half of the 31 children interviewed in the 'after' survey felt their street had changed since becoming a home zone. Twenty three believed it was better overall, referring mainly to the appearance of the street and the speed of traffic. The majority of children mentioned the new basketball park providing a good play area for basketball and skateboarding.

Only two children did not offer any suggestions for improving the home zone. Overall, nine children mentioned that they would welcome more play facilities in particular for young children and for teenagers as there are limited facilities for play for these groups. Two children mentioned reducing speeds further through engineering works and signing. One child mentioned installation of CCTV cameras to ensure more personal security within the area.

5.2 Satisfaction with the street

Adults

Overall, adult respondents were positive about their street as a place to live, with over two-thirds in both the 'before' and 'after' surveys rating their street as satisfactory. The mean rating of satisfaction (scale from 0 'definitely unsatisfactory' to 6 'definitely satisfactory') remained the same at 4.2 in both the 'before' and 'after' surveys.

When asked what they liked about living in their street, adult respondents in both surveys mentioned: good neighbours; living in a quiet peaceful / clean area; and nice properties. In the 'after' survey respondents also mentioned the community atmosphere.

Children

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 and the roads were safe and quiet, see Table 5.3.

When asked how friendly are people now, 43% of the children thought that they were more friendly and 7% thought that they were less friendly, half did not know if they were more or less friendly. Safe quiet roads were also mentioned by 23% of the children. Some children mentioned easy access and living within a community with good links to the school, shops and the park.

Table 5.3 What children liked about living in their street

	Number and per cent of child respondents			
	'Before' (B) [n=40]		*'After' (A) [n=31]*	
Children liked	*Number*	*Per cent*	*Number*	*Per cent*
Friendly, good neighbours	25	63	9	29
Pretty. Looks nice	3	7	3	10
Convenient to shops/school and facilities	7	18	3	10
Can play/ride bike outside	6	15	4	13
Safe/quiet roads	1	2	7	23
Nothing/don't know	1	2	2	6

(More than one response was possible)

After implementation of the home zone, a few children have mentioned bullying amongst young people and adults see Table 5.4. A few children mentioned the layout of the street, the new features of the home zone causing minor problems. For example one child mentioned that *'Balfour Street, just past the Salvation Army near the car park in a circle you can't see round the cars coming and it's dangerous'*. One child mentioned *'Charlotte Street is very confusing, you don't know where the pavement is',* this is an example whereby children need to be educated so that they can appreciate the purpose of the layout and the design features of the home zone.

Table 5.4 What children disliked about living in their street

	Number and per cent of child respondents				
	'Before' (B) [n=40]		*'After' (A) [n=31]*		*A – B*
Children disliked	*Number*	*Per cent*	*Number*	*Per cent*	*Per cent*
Street crime/bullies	2	5	4	13	8
Nothing to do for certain age groups	6	15	3	10	-5
Vandalism/graffiti	2	5	2	6	1
Pavement is confusing due to shared surface	0	0	2	6	6
Fewer parking spaces	0	0	3	10	10
No CCTV cameras around	0	0	1	3	3
Nothing to do/boring	4	10	1	3	-7
Nothing/don't know	6	16	5	16	0

(More than one response was possible)

5.3 Environment

5.3.1 Appearance of the street

Adults living in the home zone

Seventy-four per cent of adult respondents living within the home zone thought that the appearance of the home zone was 'better', 10% thought that it was worse, 3% thought that it was the same and 13% had no opinion. However, when asked if it was more or less attractive 93% said more attractive, 3% said less attractive and 3% said the same. The preferred elements mentioned were: the flowers and plants which have added colour to the area, the colour of the pavement and the layout/design.

There were only 3% of respondents who thought that the area was less attractive, the elements mentioned were; the planters were too big and bulky, the upright kerbstones, the water feature and all the parked cars.

In the 'after' survey 56% of respondents said that there were things that they could do since the area had become a home zone. The most popular was looking after the garden at the front of the house.

In the 'after' survey 59% of respondents thought that the changes in the streets were sufficient to make the home zone work in practice.

Children living in the home zone

As with the adults, almost all the children (90%) interviewed said they thought the street looked nicer now that it was a home zone. Most popular with the children was the planting of flowers, trees and shrubs, and the stone patterned brick paving on the new road surface. Two children said they liked the artwork and one mentioned the general layout of the street. One child said *'looks better, cleaner, more welcoming, nice for people to sit outside'.*

5.3.2 Noise and air quality

In the adult interview survey, over half of the respondents living in the home zone thought that traffic noise and traffic pollution in the street had not changed since the home zone was introduced. Nevertheless, nearly a third (31%) thought noise had decreased. Twenty-seven percent thought that pollution had decreased and 4% thought it had increased. Noise and pollution appeared to be less of a concern to residents in the 'after' survey than 'before'. About 6% of respondents being 'very' or 'quite a lot' bothered by noise and 10% bothered by traffic pollution after the home zone was introduced, compared with about 34% bothered about noise and 42% bothered about traffic pollution in the 'before' survey.

5.3.3 Friendliness in the street

About 65% of the adult respondents in both the 'before' and 'after' surveys knew 5 or more households in their street by name. When asked whether their street was more friendly or less friendly since it became a home zone, 30% thought that it was more friendly, 4% thought less friendly and 63% thought it was the same. However, 'bringing the community together' was mentioned by 7% as one of the main advantages of the home zone and one of the reasons they liked living in their street, an increase from 3% 'before' to 7% 'after'.

When children were asked whether they thought people in the street had generally become more or less friendly since the home zone, the majority said that they found the street a friendlier place.

5.4 Car parking

5.4.1 Demand and availability of on-street car parking

The 'before' adult surveys indicated that about 52% of households own or have access to one or more cars. However, after the scheme this percentage decreased to 48%. The

number of households who own or have access to 2 or more cars has increased from 12 to 22%.

5.4.2 Impact of the home zone measures on on-street parking space

One of the main concerns raised by residents during the home zone consultation process was that of parking, particularly regarding the space available on-street and the desire to park vehicles near their home for fear of crime. In view of this, the home zone measures were designed to minimise the loss of on-street parking spaces whilst still achieving a change in driver behaviour.

5.4.3 Residents perception of car parking issues

In the 'after' survey 48% of the respondents who drove thought that parking outside their home was more of a problem, 31% thought that it had made no difference and 21% thought that it was less of a problem. This shows that parking is an unresolved issue for many respondents. The main problem was fewer spaces which was mentioned by 11 respondents. Other respondents mentioned more visitors (4 respondents), the angle of the parking (2 respondents) and some people have a lot of cars which take my space (2 respondents).

5.5 Traffic, driver behaviour and safety

5.5.1 Measured changes in traffic flows

Mean daily (24-hour) two-way vehicle flows in the area 'before' and 'after' the home zone was implemented are summarised in Table 5.5, together with flows within the home zone after the addition of the 'max speed 10 (mph)' supplementary plates. The 'before' daily flows averaged just over 1600 vehicles on Charlotte Street (the main north-south route across the home zone), nearly 900 vehicles on Herbert Street and about 560 vehicles on Balfour Terrace (both main east-west routes across the zone). The flow on Cross Hill (running north-south on the eastern fringe of the zone) was similar to that on Balfour Terrace. Victoria Place and Vincent Street, which form a north-south route just to the east of the zone, both carried a similar flow to that on Charlotte Street.

Following scheme implementation, mean daily two-way flows were down by one third on Charlotte Street (to about 1100 vehicles), a quarter on Cross Hill and Herbert Street (to about 400 and 650 vehicles respectively) and by 40% on Balfour Terrace (to about 340 vehicles).

Outside the home zone, the flow was little changed on Vincent Street, but on Victoria Place, the flow doubled to 3150 vehicles per day, indicating a transfer of some traffic to this road. It is possible that some of this increase was traffic diverted from the home zone, but also, a traffic calming scheme installed on St Levens Road (just to the north of the home zone) in 2002 could also have had an effect.

After the addition of the 'max speed 10 (mph)' supplementary plates, the flows were similar on Herbert Street and Balfour Terrace, but on Charlotte Street, the northbound (inbound) flow was up by one-fifth (though the southbound flow stayed similar) and on Cross Hill it was up in both directions by a quarter almost to 'before' levels. The reason for these changes is unclear.

Table 5.5 Summary of 'before' and 'after' traffic flows

Location / *Direction of traffic flow*	*Mean daily flow* *March 2000 'Before' (B)*	*May 2003 'After 1' (A1)*	*March 2004 'After 2'* (A2)*	*Changes (%)* *(A1 – B)*	*(A2 – A1)*
Balfour Terrace *(between Garden Street and Pentamar Street)*					
Eastbound	278	182	189	-35	+4
Westbound	285	154	163	-46	+6
Two-way	563	336	352	-40	+5
Charlotte Street *(between Balfour Terrace and Healy Place)*					
Northbound	842	613	742	-27	+21
Southbound	763	483	447	-37	-7
Two-way	1605	1096	1189	-32	+8
Cross Hill *(between Herbert Place and Herbert Street)*					
Northbound	243	173	220	-29	+27
Southbound	291	225	278	-23	+24
Two-way	534	398	498	-25	+25
Herbert Street *(between Charlotte Street and Cross Hill)*					
Eastbound	432	313	330	-27	+5
Westbound	461	340	293	-26	-14
Two-way	893	653	623	-27	-5
Victoria Place *(outside home zone)*					
Northbound	728	1295	n/a	+78	n/a
Southbound	820	1855	n/a	+126	n/a
Two-way	1548	3150	n/a	+103	n/a
Vincent Street *(outside home zone)*					
Northbound	652	647	n/a	-1	n/a
Southbound	750	731	n/a	-3	n/a
Two-way	1402	1378	n/a	-2	n/a

** 'After 2' is after addition of 'max speed 10 (mph)' supplementary plates at gateways.*

Bar charts of mean hourly two-way flows on weekdays, Saturdays and Sundays during the 'before' and first 'after' monitoring periods are presented in Appendix A. 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 (IHIE, 2002). After the scheme was introduced, the weekday peak hour vehicle flows on the streets surveyed within the home zone were about 100 vehicles per hour on Charlotte Street, 70 vehicles per hour on Herbert Street, 30 vehicles per hour on Balfour Terrace and Cross Hill. These peak flows had been reduced by about 50% on Balfour Terrace, about 30% on Charlotte Street and Cross Hill, and about 20% on Herbert Street.

Classified vehicle flows taken from the 'before' video recordings are give in Table 5.6 for Balfour Terrace, Charlotte Street, Cross Hill, Garden Street, Herbert Street and Keat Street. Table 5.6 shows that the majority of the vehicles were cars and light vans (96%). The rest were made up of motorcycles (2.0%), medium goods vehicles (1.5%), heavy goods vehicles (0.5%) and bus/coaches (0.3%).

Balfour Terrace had a high percentage of motorcycles (4.8%) compared with the average of 2% and Charlotte Street had a high proportion of medium goods (2.7%) compared with the average of 1.5% for the streets.

Table 5.6 Classified vehicle flows from video recording

	Number of vehicles in category					
Street	*Motor-cycle*	*Car/ light goods*	*Medium goods*	*Heavy goods*	*Bus/ coach*	*Total*
Balfour Terrace	39	770	3	2	2	816
Charlotte Street	18	1481	42	10	1	1552
Cross Hill	12	625	4	1	3	645
Garden Street	5	238	0	2	5	250
Herbert Street	12	776	5	1	0	794
Keat Street	2	256	9	4	0	271
Total	88	4146	63	20	11	4328
% of total	2.0%	95.8%	1.5%	0.5%	0.3%	100%

5.5.2 Measured changes in traffic speeds

The changes in mean and 85th percentile speeds on a sample of roads in Morice Town before and after the introduction of the home zone and again after the addition of the 'max speed 10 (mph)' supplementary plates, are shown in Table 5.7a and 5.7b.

Mean and 85th percentile speeds were all reduced, but there was a wide variation in the changes between each street. Two-way mean speeds and 85th percentile speeds were reduced by 2 to 10 mph and 2 to 13 mph respectively. Despite this, however, 'after' mean and 85th percentile speeds ranged only from 13 to 16 mph and 16 to 20 mph respectively on all the roads surveyed.

On Balfour Terrace, with Herbert Street an east-west route through the home zone, mean and 85th percentile speeds fell respectively by 6 mph and 8 mph to 16 mph and 20 mph on the paved shared surface paralleled by

Table 5.7a Summary of 'before' and 'after 1' traffic speeds

	Vehicle speed				*Speed change*	
Location	*'Before' (mph)*		*'After 1' (mph)*		*'After 1' – 'Before' (mph)*	
Directionof traffic flow	*Mean*	*85%*	*Mean*	*85%*	*Mean*	*85%*
***Balfour Terrace** (between Garden Street and Pentamar Street)*						
Eastbound	21.6	28.0	15.7	19.5	-5.9	-8.5
Westbound	21.5	28.0	16.2	20.4	-5.3	-7.6
Two-way	21.5	28.0	15.9	19.9	-5.6	-8.1
***Charlotte Street** (between Balfour Terrace and Healy Place)*						
Northbound	23.0	28.5	15.5	19.5	-7.5	-9.0
Southbound	22.6	28.4	14.7	18.9	-7.9	-9.5
Two-way	22.8	28.5	15.1	19.3	-7.7	-9.2
***Cross Hill** (between Herbert Place and Herbert Street)*						
Northbound	17.6	22.0	14.5	18.7	-3.1	-3.3
Southbound	16.2	19.9	15.2	19.1	-1.0	-0.8
Two-way	16.9	20.8	14.9	18.9	-2.0	-1.9
***Herbert Street** (between Charlotte Street and Cross Hill)*						
Eastbound	22.5	28.1	12.9	16.2	-9.6	-11.9
Westbound	23.3	29.9	12.8	15.9	-10.5	-14.0
Two-way	22.9	29.0	12.8	16.0	-10.1	-13.0

Table 5.7b Summary of 'after 1' and 'after 2' traffic speeds

	Vehicle speed				*Speed change*	
Location	*'After 1' (mph)*		*'After 2' (mph)*		*'After 2' – 'After 1' (mph)*	
Directionof traffic flow	*Mean*	*85%*	*Mean*	*85%*	*Mean*	*85%*
Balfour Terrace						
Two-way	15.9	19.9	15.3	19.6	-0.6	-0.3
Charlotte Street						
Two-way	15.1	19.3	15.0	19.2	-0.1	-0.1
Cross Hill						
Two-way	14.9	18.9	15.4	19.4	+0.5	+0.5
Herbert Street						
Two-way	12.8	16.0	13.4	17.6	+0.6	+1.6

** 'After 2' is after addition of the 'max speed 10 (mph)' supplementary plates at gateways.*

parking bays in contrasting paving. The monitoring position was 40m west of the deflection in the carriageway created by the 20m diameter circular paved area just west of the junction with Cross Hill.

Herbert Street, with the staggered planting areas, a shared surface and contrasting echelon parking bays, saw the largest speed reductions, with mean and 85th percentile speeds down respectively by 10 mph and 13 mph to 13 mph and 16 mph. The monitoring site was midway between two sets of parking bays, one set on each side of the street.

Charlotte Street, also with planters on both sides of the street, a shared surface and contrasting parking bays, saw a reduction of 8 mph in mean speed and 9 mph in 85th percentile speed, to 15 mph and 19 mph respectively. The monitoring site was on a section with parallel parking between two sets of echelon parking bays.

The smallest reductions were on Cross Hill, where the original road surface was retained. The monitoring position was close to the junction with Herbert Place, on the corner of which a planter was installed. South of this junction, is the former wider section, where there was space for right-angled parking and since narrowed with the right-angled parking retained. Both mean and 85th percentile speeds were reduced by 2 mph to 15 mph and 19 mph respectively.

The effect of the 'max speed 10 (mph)' supplementary plates given in Table 5.7b, which was measured six months after their introduction, was negligible. The mean speeds on Balfour Terrace fell by a further 0.6 mph. The fall in mean speeds on Charlotte Street was 0.1 mph. Means speeds after the 10 mph signs on Cross Hill and Herbert Street both rose very slightly by 0.5 mph and 0.6 mph respectively. The 85th percentile speeds on these two roads both showed increases. It is possible that by the time this monitoring was carried out, any initial effect they might have had no longer existed, possibly because motorists had got used to negotiating the features of the scheme.

- On Balfour Terrace, the percentages of vehicles exceeding 10 and 20 mph were reduced from respectively 97% and 62% to 92% and 13%.

- On Charlotte Street, the percentages of vehicles exceeding 10 and 20 mph were reduced from respectively 97% and 74% to 90% and 10%.
- On Cross Hill, the percentages of vehicles exceeding 10 and 20 mph were reduced from respectively 92% and 13% to 90% and 8%.
- On Herbert Street, the percentages of vehicles exceeding 10 and 20 mph were reduced from respectively 96% and 73% to 80% and 2%.

Again, the addition of the 'max speed 10 (mph)' supplementary plates had little or no effect (see Table 5.8).

It appears that the greatest reduction in speed was for those vehicles travelling over 20 mph throughout the home zone area. The intensity of the traffic calming measures introduced in the home zone area had a direct impact on the reduction of vehicle speed.

Table 5.8 Percentage of vehicles exceeding given speeds within the home zone

Location	*Percentage exceeding*		
Period	*10 mph*	*20 mph*	*30 mph*
Balfour Terrace			
'Before'	97	62	7
'After 1'	92	13	0.3
'After 2'*	87	12	0.2
Charlotte Street			
'Before'	97	74	8
'After 1'	90	10	0.6
'After 2'*	89	10	0.8
Cross Hill			
'Before'	92	13	0.4
'After 1'	90	8	0.9
'After 2'*	95	11	0.2
Herbert Street			
'Before'	96	73	6
'After 1'	80	2	0.9
'After 2'*	78	5	1.1

** 'After 2' was following the addition of 'max speed 10 (mph)' supplementary plates at gateways.*

5.5.3 Accidents and near misses

The 'before' injury accident frequencies were 0.8 accidents per year within the home zone, and 6.5 per year on the perimeter roads, of which 1.2 per year were at the junctions leading into the zone.

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 were asked in the surveys whether as a pedestrian, cyclist or car user, they had been involved in any accidents or 'near misses' within the home zone. Further details were then sought from those giving positive responses.

Because of problems with exact definitions of accidents /near misses and uneven recollection, this data is unlikely to provide a reliable indicator of changes in the numbers of accidents or in accident frequency. However, it will help in the understanding of the types of accidents /near misses that may occur 'before' and 'after' the installation of the home zone and highlight any problems associated with the operation of the home zone scheme. The data will also provide supporting evidence for information collected on changes in perceived safety.

5.5.4 Residents perceptions of changes in traffic, driver behaviour and safety

For many adult respondents, the home zone appeared to have made an impact on their perception of traffic using the street, particularly regarding the speed of vehicles. As a result, substantially fewer respondents were 'bothered' by speeding vehicles, the amount of traffic and danger to children in the 'after' survey (44%, 35% and 49% respectively) than in the 'before' survey (67%, 60% and 71% respectively).

When asked how considerate motorists were to children playing since the home zone was introduced (see Table 5.9), 68% of respondents thought they were considerate and 21% thought they were not considerate. The corresponding 'before' values were 50% and 42% showing that driving has improved. Overall the percentage of motorists who were thought to be considerate to children and adults walking, cycling or playing increased from 55% to 72% in the 'before' and 'after' surveys respectively.

Table 5.9 Perception of the consideration of motorists towards child and adult road users

	'Very considerate' and 'fairly considerate' motorists combined		
Road user activity	*'Before' (B) %*	*'After' (A) %*	*(A – B) %*
Children walking/crossing the road	49	76	27
Children cycling	49	69	20
Children playing on or near the street	50	68	18
Adults walking/crossing the road	70	79	9
Adults cycling	58	70	12
Average	55	72	17

The perceived reduction in traffic, and the greater consideration by motorists to adults and children using the street was reflected in the adult respondents' assessment of the danger from road traffic. In the 'after' survey, the majority of respondents thought that the home zone had made it more safe for children with 51% of respondents who thought that it was 'a lot safer' or 'a little safer' for children walking or cycling in their street. Also the majority of respondents, 54%, thought that the home zone had made it 'a lot safer' or 'a little safer' for adults walking and cycling in their street.

Poor driving behaviour appeared to be less of a concern to respondents in the 'after' survey than in the 'before' survey. Forty-two respondents (46%) were 'very' or 'quite a lot' bothered by driving behaviour after the home zone was introduced compared with 45 (47%) respondents 'before'.

The perceived safety from traffic of adults walking or cycling was also thought to have increased with 84% of

respondents in the 'after' survey thinking that it was very or 'fairly safe' for adults walking in their street compared with 81% in the 'before' survey. Also, 68% of respondents in the 'after' survey thought that it was 'very safe' or 'fairly safe' for children cycling in their street compared to 49% in the 'before' survey.

However, in the 'before' survey over half of the adult respondents (62%) thought that it was 'very safe' or 'fairly safe' for pedestrians and cyclists on roads outside the home zone area. Yet, in the 'after' survey only 40% of adult respondents thought that it was 'very safe' or 'fairly safe' for pedestrian and cyclist on roads outside the home zone area. The reason for this could be that motorists drive slower within the home zone area and as they leave the zone the tendency will be for speeds to increase (23% respondents in the 'before' survey thought that the roads outside the home zone area was unsafe due to danger from road traffic, this increased in the 'after' survey to 34%).

In the 'after' survey 79% of respondents had changed the way that they drove in the home zone since it was introduced. The most popular changes were slower 26%, more cautious 11% and more alert 10%. Some respondents (11%) mentioned that it is more difficult to drive along the roads because they have to 'zig-zag' along the road. This shows that the design has been successful in changing the way the roads are used.

5.6 Danger from crime

Crime statistics supplied by Plymouth City Council showed that from April 2001 to March 2002 there were 92 recorded crimes in the Morice Town area. In 2002/03 there were 142 recorded crimes during the construction of the home zone and there were only 9 recorded crimes in the year 2003/2004 since the home zone was completed. This shows that there has been a 90% reduction in recorded crime between the before and after periods. Violent crime was reduced by 62%, vehicle crime by 96%, other crimes by 73%, criminal damage by 100%, domestic burglary by 100% and other theft by 100%. The crime results for each street are given in detail in Appendix C.

Adults' views

With regard to danger from crime, only one respondent mentioned stranger danger/crime as a factor for accompanying their child. However, in the 'after' survey, this has increased to six adult respondents.

With regard to danger from crime, most adult respondents (84%) in the 'before' survey believed that adults were 'very safe' or 'fairly safe' from crime. In the 'after' survey, 85% of respondents thought that it was 'very safe' or 'fairly safe' from crime for adults walking or cycling in the home zone. Ten per cent thought it was 'not very safe' or 'not at all safe', and gave the reasons as vehicles travelling too fast, muggings, stones are thrown and general society.

In the 'before' survey, 72% of adult respondents thought that it was 'very safe' or 'fairly safe' from crime for children walking or cycling in the home zone. Sixteen per cent thought it was 'not very safe' or 'not at all safe', and gave the reasons as drug problems, vehicles travelling too fast, robbery, no pavements and bullying. In the 'after' survey the corresponding values were 71% and 14% respectively, showing that their views were similar.

In the 'before' survey, 40% of respondents had been a victim of crime whereas in the 'after' survey this had reduced to 20%.

Children's views

From the child surveys, 60% of children feel that that after the implementation of the home zone they are 'not much' or 'not at all' worried about stranger danger. Sixty-eight per cent are 'not much' or 'not at all' worried about bullying, 55% are 'not much' or 'not at all' worried about mugging and 68% are 'not much' or 'not at all' worried about having their bike stolen.

5.7 Using the street

Plymouth City Council have produced a leaflet of guidelines for using a home zone and this is reproduced in Appendix D. Before the home zone was introduced, most adult respondents either thought that pedestrians should have priority (42%) in their streets or all road users should be equal (54%). Very few (3%) thought that motorists should have priority.

In the 'after' survey, these desires for priority to pedestrians had not been met, with a majority of 38% felt motorists still had priority. Only 25% of the respondents felt that pedestrians took priority, 31% felt that pedestrians and motorists now had equal priority.

There was little change between the 'before' and 'after' surveys in how respondents' children travel to school. In the 'before' survey the percentages by mode of travel were: walk (63%), cycle (4%) car 20%) and bus 12%). In the 'after' survey they were: walk (65%), cycle (0%), car (21%), bus (15%).

The objective of the scheme was to encourage more activity in the community. The video recordings were analysed to obtain a snap shot of the types of acytivities which took place. A list of events recorded during the video recording is given in Table 5.10.

Table 5.10 shows that all of the roads had some children playing on them but it would appear that Herbert Street is the most popular. Balfour Terrace and Charlotte Street were less popular. Keat Street was the least popular but some young children were recorded playing all afternoon. It was apparent that some children may have been aware of the cameras and therefore their behaviour may have been slightly different to normal.

5.7.1 Walking

In the 'before' survey, the predominant modes of travel for the adult respondents along their street were walking and by car. Walking was generally to the shops (77% walked to the shops twice a week or more), for leisure purposes (55%), to visit friends (54%), to go to work (36%) and to accompany children to school (28%). For most respondents, the introduction of the home zone did not appear to make a large difference to the overall frequency

Table 5.10 Events recorded from the video recording after home zone installed

Street name	*Time and description of events recorded from video recording of 15/08/03*
Balfour Terrace	
09:33	boy kicking football
15:54	child skating
16:51	car exits central area and gate shut
17:06	children skating
18:25	children playing 'chicken' in front of camera
Charlotte Street	
11:11	old lady hosing pavement outside house and planters
14:19-15:37	car 1 parked on footway
15:10	car 2 parked on footway
15:34-15:37	lady rests on pillar/seat
16:27-16:33	car 1 returns and parks on footway
16:59	two children stop to speak to child in play area
18:36	ball flies over road from play area and boy retrieves it
18:43	ball flies over road from play area and boy retrieves it
Herbert Street	
09:24-11:15	car parking on pavement area
13:24	boy playing with ball through road
13:28-13:37	adult/child stop at planter waiting for taxi
14:20-14:30	group rest on edge of planter
14:31-14:36	white van on pavement area
14:35	two children on roller skates
15:03	youth rests on seat at planter
15:05	boy plays with dog off lead
16:25	three children, skating and playing with ball
17:29	three children play across road
17:33	boy walks on edge of planters
17:40	children playing and sitting on planter
Keat Street	
10:11-10:19	lady sits on post and reads
11:47	young children cycling/playing up and down and in and out of posts (all pm)

of walking trips. Walking to the shops was still the most popular with over 50% walking there daily. There was only a marginal increase in frequency of adult respondents who walked to the shops (2%). The frequency of those who walked to all other places has decreased slightly after the implementation of the home zone.

In the 'after' survey, 70% of respondents thought walking was more pleasant, 15% thought it was less pleasant and 15% thought that it was the same.

In the 'after' survey, nearly three-quarters (73%) of child respondents said that they walked to and from school. Nineteen percent of child respondents feel that their journey to and from school has improved since the implementation of the home zone, 65% feel their journey is the same and 10% consider that it is worse. One reason given by a child who feels their journey is better states '*you can walk anywhere now the cars don't take up so* much room, you can walk on the car areas now as well'. The overall redesigning of the street appears to have improved conditions for children walking as mentioned by two children, 'The appearance of the street is more pleasant to walk through'. Two children have mentioned low traffic flow and speeds which have made walking conditions better 'easier to cross the road as not many cars around' and 'cars go slower'.

Before the home zone was introduced, most adult respondents either thought that pedestrians should have priority (42%) in their streets or all road users should be equal (54%). Very few (3%) thought that motorists should have priority.

In the 'after' survey, about 25% of the respondents felt that pedestrians took priority, 31% considered that pedestrians and motorists now had equal priority and 38% said that motorists took priority.

The numbers and categories of pedestrians on each street are given in Table 5.11. The results indicate that the total numbers of pedestrians were lower by up to 60%. The number of children were 70% lower on Balfour Terrace but on Keat Street they were 13% higher. It should be noted that the camera at Keat Street was the only camera which was in exactly the same position in the 'before' and 'after' surveys. The highest number of children, in the 'after' survey, were recorded on Herbert Street on the camera pointing towards the playground. It is likely that the different time of year that the recordings were made (March 2000 'before' and August 2003 'after') may have had an effect on the numbers of pedestrians recorded. The percentage of children who were accompanied on their journeys was lower on Balfour Street (-1.6%), but higher on Charlotte Street (+9.3%), Herbert Street (+5.7%) and Keat Street (+7%). The numbers of senior citizens were generally low in the 'before' survey but they all showed increases in the 'after' survey. The largest increases were on Charlotte Street and Herbert Street which increased from 5 and 9 to 36 and 39 respectively.

5.7.2 Cycling

Over 85% of adult respondents did not own a bicycle and cycle use was very low in both the 'before' and 'after' surveys with few respondents using their bicycle. Ownership levels have decreased a further 5% after the home zone scheme. Cycles were mainly used for occasional journeys to work, to visit friends or for leisure purposes. For most respondents owning bicycles, the introduction of the home zone made no difference to how often they cycled along their street.

The adult respondents who owned a bicycle did not use their cycle much. In both the 'before' and 'after' surveys few respondents used their bicycle on a regular basis (less than 5% of all respondents cycled twice a week or more for any particular journey purpose). Cycles were mainly used for occasional journeys to work, to visit friends or for leisure purposes. For most respondents owning bicycles, the introduction of the home zone made no difference (88%) to how often they cycled along their street.

Flows taken from the video recordings are given in Table 5.12. These show that there were more cyclists on all of the streets. Charlotte Street and Keat Street showed the largest increases at 167% and 136% which represented 20 and 15 extra cyclists respectively. Balfour Terrace showed a 40% increase of an extra 8 cyclists. These results are encouraging but the time of year (March and August) may have had some influence on the actual magnitude of the increases recorded. The overall increase for all of the roads combined was 77% an increase of 46 cyclists.

Table 5.11 Pedestrian category in home zone streets from video recording

Street	*Balfour Terrace*			*Charlotte Street*		
Pedestrian category	*'Before' 31/03/2000*	*'After' 15/08/2003*	*% Change*	*'Before' 31/03/2000*	*'After' 15/08/2003*	*% Change*
Adults	409	321	-22	793	277	-65
Adult + buggy	18	6	-67	17	15	-12
Senior citizen	16	36	+125	5	36	+620
Child	40	13	-68	39	8	-79
Child + adult	66	19	-71	40	11	-73
Child + child	65	19	-71	73	40	-45
Total adults	509	382	-25	855	339	-60
Total children	236	70	-70	225	99	-56
Children accompanied	83.1%	81.6%	-1.5%	82.7%	91.9%	9.2%
All pedestrians	745	452	-39	1080	438	-59

Street	*Herbert Street*			*Keat Street*		
Pedestrian category	*'Before' 31/03/2000*	*'After' 15/08/2003*	*% Change*	*'Before' 31/03/2000*	*'After' 15/08/2003*	*% Change*
Adults	463	147	-68	386	139	-64
Adult + buggy	20	11	-45	21	3	-86
Senior citizen	9	39	+333	9	12	+33
Child	95	30	-68	21	18	-14
Child + adult	77	30	-61	35	13	-63
Child + child	96	43	-55	8	25	+213
Total adults	560	227	-59	452	167	-63
Total children	362	146	-60	72	81	+13
Children accompanied	73.8%	79.5%	5.7%	70.8%	77.8%	7.0%
All pedestrians	922	373	-60	524	248	-53

Table 5.12 Cycle flows from video recording

	Number of cyclists 07:00 to 19:00			
Street name	*'Before' (B) 31/03/2000*	*'After' (A) 15/08/2003*	*Difference (A) - (B)*	*Difference %*
Balfour Terrace	20	28	8	40
Charlotte Street	12	32	20	167
Herbert Street	17	20	3	18
Keat Street	11	26	15	136
Overall	60	106	46	77

5.7.3 Driving

The proportion of respondents who owned or had access to a vehicle has decreased by 4% from 52% to 48% but there has been an increase from 12% to 22% of the respondents who had access to two or more vehicles. In the 'before' survey, cars/vans were used by respondents twice a week or more to go to work (22%), to go out for leisure purposes (29%), to visit friends (26%) and to go to the shops (27%). In the 'after' survey, most of the adult respondents felt that after the introduction of the home zone motorists drive less often. They drive along their street to the shops (4% less often), to accompany children to school (6% less often), to visit friends (4% less often), and for leisure purposes (1% less often). However, there has been an increase of 7% in frequency of journeys to work by car.

5.7.4 Activities in the street / outside the home

Adults

Most adult respondents (75%) said that the home zone had made no difference to the amount of time they spent outside the front of their home when the weather was reasonable. However, twenty-two per cent did spend more time outside and only 3% spent less time outside. In the 'before' survey, up to half the respondents often undertook the following activities in the street / outside their homes: chatting to neighbours (41%), gardening (16%), cleaning / decorating (20%), watching over children playing (18%) and washing / mending the car (14%). However, in the 'after' survey only gardening showed an increase in activity.

Fifty-six percent of respondents thought that there were certain activities people do in the home zone that they could not do before. The most common items mentioned were: 'look after garden at front of house' (26%) 'can sit out in front of house' (9%), children have play area' (7%) and 'easier when walking in the area' (7%).

In the 'after' survey 6% of respondents said that they 'often' played games in the home zone and 18% 'occasionally' played games in the home zone. This can be compared with the 'before' survey where nobody mentioned playing games in the street.

Children

Over three-quarters (81%) of children said they played outdoors near their home. Sixty-five percent of children

mentioned that they play outdoors daily, 19% play outdoors 2 to 4 times a week. After the implementation of the home zone, 35% child respondents said they play outdoors more often than before the scheme. Whilst over half (61%) of the child respondents mentioned they did not change where they play after the home zone, 35% did say they had changed where they played, examples given of these new play areas were: the new basketball park, football area, playground. Four children have mentioned the benefits of the new basketball park for basketball and riding bikes.

5.7.5 Children in the street

Adults' views

The adult respondents with children, thought that about over half of all their children often played or spent time outdoors in their street. This proportion had increased slightly since the introduction of the home zone.

Less than half of all adults interviewed thought that children should play in the street now that it was a home zone (39% yes, 46% no, 15% mixed feelings). Those with mixed feelings were concerned with the lack of alternative play space for children, the age of children playing in the street and the home zone attracting children from outside the area.

The age of children was an important factor when considering the impact of the home zone on the safety of unsupervised play in the street. For pre-school and infant school age children only 13% of respondents thought that it was safe for these children to spend time unsupervised outdoors in the street. For junior/middle school children 48% of respondents thought that it was safe for these children to spend time unsupervised outdoors in the street. For secondary school children 79% of respondents thought that it was safe for these children to spend time unsupervised outdoors in the street. As might be expected, this shows that an increasing proportion of adult respondents thought that it was safer for older children.

5.7.6 Other views expressed about Morice Town

The following article, which is a brief synopsis of the Morice Town home zone scheme, can be retrieved from the Commission for Architecture and the Built Environment (CABE) website at http://www.itsyour space.org.uk/insp_homezone.asp.

The following comments were made by Judith Devismes of the Morice Town Community Forum in the above article:

- *'I've lived in Morice Town for 20 years. I know the area and the houses pretty well. The difference is that now I know who lives in them as well. I remember one day, soon after the planters had been put in, walking out of my house one morning and seeing the streets full of people, bedding in plants that they had bought.'*

The following comments were made about Morice Town on the Pilot home zone website at www.homezone news.org.uk:

Adrian Trim, Team Manger Road Safety, Plymouth City Council.

- *'Consultation with residents raised many issues that go beyond home zone proposals (such as the need for a community centre). The process, however, has left the community feeling increasingly empowered to start to address issues for themselves, including seeking funding. They successfully applied for a grant for £5,000.'*

Judith Devismes, Chairwoman of the home zone Community Advisory Group (CAG)

- *'There were some in the community who said it would never happen, but the evidence is now plain to see and we are extremely pleased with what we have achieved. We are already noticing and feeling the benefits of living in a home zone, benefits that are readily recognised by other people who visit here.'*

6 Summary and conclusions

6.1 Background

The Morice Town home zone in Plymouth is one of nine home zone schemes in a pilot programme set up by the Department for Transport (DfT). The programme's aim was to evaluate the potential benefits, particularly in regard to shared road space, of a wide range of home zones in different parts of England and Wales.

The Morice Town home zone is in an area of the City adjacent to the Devonport naval base. It has a mix of private, council and social housing, comprising of 155 terraced houses and 253 flats. Within the home zone there are also 5 public houses, 3 businesses, Morice Town Primary School a Salvation Army Hall and a children's playground. The total length of the road network is 2.2km.

Morice Town is a very mixed area, it has private owner-occupied housing but also pockets of deprivation evident by crime rates, and a lack of day to day facilities. Until recently, there was no bus service to the home zone and some roads suffered from 'rat running' and speeding traffic. Consultation with the residents revealed that their main concerns were traffic speeds, parking, security and safety, dog fouling, vandalism, anti social behaviour, litter, lack of play areas and community facilities and general quality of life issues.

The home zone proposal was originally conceived as a road safety initiative though went on to evolve as a comprehensive regeneration project.

The City of Plymouth and Morice Town Community Advisory Group have both been involved in the home zone project from inception in 1998 through to completion. The home zone has cost £2.3 million over four years. It was jointly funded by Plymouth City Council Local Transport Plan, Single Regeneration Budget (SRB) and the Government Home Zone Challenge Fund. Construction began in March 2002 was launched in June 2002 and completed in April 2003 TRL was commissioned by the DfT to assess the effectiveness of the pilot home zone schemes in achieving the aims of home zones. As part of

this, TRL carried out 'before' and 'after' studies which included household surveys with adults and children, traffic flow and speed surveys, analysis of accident data and video recording.

6.2 Home zone measures

The creation of the Morice Town home zone was achieved through a number of works on site. These included:

- Vertical and horizontal traffic calming measures to manage vehicle speeds.
- Raising the height of the of the carriageway to that of the footway, creating a new single level 'shared surface'.
- Extensive use of planters and other soft landscaping areas.
- Extensive use of trees, shrubs and herbaceous plants.
- Hard landscaping works using quality materials.
- On-street play facilities including a refurbished playground in Herbert Street.
- Creation of formal and informal community space e.g near the Salvation Army Hall.
- Resident and visitor car parking management.
- Gateway features at all of the entry points to the home zone.

The development of the home zone was phased. It began with the building of nine gateway features followed by other measures which would reduce speed and change the environment of the area and create a sense of space. In place of straight roads lined with cars, the streets have been redesigned as shared spaces to be populated by people. Low blocked, slate topped planters double up as benches, providing a meeting point for residents.

One local resident commented *'Along Charlotte Street and Herbert Street there's a herringbone pattern printed into plastic resin. It's really colourful, with grey, red and yellow'*. The streets are now used for public gatherings, both formal and impromptu. Morice Town hosts an annual street fair in August and a Christmas carol service. Therefore there has been an increase in community activity in the area which was one of the schemes objectives.

6.3 Residents support for the home zone scheme

The majority (76%) of the adult residents who were interviewed in Morice Town were supportive of the home zone. Residents have welcomed the home zone concept, seeing it as an opportunity to take ownership and responsibility for their local area. The enthusiasm of local people has been encouraging, they have come forward with their own ideas for the home zone such as allowing local people to maintain the planted areas outside their homes. It was even suggested that a burnt-out garage could be converted into a community greenhouse where people could exchange, grow and share plants. A community café could even be developed in the derelict shop next door. Groups formed together to plan shared gardens in what were desolate streets. Local children helped to design a new play area on an empty piece of grass.

Most residents thought that the home zone has had a positive impact in terms of: the appearance of shared surface, walking within the home zone, speeding vehicles, danger from traffic, and the way they drove within the home zone.

As with the adults, almost all the children interviewed said they thought the street looked nicer now that it was a home zone.

About half the adult respondents thought that the changes to the streets were sufficient to make the home zone work. Additional things that were thought to be needed included a safe area for children to play in, further traffic calming or traffic restrictions, more planting, and more streets to have a 'shared surface'.

6.4 On-street parking spaces

One of the main concerns raised by residents during the home zone consultation process was that of parking, particularly regarding the space available for on-street parking and the desire to park vehicles near the home due to fear of crime. From the outset, careful consideration was given to the home zones likely impact upon reducing on-street car parking supply.

In the 'after' survey, 48% of the respondents who drove thought that parking outside their home was more of a problem, 31% thought that it had made no difference and 21% thought that it was less of a problem. This shows that parking is a problem for about half of the respondents with cars.

6.5 Traffic flows within the home zone

In the 'before' situation, mean daily (24 hour) two-way vehicle flows averaged just over 1600 on Charlotte Street, the main north-south route across the home zone, nearly 900 on Herbert Street and about 560 on Balfour Terrace. Herbert Street and Balfour Terrace are both the main east-west routes across the home zone. The flow on Cross Hill, a north-south route on the eastern fringe of the zone, was 534 vehicles which is similar to Balfour Terrace. Victoria Place and Vincent Street, which forms a north-south route to the east of the zone, carried flows of 1548 and 1402 vehicles respectively which is similar to those on Charlotte Street.

Following scheme implementation, mean daily two-way flows fell by around a third on Charlotte Street, to 1096 vehicles. Flows fell by around a quarter both on Cross Hill and Herbert Street to 398 and 653 vehicles respectively. Balfour Terrace, experienced a fall of 40% in mean daily two-way traffic flows to 336 vehicles.

Outside the home zone, the flow was little changed on Vincent Street, though on Victoria Place, the flows doubled to 3150 vehicles, indicating a transfer of some traffic to this road.

Once the home zone works had been completed and residents had got used to the zone, 'max speed 10 (mph)' supplementary plates were erected. After they had been erected, flows varied across the home zone. On Balfour Terrace, there was little change, mean daily (24 hour) two-way flows increased by 5%, though this was just 16 vehicles. Similarly on Herbert Street there was little

change, two-way flows decreased by 5%, or 30 vehicles. The largest changes were on Charlotte Street northbound, into the home zone, where flow rose by around a fifth or 129 vehicles, by contrast flow in the opposite direction southbound actually fell, by 7% (36 vehicles). On Cross Hill, flows in both directions rose by a quarter, almost back to the 'before' levels.

6.6 Traffic speeds within the home zone

The home zone measures achieved an overall reduction in both the mean and 85th percentile vehicle speeds on all roads within the home zone. There was a wide variation in the changes between roads and this is outlined below.

Herbert Street

The greatest reduction was on Herbert Street where mean speed fell from 22.9 mph in the 'before' situation to 12.8 mph in the 'after', a fall of 10.1 mph. On Herbert Street the 85th percentile speed also fell from 29.0 mph in the 'before' to 16.0 mph in the 'after'.

Balfour Terrace

On Balfour Terrace, mean speed fell from 21.5 mph 'before' to 15.9 'after', a fall of 5.6 mph. The 85th percentile speed fell by 8.1 mph from 28.0 'before' to 19.9 mph 'after'.

Charlotte Street

The fall in speed on Charlotte Street was slightly better than Balfour Terrace, mean speed fell by 7.7 mph from 22.8 mph 'before' to 15.1 mph 'after', a drop of 7.7 mph. The 85th percentile speed fell by 9.2 mph from 28.5 mph 'before' to 19.3 mph 'after'.

Cross Hill

On Cross Hill the changes in vehicle speeds were smaller, however this is because speeds in the 'before' situation were already low. The mean speed fell from 16.9 mph 'before' to 14.9 mph 'after', a fall of 2.0 mph, the 85th percentile speed fell by a similar amount, 1.9 mph, from 20.8 mph 'before' to 18.9 mph 'after'.

Speeds after 'max speed 10 (mph)' supplementary plates installed

The installation of the 'max speed 10 (mph)' supplementary plates had some but minimal further impact on vehicle speed over and above that already achieved by the home zone works themselves. The mean speed on Balfour Terrace fell by a further 0.6 mph. The fall in mean speed on Charlotte Street was 0.1 mph. Mean speed after the 'max speed 10 (mph)' supplementary plates on Cross Hill and Herbert Street both rose very slightly by 0.5 mph and 0.6 mph respectively. The 85th percentile speed on these two roads both showed increases of about 1 mph.

The greatest impact of the home zone on vehicles speed can be shown by the percentage of vehicles exceeding 20 mph in the 'before' and 'after' situations. On Charlotte Street 'before', 74% of vehicles exceeded 20 mph and in the 'after' situation this fell to just 10%. Similarly on Balfour Terrace where the percentage exceeding 20 mph 'before' was 62% falling to 12% 'after'. On Herbert Street, 73% of vehicles exceeded 20 mph 'before', falling to just 5% 'after'. On Cross Hill where speeds were already relatively low, 13% of vehicles exceeded 20 mph 'before' compared to 11% 'after'.

Reducing vehicle speed was one of the objectives of the scheme.

6.7 Impact of the home zone on driver behaviour and perceived safety

For many adult respondents, the home zone appeared to have made an impact on their perception of traffic using the street, particularly regarding the speed of vehicles. As a result, substantially fewer respondents were bothered by speeding vehicles, the amount of traffic and danger to children in the 'after' survey (44%, 35% and 49% respectively) than in the 'before' survey (67%, 60% and 71% respectively).

When asked how considerate motorists were to children playing since the home zone was introduced, 68% of respondents thought they were considerate and 21% thought they were not considerate. The corresponding 'before' values were 50% and 42% showing that the driving has improved. Overall the percentage of motorists who were thought to be considerate to children and adults walking, cycling or playing increased from 55% to 72% in the 'before' and 'after' surveys respectively.

The perceived safety from traffic of adults walking or cycling was also thought to have increased slightly with 84% of respondents in the 'after' survey thinking that it was very or 'fairly safe' for adults walking in their street compared with 81% in the 'before' survey. Also, 68% of respondents in the 'after' survey thought that it was 'very safe' or 'fairly safe' for children cycling in their street compared to 49% in the 'before' survey.

With regard to danger from crime, most adult respondents (84%) in the 'before' survey believed that adults were 'very safe' or 'fairly safe' from crime. In the 'after' survey, 85% of respondents thought that it was 'very safe' or 'fairly safe' from crime for adults walking or cycling in the home zone. Ten per cent thought it was 'not very safe' or 'not at all safe', and gave the reasons as vehicles travelling too fast, muggings, stones are thrown and general society.

In the 'before' survey 72% of adult respondents thought that it was 'very safe' or 'fairly safe' from crime for children walking or cycling in the home zone. Sixteen per cent thought it was 'not very safe' or 'not at all safe', and gave the reasons as drug problems, vehicles travelling too fast, robbery, no pavements and bullying. In the 'after' survey the corresponding values were 71% and 14% respectively showing that their views were similar.

Crime statistics supplied by Plymouth City Council showed that from April 2001 to March 2002 there were 92 recorded crimes in the Morice Town area. In 2002/03 there were 142 recorded crimes during the construction of the home zone and there were only 9 recorded crimes in the year 2003/2004 since the home zone was completed. This

shows that there has been a 90% reduction in recorded crime between the before and after periods. Violent crime was reduced by 62%, vehicle crime by 96%, other crimes by 73%, criminal damage by 100%, domestic burglary by 100% and other theft by 100%.

6.8 Impact of the home zone on adult journeys and activities

About half the respondents owned or had access to a car or van. The proportion who had access to a vehicle has decreased by 4% from 52% to 48% but there has been an increase from 12% to 22% of the respondents who had access to two or more vehicles. In the 'before' survey, cars/vans were used by respondents twice a week or more to go to work (22%), to go out for leisure purposes (29%), to visit friends (26%) and to go to the shops (27%). In the 'after' survey, most of the adult respondents felt that since the introduction of the home zone motorists drive less often. They drive along their street to the shops (4% less often), to accompany children to school (6% less often), to visit friends (4% less often), and for leisure purposes (1% less often). However, there has been an increase of 7% in frequency of journeys to work by car.

For most respondents, the introduction of the home zone did not appear to make a large difference to the overall frequency of walking trips. Walking to the shops was still the most popular with over 50% walking there daily. There was only a marginal increase in frequency 'after'of adult respondents (2%) who walked to the shops. The frequency of those who walked to all other places has decreased slightly after the implementation of the home zone.

Before the home zone was introduced, most adult respondents either thought that pedestrians should have priority (42%) in their streets or all road users should be equal (54%). Very few (3%) thought that motorists should have priority.

In the 'after' survey about 25% of the respondents felt that pedestrians took priority, 31% felt that pedestrians and motorists now had equal priority and 38% said that motorists took priority in the street.

In the 'before' and 'after' surveys only 15% and 10% of adult respondents had access to a bicycle and cycle use was very low in both surveys. Cycles were mainly used for occasional journeys to work, to visit friends or for leisure purposes. For most respondents owning bicycles, the introduction of the home zone made no difference to how often they cycled along their street.

Most adult respondents (75%) said that the home zone had made no difference to the amount of time they spent outside the front of their home when the weather was reasonable. Twenty-two per cent spent more time outside and only 3% spent less time outside.

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

Over three-quarters (81%) of children said they played outdoors near their home. Sixty-five percent of children mentioned that they play outdoors daily, 19% play outdoors 2 to 4 times a week. After the implementation of the home zone, 35% child respondents said they play more often outdoors than before the scheme. Thirty-five per cent of children said they had changed where they played, examples given were: the new basketball park, football area, playground. A few children have mentioned the benefits of the new basketball park for basketball and riding bikes.

In the 'after', survey nearly three-quarters (71%) of child respondents said that they walked to and from school. Nineteen percent of child respondents feel that their journey to and from school has improved since the implementation of the home zone, 65% feel their journey is the same and 10% feel that it is worse. One reason given by a child who feels their journey is better states '*you can walk anywhere now the cars don't take up so much room'*. The overall redesigning of the street appears to have improved conditions for children walking, two children mentioned, '*The appearance of the street is more pleasant to walk through'*. Two children have mentioned low traffic flow and speeds which have made walking conditions better *'easier to cross the road as not many cars around'*.

6.10 Road traffic injury accidents

Information on the number and type of reported road traffic injury accidents (STATS19) within the home zone boundary, at the junctions leading into the zone (Albert Street with Charlotte Street, Ross Street and Healy Place), and on perimeter roads (Keyham Road, Albert Road, Victoria Place and Vincent Street) was sought from TRL's database for the period January 1st 1995 to March 31st 2003. At the time of writing, however, insufficient data are available for the 'after' period (April 2003 onwards).

The 'before' injury accident frequencies were 0.8 accidents per year within the home zone, and 6.5 per year on the perimeter roads, of which 1.2 per year were at the junctions leading into the zone.

6.11 Meeting the study objectives

There were five main success criteria set out by the local authority. These are as follows:

- Has the home zone scheme improved quality of life, how residents now feel about their area?
- Has it changed the way pedestrians use the area?
- Has it changed the activities of the community?
- Is there an improvement in visual quality of the area?
- Has there been a reduction in speed and improvements in road safety?

Monitoring of the home zone pilot has resulted in the following:

- There was a perceived and actual general reduction in the speed of traffic and a perceived reduction in the danger from traffic, particularly to children.
- About three-quarters of the adult residents thought that the appearance of the home zone area was an improvement.
- There was a change in activities for adults – 22% spent more time outside the front of their home e.g gardening.

- Children thought that the scheme was fun.
- There was little change in the amount of daily walking in the zone by the adult respondents however there was a general increase in the walking (2 to 4 times a week) to the shops, to friends or for leisure.
- There was little change in the outdoor activities near the home in the zone by the adult respondents however there was a marginal increase in the percentage who often spent time gardening at the front of their home The streets are now used for public gatherings, both formal and impromptu.

6.12 Conclusions

1 The surveys indicate that 93% of adult respondents and 90% of children thought that the appearance of the home zone in Morice Town was more attractive. The main attractive elements mentioned were the plants and flowers.

2 Respondents thought that motorists were more considerate to child and adult road users in the 'after' survey with 72% thinking that motorists were considerate compared with 55% in the 'before' survey.

3 The home zone measures were designed to minimise the reduction of on-street parking spaces within the zone whilst still achieving a change in driver behaviour. It was clear from the surveys that parking was an unresolved issue for many car owning respondents.

4 There was a change in the amount of time that residents spent outside the front of their home when the weather was reasonable, 75% spending the same amount of time outdoors and 22% spending more time. The introduction of the home zone had little affect on the frequency of walking trips, 77% walking the same as before.

5 There has been a 90% reduction in recorded crime between the before and after periods.

6 Eighty-five per cent of respondents thought that it was 'very safe' or 'fairly safe' from crime for adults walking or cycling in the home zone. Ten per cent thought it was 'not very safe' or 'not at all safe', and gave the reasons as vehicles travelling too fast, muggings, stones are thrown and general society.

7 Seventy-two per cent of respondents thought that it was 'very safe' or 'fairly safe' from crime for children walking or cycling in the home zone. Sixteen per cent thought it was 'not very safe' or 'not at all safe', and gave the reasons as drug problems, vehicles travelling too fast, robbery, no pavements and bullying.

8 The majority of residents, 59% thought that the changes to the street were sufficient to make the home zone work. Over half, 58% of all adults surveyed mentioned that this now allowed them to do things they were unable to do before.

9 The perceived safety from traffic of adults walking or cycling was also thought to have increased with 84% of respondents in the 'after' survey thinking that it was very or 'fairly safe' for adults walking in their street compared with 81% in the 'before' survey. Also, 68% of respondents in the 'after' survey thought that it was very or 'fairly safe' for children cycling in their street compared to 49% in the 'before' survey.

10 General safety was thought to have improved by 80% of children and 65% of children thought that vehicle speeds were slower.

11 Vehicle speeds were generally below 30 mph before the home zone was installed and the measures used had the effect of reducing the speeds by between about 2 to 13 mph to a level acceptable for a 20 mph speed limit. Thus, the greatest impact was the reduction of vehicles exceeding 20 mph. Further measures would be required to reduce mean speeds to below 10 mph. The 'max speed 10 (mph)' supplementary plates had little effect on vehicle speeds.

12 Traffic flows in the area were reduced after the installation of the home zone by about 25% to 40% in the home zone. Outside the home zone the flows on Vincent Street were similar but on Victoria Place they were higher.

13 Injury accidents were not a problem in the Morice Town home zone area with less than one injury accident per year reported to the police in the 'before' period.

7 Acknowledgements

The work described in this report was carried out in the Transportation Division of TRL Limited. The authors are grateful to Wayne Duerden from the Department for Transport and Adrian Trim and colleagues from Plymouth City Council for their help during the monitoring of the home zone scheme. Thanks are also given to Lynn Basford and Annette Pedler of TRL who carried out the quality review and auditing of this report and Roger Layfield of TRL.

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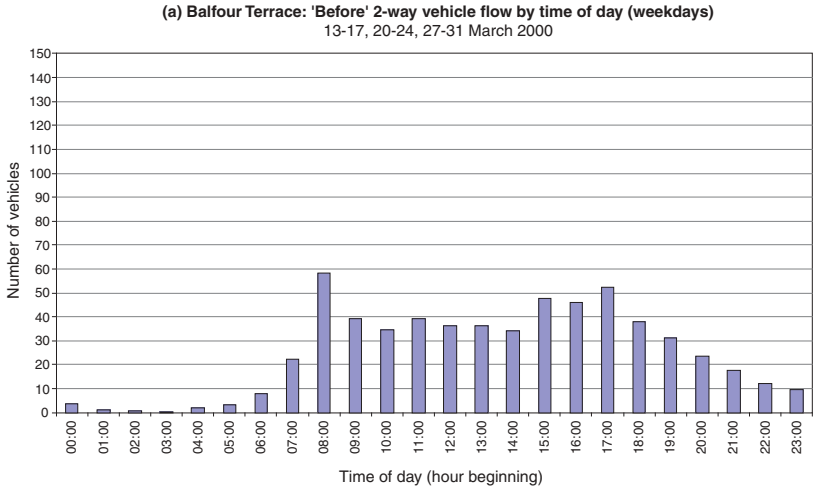
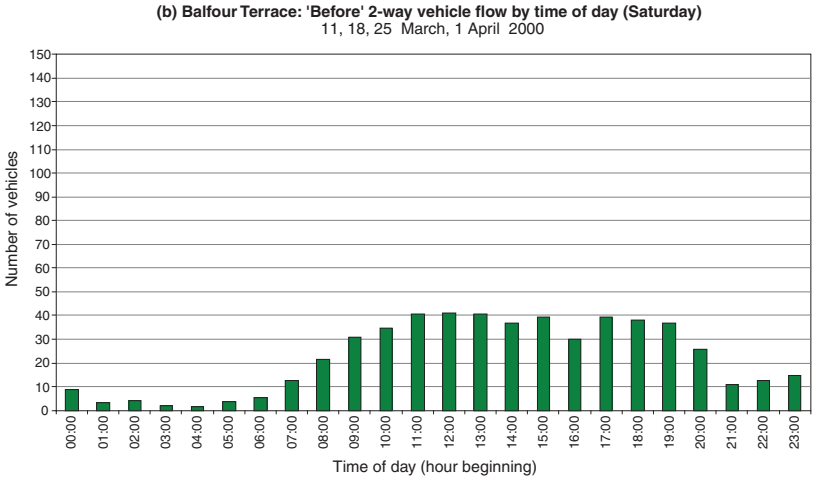




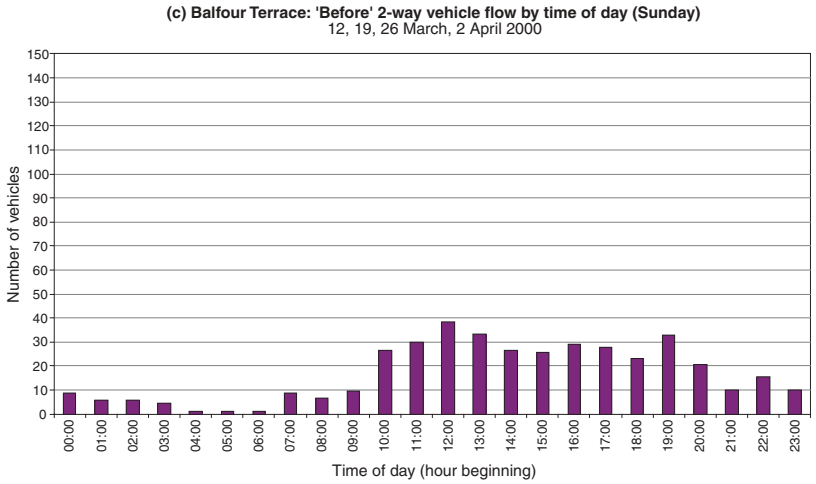
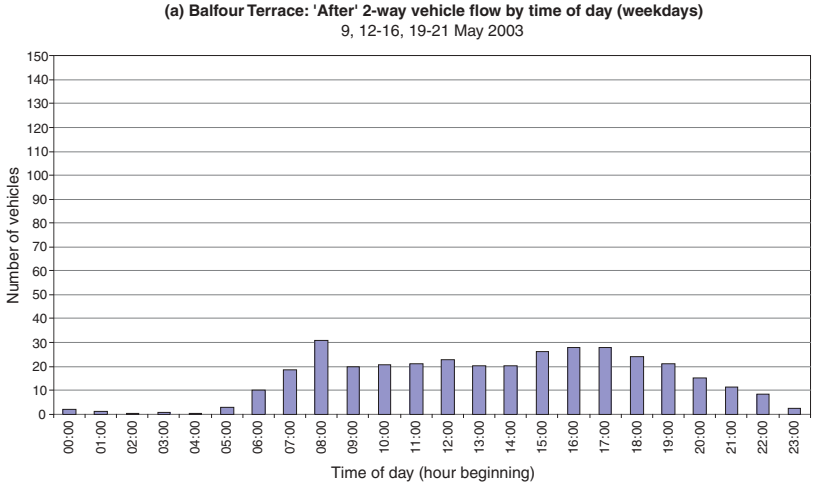
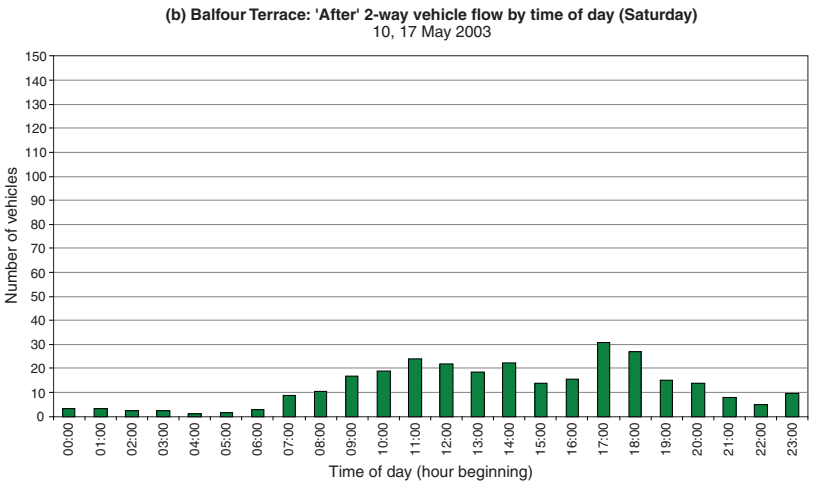


Figure A.1 Balfour Terrace: vehicle flow by time of day – 'before'





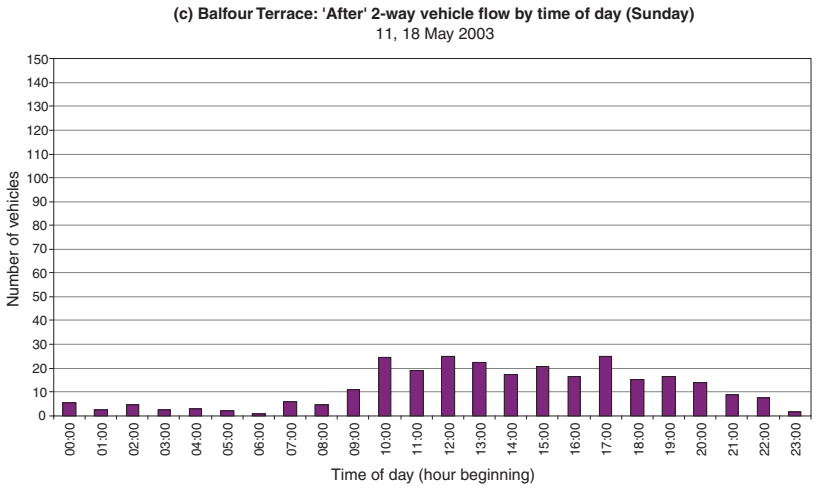
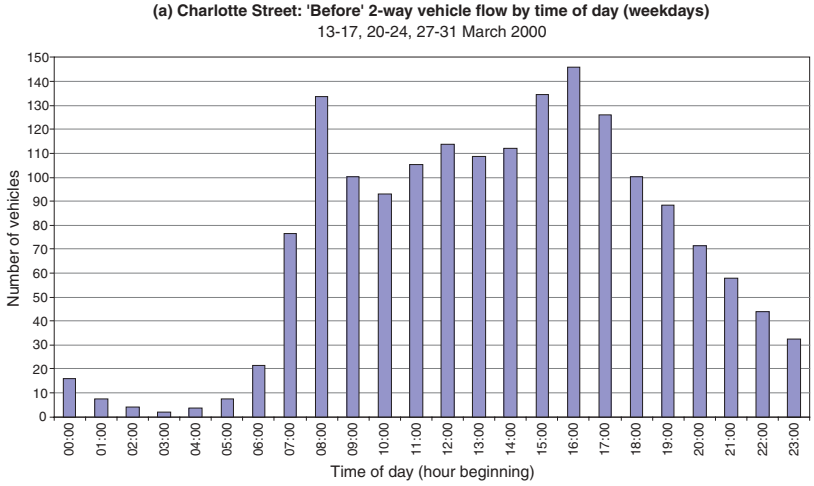
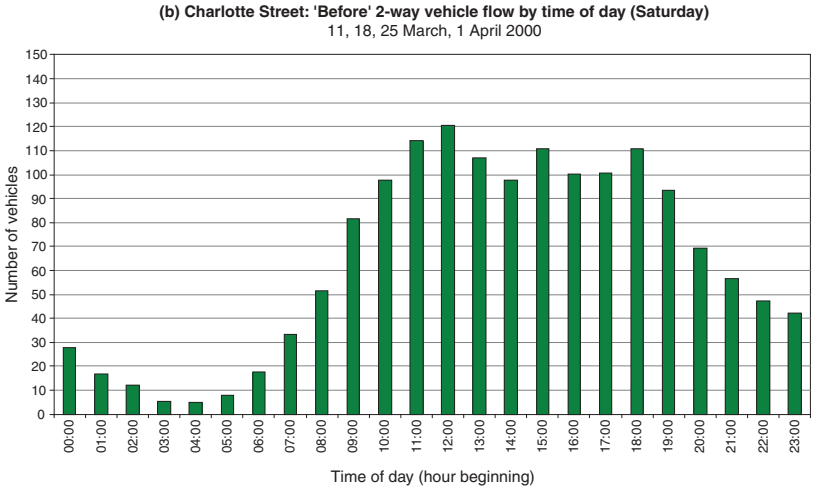


Figure A.2 Balfour Terrace: vehicle flow by time of day – 'after'





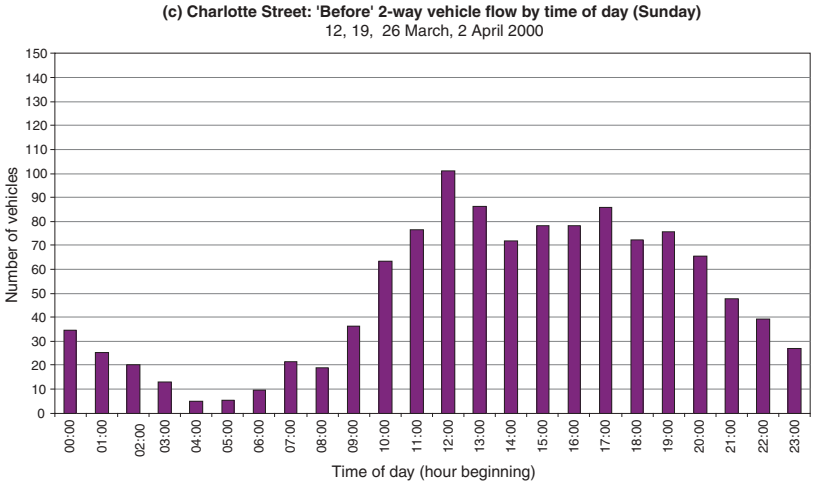
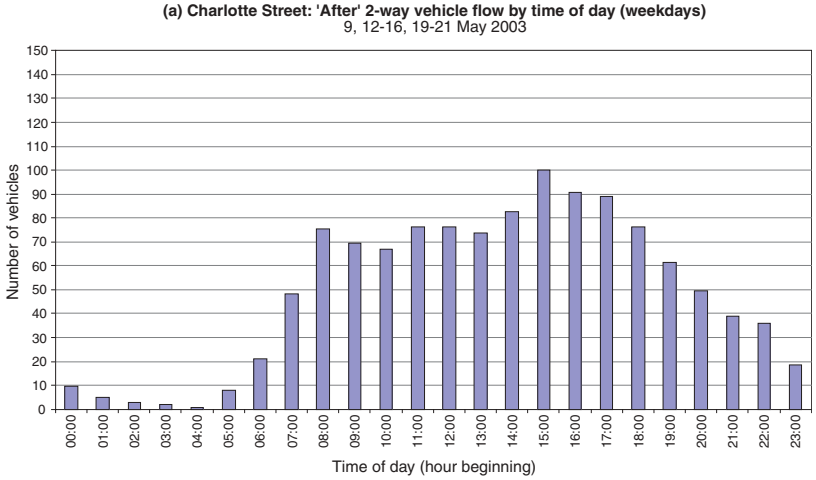
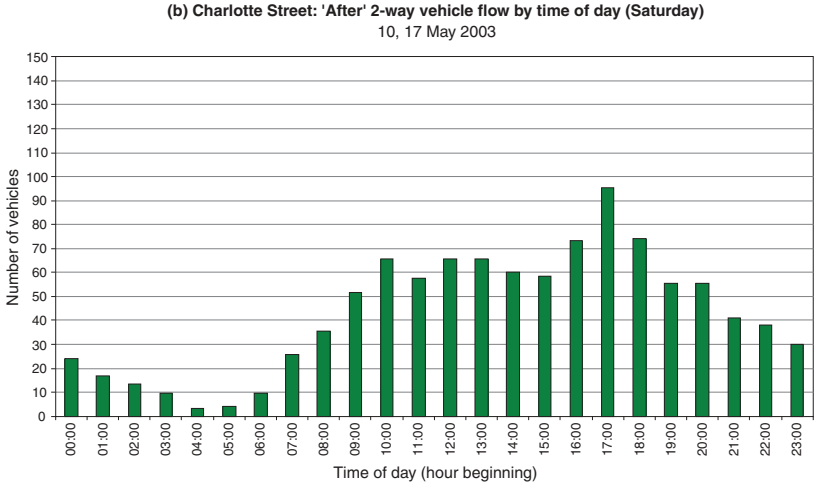


Figure A.3 Charlotte Street: vehicle flow by time of day – 'before'





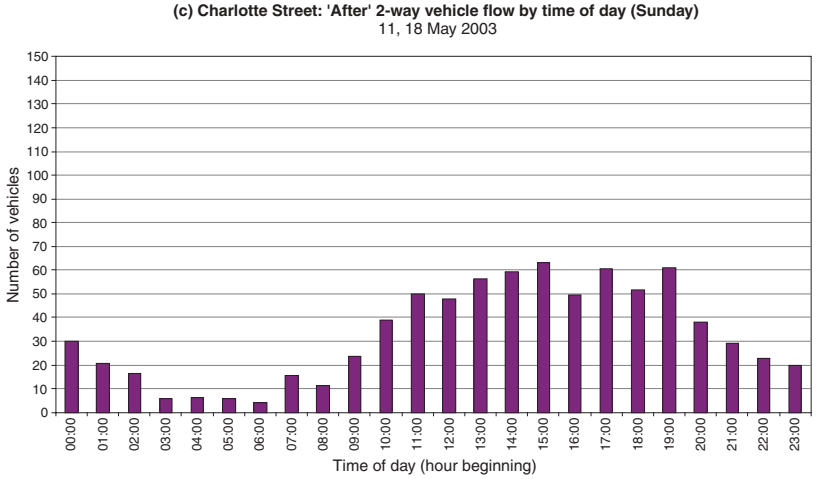
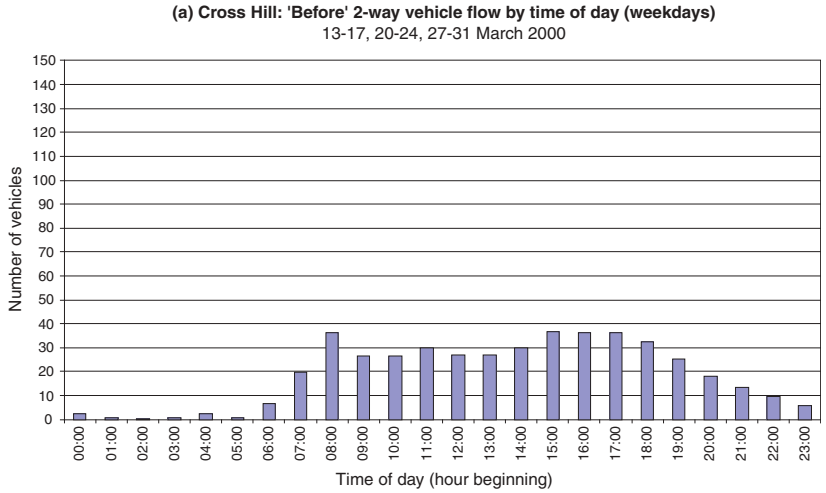
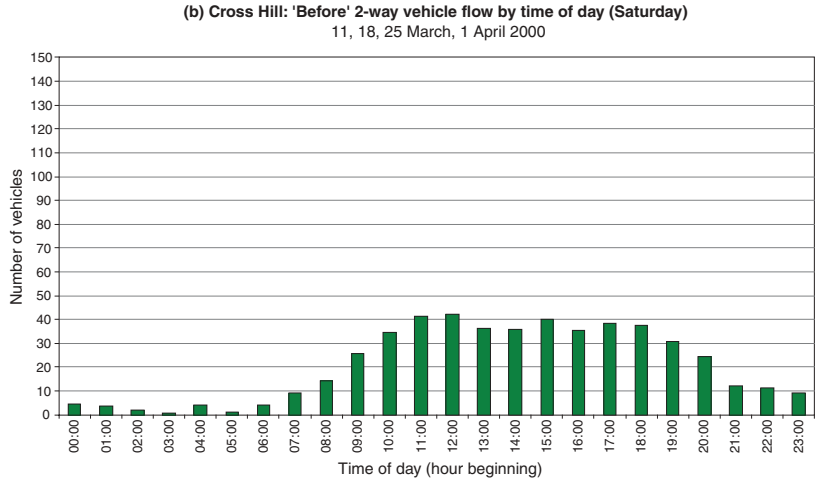


Figure A.4 Charlotte Street: vehicle flow by time of day – 'after'





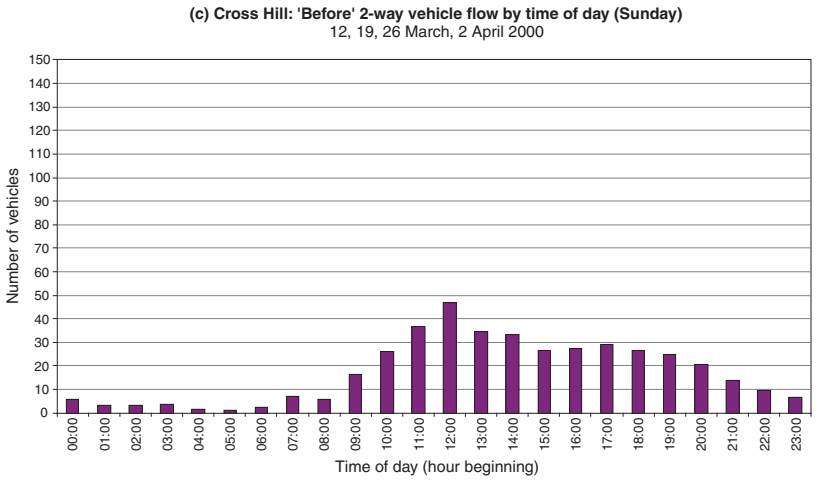
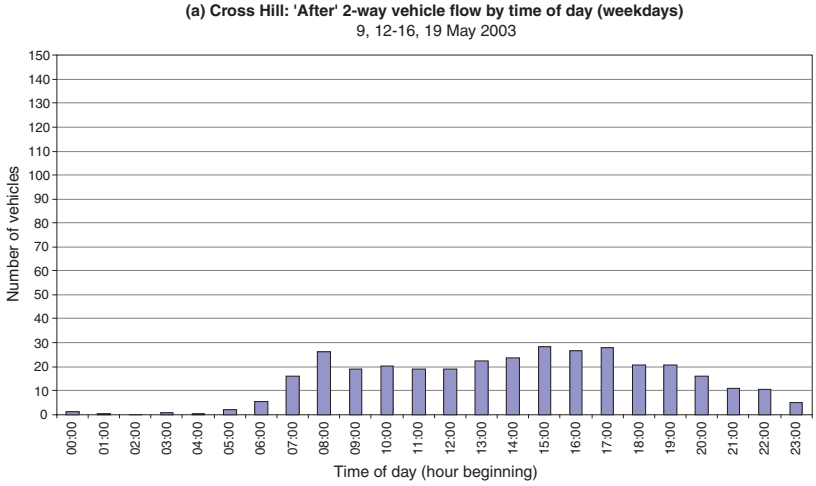
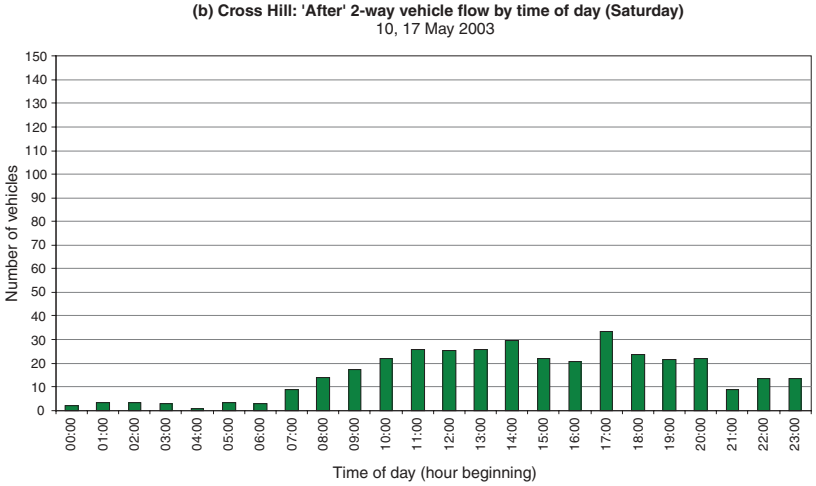


Figure A.5 Cross Hill: vehicle flow by time of day – 'before'





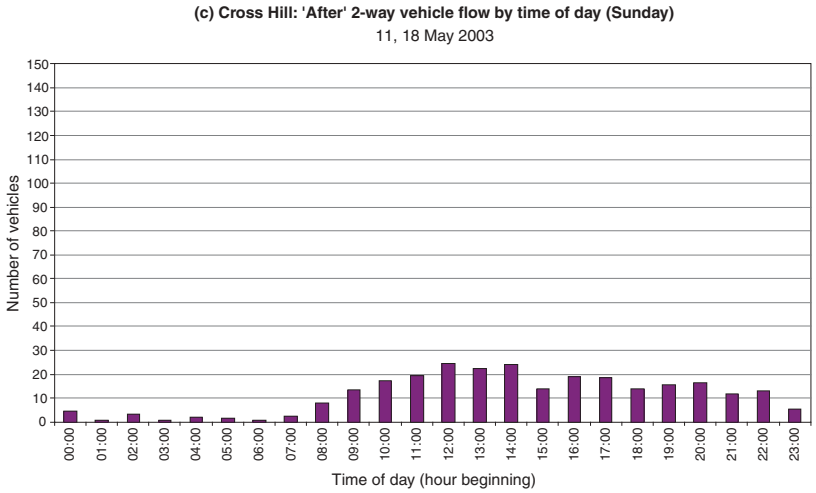
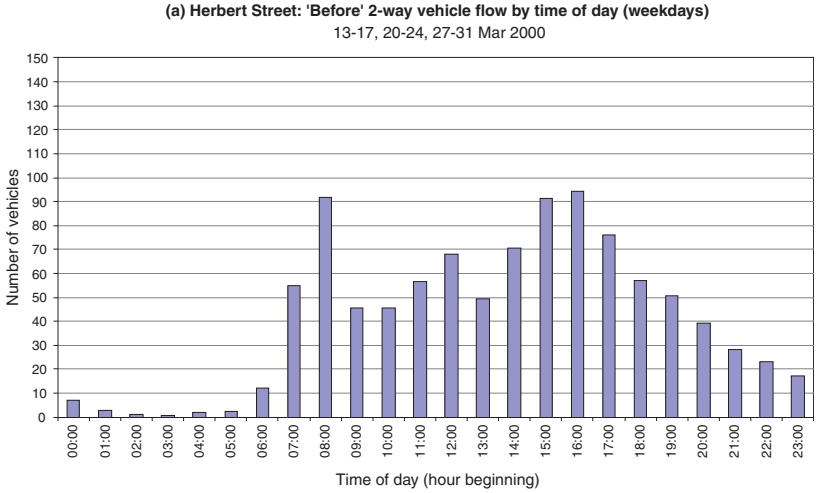
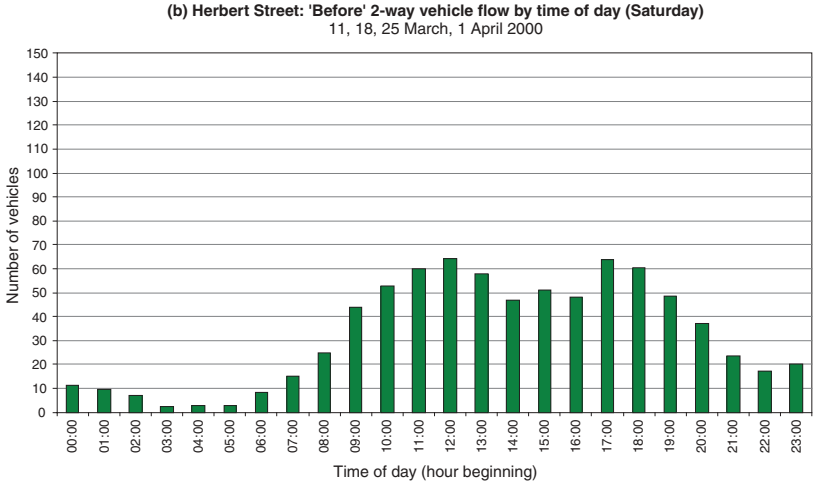


Figure A.6 Cross Hill: vehicle flow by time of day – 'after'





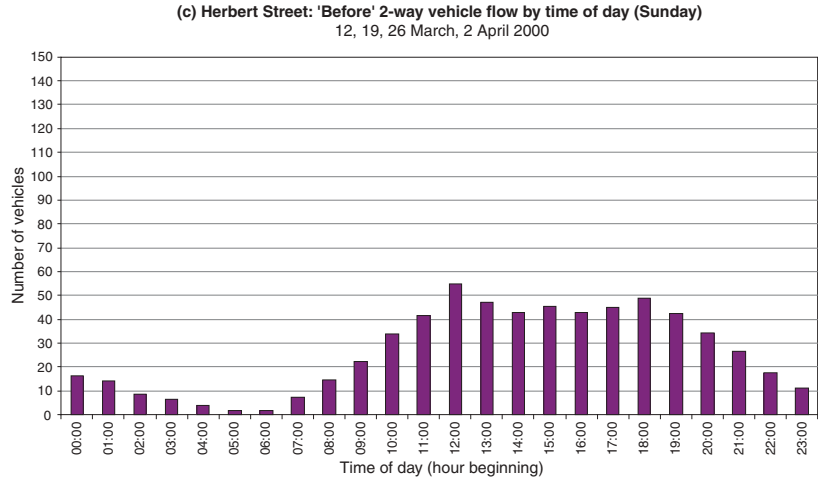
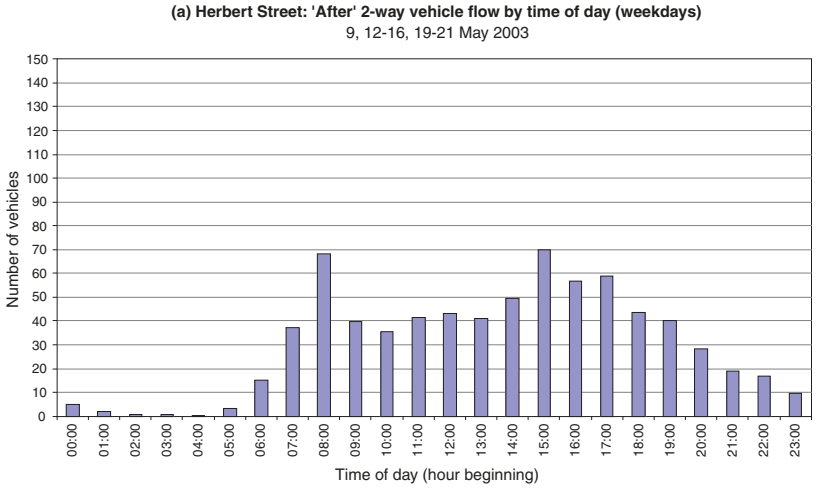
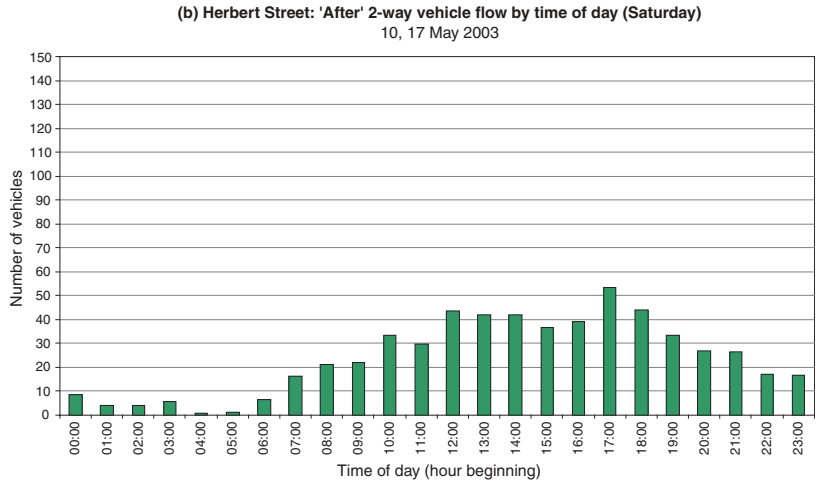


Figure A.7 Herbert Street: vehicle flow by time of day – 'before'





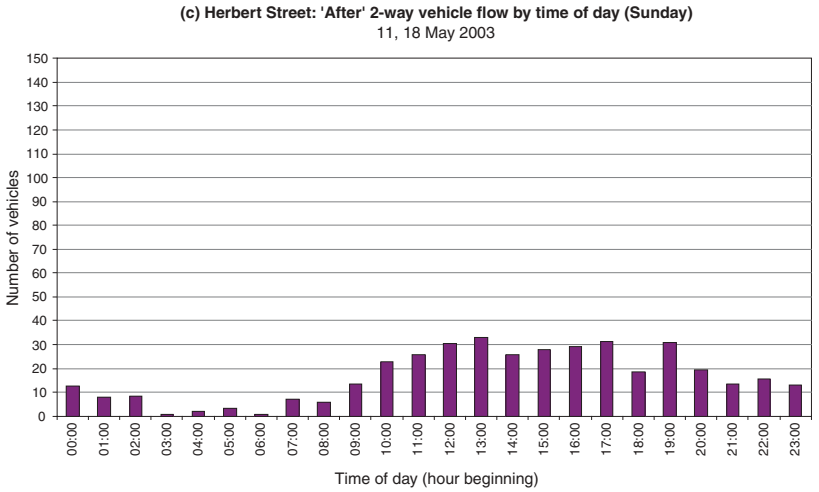
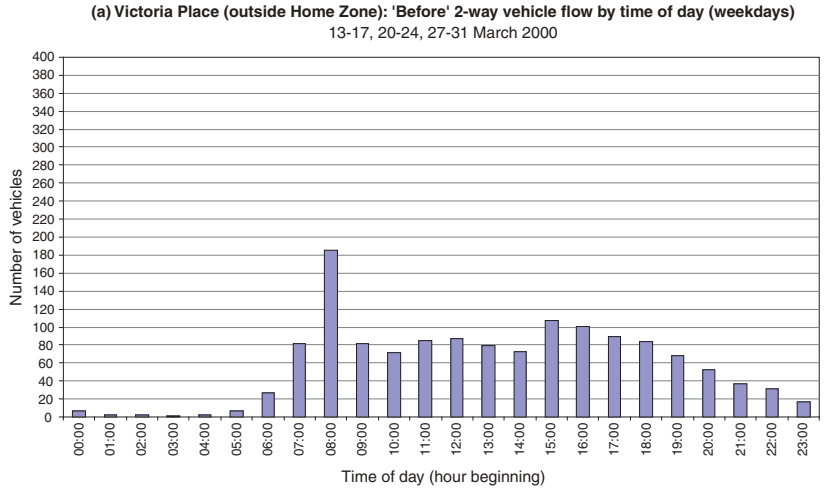
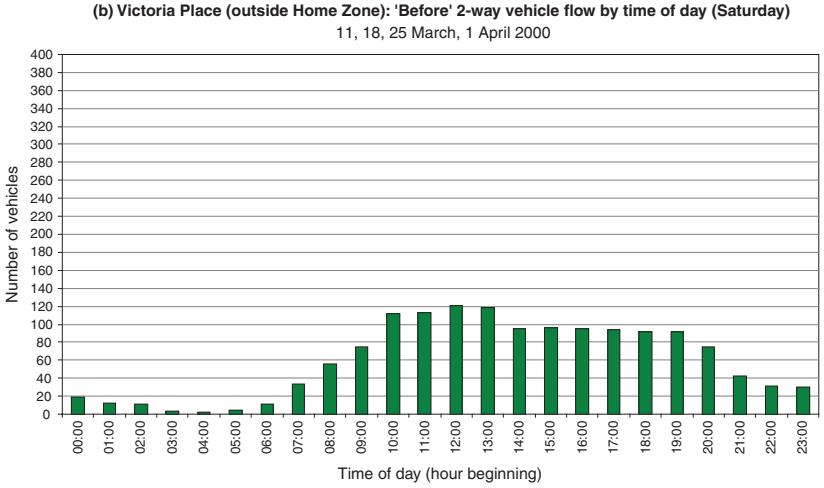


Figure A.8 Herbert Street: vehicle flow by time of day – 'after'





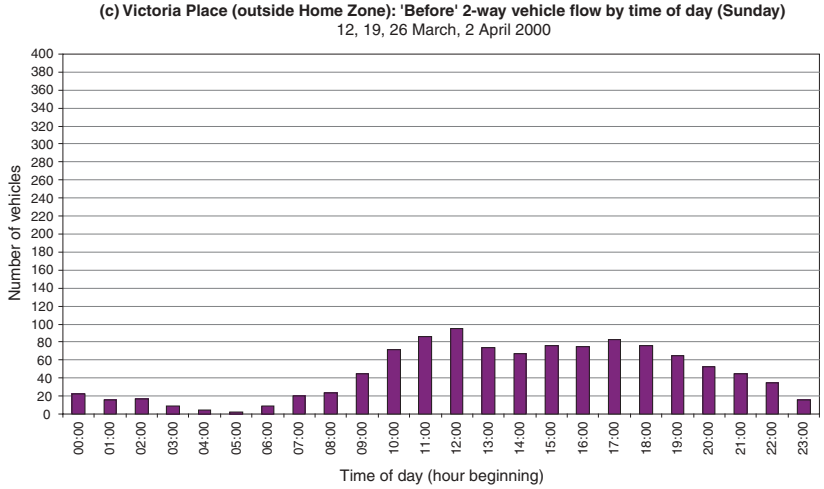
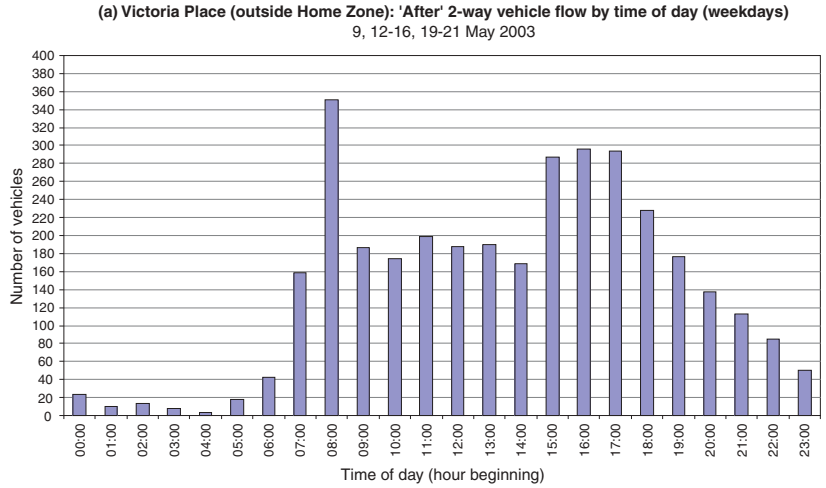
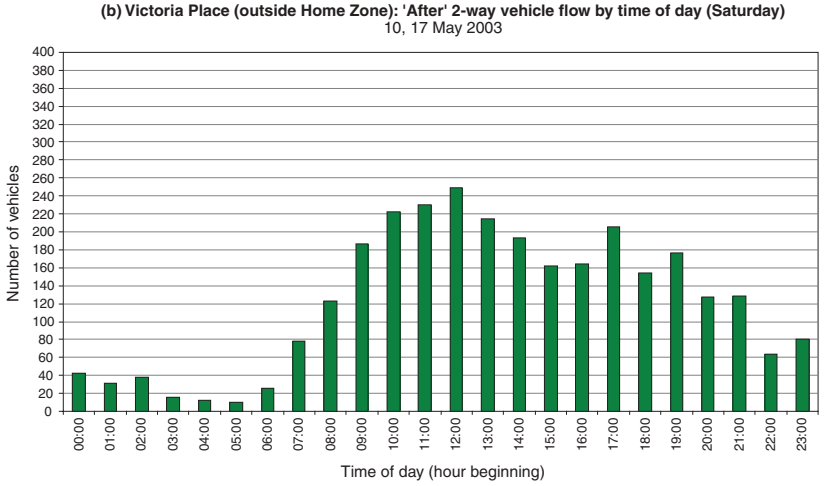


Figure A.9 Victoria Place: vehicle flow by time of day – 'before'





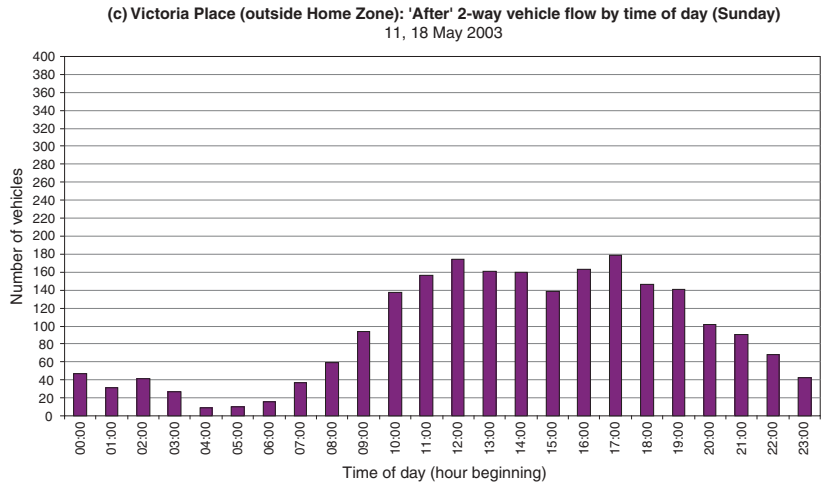
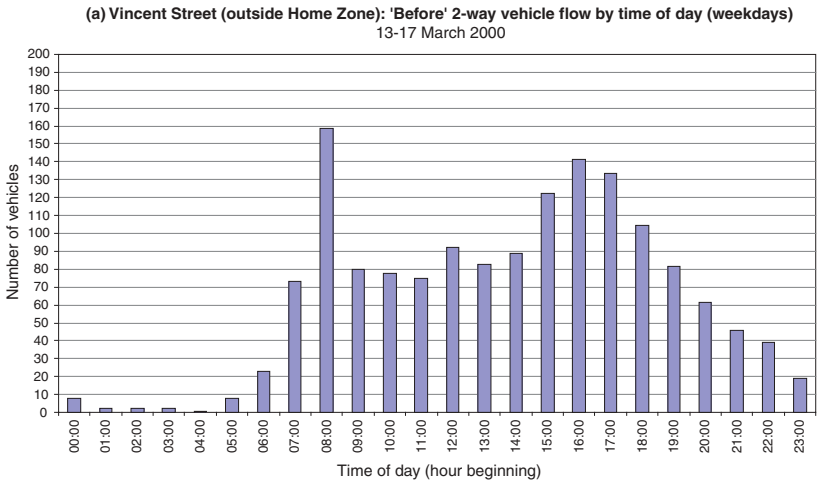
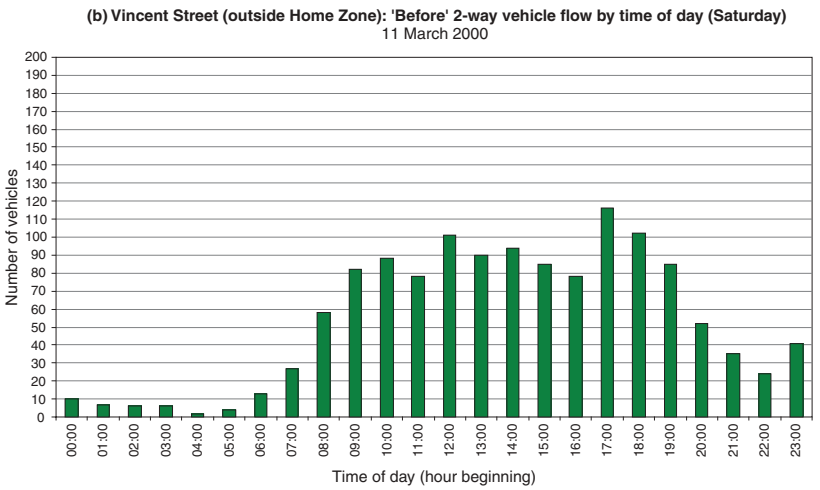


Figure A.10 Victoria Place: vehicle flow by time of day – 'after'





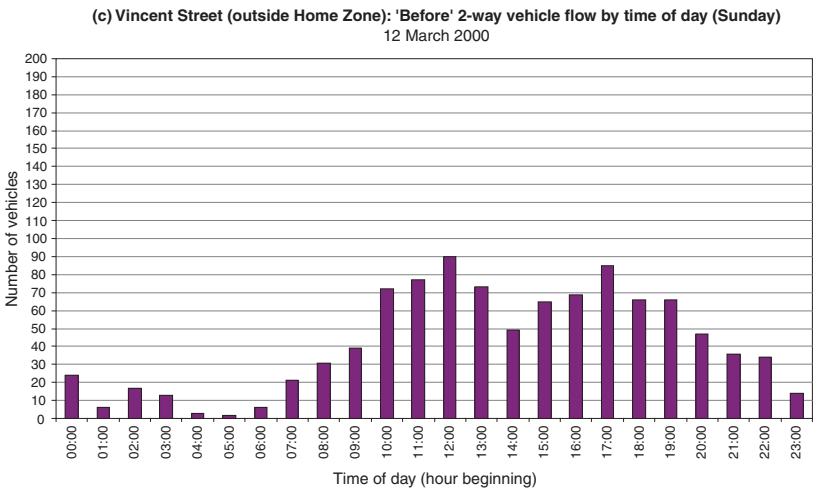
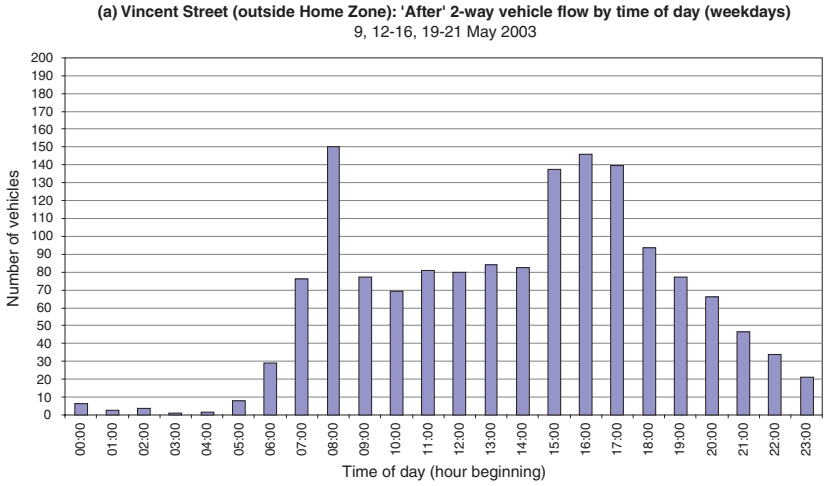
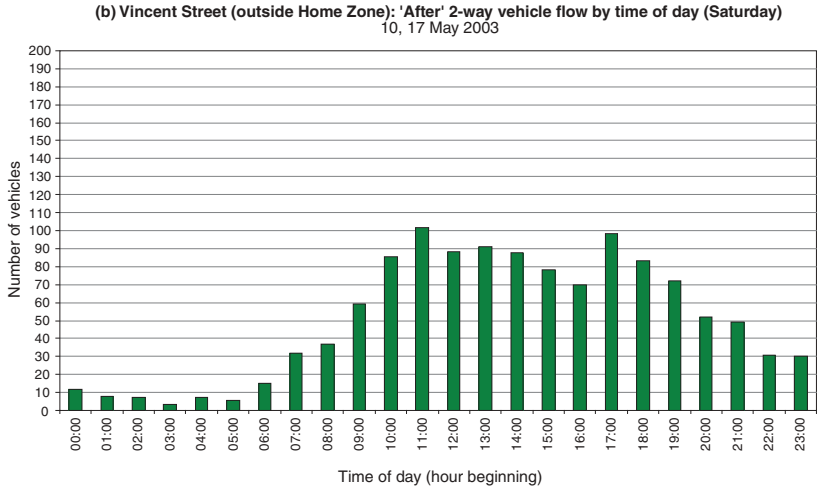


Figure A.11 Vincent Street: vehicle flow by time of day – 'before'





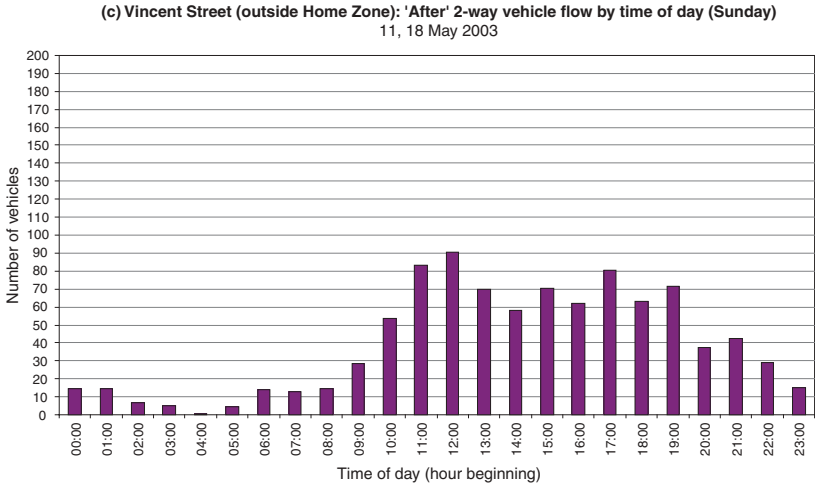


Figure A.12 Vincent Street: vehicle flow by time of day – 'after'

Appendix A: Traffic flows by time of day

Appendix B: Road traffic injury accidents and near misses

B.1 Road traffic injury accidents

Information on the number and type of reported road traffic injury accidents (STATS19) was obtained from the TRL database. The length of the 'before' period prior to scheme installation was from January 1st 1995 to March 31st 2003. At the time of writing, however, insufficient data are available for the 'after' period (April 2003 onwards).

The 'before' injury accident frequencies were 0.8 accidents per year within the home zone, and 6.5 per year on the perimeter roads, of which 1.2 per year were at the junctions leading into the zone.

Details of the accidents recorded during the 'before' period are given in Table B1. A total of 75 injury accidents were studied in the 'before' period; 7 were within the home zone boundary and 68 were on the perimeter roads outside the zone of which 12 were at the junctions leading into the zone. Of these 75 accidents, 11 were serious (one within the area of the home zone) and 64 were slight. There were no recorded fatal accidents. Five of the eleven serious accidents involved serious pedestrian injury; two more involved a cyclist, two involved junction manoeuvres (including one of the cycle accidents), two involved single vehicles, one was a head-on collision and one involved a collision with a parked vehicle.

Within the area of the home zone there were seven accidents in total. Of these, there was one serious accident involving a pedestrian and one slight accident involving a cyclist at a junction. Also reported were two other junction accidents, an accident involving a parked vehicle and one involving a bus passenger in which no other vehicles were involved.

B.2 Road traffic accidents and near misses mentioned by respondents

The road traffic incidents in this appendix were mentioned by respondents of the questionnaire and therefore they must be treated with some caution as they are only a sample but they may well be indicative of the real situation for non-injury road traffic incidents.

Incidents which resulted in accidents

There were two accidents in the 'before' period and two accidents in the 'after' period which implies that the home zone has not affected these accidents. The two 'after' accidents involved a pedestrian who tripped over the pavement on Pentamar Street at 23:00 causing an injury of unknown severity and a car which reversed into a stone obelisk which did not result in any injuries.

Incidents which resulted in 'near misses'

In the 'before' period there were ten near misses and in the 'after' period there were sixteen 'near misses' which could have been due to more incidents being recounted in the 'after' period rather than a real increase incidents. There were nine 'near misses' which involved pedestrians compared with none in the 'before' survey.

Incidents which resulted in accidents or 'near misses'

This gives a total of twelve 'incidents' (see Table B2) in the 'before' period and eighteen 'incidents' in the 'after' period which is not very encouraging. It can often be pure chance that determines if a near miss could have resulted in an accident if the circumstances or timings had been fractionally different.

Overall summary of results of incidents mentioned by respondents

- There was only one injury, of unknown severity, in the 'after' period which was a pedestrian who tripped over the pavement. There was no increase in the number of accidents mentioned.
- Combining all of the incidents indicates that respondents mentioned more incidents in the 'after' survey. Clearly this is only *indicative* because of the way the samples were taken and the perception of a near miss may have changed between the two surveys.

Table B.1 Details of reported injury accidents between 1/1/1995 and 31/3/2003

	'Before' accidents		
Category	*Within home zone*	*At home zone boundary*	*Outside home zone*
By severity			
Slight	6	11	47
Serious	1	1	9
By type			
Pedestrian	2 (1 serious)	2 (1 with cyclist)	9 (4 serious)
Pedal cyclist	1	1 (1 with pedestrian)	11 (2 serious)
Junction – emerge	2	4 (1 serious)	9
Junction – turn off / oncoming	0	2	3 (inc. 2 cyclists*)
Nose-to-tail / & at junction	0	3	4
Right turner overtaken	0	0	1
Bus passenger	1	0	2
Head-on	0	0	2
Parked vehicle hit	1	0	8 (1 serious)
Single vehicle	0	0	6 (2 serious)
U-turn	0	1	2
Waiting car hit	0	0	3
By location			
Charlotte Street	2	–	–
Charlotte Street / St. Leo Place	1 (1 serious)	–	–
Herbert Street	1	–	–
Cross Hill	1	–	–
Cross Hill / Herbert Place	1	–	–
Keat Street	1	–	–
Albert Road / Charlotte Street	–	7	–
Albert Road / Healy Place	–	1	–
Albert Road / Ross Street	–	4 (1 serious)	–
Albert Road / Benbow Street	–	–	3
A374 Ferry Road	–	–	1
Albert Road (non-junction)	–	–	12 (2 serious)
Albert Road / B339	–	–	8 (1 serious)
Albert Road / Victoria Place	–	–	8 (2 serious)
Boscawen Place	–	–	1 (1 serious)
Cambridge Street	–	–	1
Haddington Road	–	–	1
Haddington Road / Benbow St.	–	–	1
Healy Place / Benbow Street	–	–	1
Keyham Road	–	–	8 (2 serious)
Pasley Street	–	–	2
Pym Street	–	–	1
St. Leo Place	–	–	1
Victoria Place / Healy Place	–	–	1
Vincent Street	–	–	3 (1 serious)1

Table B.2 Accidents and near misses in home zone area from respondents' questionnaires

Incident type	*Incident occurred while*						
Period[1]	*Walking*	*Cycling*	*In car*	*Other*	*Total*	*Difference (A – B)*	*Change (%)*
Accident							
'Before' (B)	2	0	0	0	2		
'After' (A)	1	0	1	0	2	0	0%
Near miss							
'Before' (B)	0	2	4	4	10		
'After' (A)	9	1	6	0	16	+6	+60%
All incidents							
'Before' (B)	2	2	4	4	12		
'After' (A)	10	1	7	0	18	+6	+50%

[1] *'Before' and 'after' periods were about 1 year or so before or after the home zone was completed.*

Appendix C: Morice Town road safety scheme crime results

Street	*Violent crimes*	*Criminal damage*	*Domestic burglary*	*Vehicle crime*	*Other theft*	*Other offences*	*Grand total*
2001/2002 recorded crime							
Balfour Terrace	2	2	0	4	1	1	10
Charlotte Street	3	4	6	3	2	7	25
Cross Hill	0	2	2	6	1	0	11
Garden Street	0	3	0	0	0	0	3
Herbert Place	2	0	0	3	2	1	8
Herbert Street	3	5	0	1	2	1	12
Keat Street	3	3	2	7	2	0	17
Pentamar Street	0	2	1	0	0	0	3
Ross Street	0	2	0	0	0	1	3
Grand total	13	23	11	24	10	11	92
2002/2003 recorded crime							
Balfour Terrace	0	1	0	1	1	2	5
Charlotte Street	3	17	5	5	15	4	49
Cross Hill	1	3	1	1	0	0	6
Garden Street	1	2	4	1	1	0	9
Herbert Place	1	2	2	1	1	1	8
Herbert Street	4	5	2	3	3	3	20
Keat Street	3	5	2	6	3	2	21
Pentamar Street	3	3	5	1	1	1	14
Ross Street	3	1	0	1	1	4	10
Grand total	19	39	21	20	26	17	142
2003/2004 recorded crime							
Balfour Terrace	0	0	0	0	0	0	0
Charlotte Street	4	0	0	0	0	0	4
Cross Hill	0	0	0	0	0	0	0
Garden Street	0	0	0	0	0	0	0
Herbert Place	0	0	0	0	0	0	0
Herbert Street	0	0	0	0	0	0	0
Keat Street	1	0	0	1	0	3	5
Pentamar Street	0	0	0	0	0	0	0
Ross Street	0	0	0	0	0	0	0
Grand total	5	0	0	1	0	3	9

Appendix D: Guidance on using home zone leaflet

Home Zone

What are Home Zones?

"Home Zones are residential streets in which the road space is shared between drivers of motor vehicles and other road users, with the wider needs of residents (including people who walk and cycle, the elderly and children) being accommodated. They are about promoting quality of life and neighbourliness."

Department for Transport 2001

Plymouth

DFT

HAZ

Plymouth

Guidelines for using a Home Zone

Home Zones should offer people better and safer places to live and work, but need the help of everyone to make this happen. You can help by:

- **Driving at no more than 10 mph** - this gives time for everyone to walk, drive, cycle, talk and play in a safer space. Being thoughtful about other road users and residents needs - they all have equal rights to use the same space
- Parking your car, motorcycle etc. in marked spaces where provided, or space that will not obstruct or cause a problem. Please be thoughtful of others' needs.
- Keeping to the Highway Code, the space remains a public highway; vehicles blocking any route can be booked for obstruction and all other traffic regulations remain in force.
- Making sure that when you are walking or playing you do not hold up traffic moving through the Zone.

Home Zones bring considerable investment into an area, investment that is usually matched in time and effort by the community to bring about the positive changes that take place. The community and the residents work hard and want to see their Home Zone mature and develop over the coming years. This can be achieved with your help and support.

Produced by: Plymouth City Council, Transport & Planning - Road Safety. Tel: 01752 307730

Making a difference

This leaflet is designed to help inform all those who live, work or travel through a Home Zone. Home Zones are designed by residents to lower traffic speeds, improve the environment, change the nature of the road space so that it is shared equally by all road users including pedestrians, introduce plants and features to improve the quality of life for the residents.

Only 50 years ago, children playing in the street and neighbours talking to each other were commonplace, and a feature of community life. The increasing number and speed of vehicles on our roads has divided communities and made these activities much less appealing. It is hoped that Home Zones will help to regain some of this community spirit and enrich the resident's lives.

Yellow
Mainly pedestrian, community and play areas.

Bright Red
Vehicle overrun areas. These must be kept clear so that large vehicles like buses and lorries are able to turn corners.

Some streets have been redesigned and are now one level, as are many of the junctions. This helps to show motorists that they are in a different environment. By using coloured and textured surfaces it can also help to show different uses. The pictures on this page give a basic guide to this use. Other roads in the Home Zone have not been redesigned to the same extent but are still shared space and should be used in a similar way.

Gateways
Entrance and exit gateways show when you are entering and leaving the Home Zone.

Dark Red
Marked parking bays.

Grey
Shared surface and through route. Passing places have been provided where the shared surface has been narrowed. These should not generally be used for parking. Make sure vehicles are able to pass freely.

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.

Morice Town, Plymouth 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.

Related publications

TRL633 *Pilot home zone schemes: evaluation of Magor village, Monmouthshire* by R Layfield, D Webster and S Butress. 2005 (special price £10)

TRL626 *Pilot home zone schemes: evaluation of Cavell Way, Sittingbourne* by D Webster, A Tilly and S Buttress. 2005 (special price £10)

TRL625 *Pilot home zone schemes: evaluation of Northmoor, Manchester* by A Tilly, D Webster and S Buttress. 2005 (special price £10)

TRL586 *Pilot home zone schemes: evaluation of The Methleys, Leeds* by R Layfield, L Chinn and D Nicholls. 2003 (special price £10)

TRL439 *Traffic calming - a literature search on the design and performance of trafic calming measures* by D C Webster. 2000 (price £35, code H)

TRL397 *Traffic calming: Environmental assessment of the Leigh Park Area Safety Scheme in Havant* by J Cloke, D Webster, P Boutler, G Harris, R Stait, P Abbott and L Chinn. 1999 (price £50, code L)

TRL374 *Traffic calming in historic core zones: High Street Route, Shrewsbury* by A Wheeler. 1999 (price £35, code H)

TRL311 *Traffic calming - Public attitude studies: a literature review* by D C Webster. 1998 (price £35, code H)

TRL215 *Review of traffic calming schemes in 20mph zones* by D C Webster and A M Mackie. 1996 (price £35, code H)

TRL The safety benefits of 20mph zones in London by J Barker and D Webster (2004) *Annual Research Review 2003* (price £50)

CT1.3 Traffic calming update (2001-2003) *Current Topics in Transport : selected abstracts from TRL Library's database* (price £20)

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