TRICS
Trip Rate Information Computer System

SAFEWAY

TRAFFIC & PARKING at FOOD RETAILING

TRICS REPORT 95/3

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Preface

These traffic surveys were undertaken by TRICS as a joint data collection exercise funded by TRICS and Safeway. As part of the study additional automatic traffic counters were installed by the Highway Authorities of Berkshire, Gloucestershire, Hereford & Worcester, Humberside, Lancashire and Manchester.

The co-operation of all contributions is warmly acknowledged.

This report is presented as a database of information that can be used within the current debate on the locational aspects of food retailing.

The report should not be construed as establishing policy of any of the contributors.

A more detailed appendix covering detailed analysis of each of the nine stores is available as a Technical Appendix from JMP Consultants Limited, 172 Tottenham Court Road, London, W1P 0NA, Tel: 0171-388-5331, Fax: 0171-387-0078 at a price of £100.

JMP Consultants Ltd

This Report has been prepared for the TRICS members by JMP Consultants Ltd. The study was part financed from TRICS research funds. TRICS is owned by the seven county councils of Berkshire, Dorset, East Sussex, Hampshire, Kent, West Sussex and Surrey and is managed on their behalf by JMP Consultants Ltd. For further information contact Colin Eastman at JMP Consultants Ltd, 172 Tottenham Court Road, London, W1P 0NA. Tel: 0171-387-0078 Fax: 0171-387-0078.

1 Introduction

Background

1.1 The publication of PPG 13 - TRANSPORT by the Department of the Environment and the Department of Transport in early 1994 and the publication of a draft PPG6 - RETAILING in July 1995 has led to a new wave of debate about the locational aspects of retail site planning. PPG 13 sets three major objectives, namely to:

- reduce growth in the length and number of motorised trips;
- encourage alternative means of travel which have less environmental impact; and hence,
- reduce the reliance on the car.

1.2 In the specific respect of retailing the Department has, in PPG13, set out its view that in order to reduce the increasing dependency on the car, local authorities should:

- promote existing shopping centres and encourage new retail developments which will improve the quality and competitiveness of those areas;
- encourage local convenience retailing to locate in local and rural centres;
- ensure that local and rural centres are attractive and readily accessible by foot and cycle;
- where retail developments can not be located in central locations they should be encouraged to seek edge-of-centre locations which have good pedestrian access to the rest of the town centre and good public transport.

1.3 The draft PPG6 presents largely the same message albeit with slight variations in emphasis. In particular the Secretary of State has emphasised the importance of establishing clear retail policies in development plans that should identify a heirarchy of centres. Local plans should identify sites taking account of the potential contribution which they can make to the local economy, PPG6 states:

- Wherever possible the Government wishes to see new retail development in town and district centres and for local planning authorities to take a positive approach to the identification of additional sites. However, not all centres, particularly historic towns, will have sites that are suitable in terms of size, parking, traffic generation or servicing arrangements in the town centre itself (Paragraph 1.7).
- Local planning authorities should, therefore adopt a sequential approach to selecting sites for new retail developments. First preference should be for town centre sites, where suitable sites are available, followed by edge-of-centre sites and only then by out-of-centre sites in locations that are, or can be made, accessible by a choice of means of transport (Paragraph 1.8).

- The Government is concerned about the increase that some out-of-centre developments have generated in the length and number of motorised trips. Therefore, the Government is seeking, through the location of development, to influence overall levels of car travel. PPG13 sets out policies for locating major generators of travel demand in locations which are, or are capable of being, well served by public transport (Paragraph 3.17).

- New retail development should be located where it is accessible by a choice of means of transport. Usually this will mean locating retail development in or next to town centres, in other locations which are, or are capable of being, well served by public transport, or where there are concentrations of people (Paragraph 3.15).

- Where new retail development is proposed away from town centres, the local planning authority should identify and appraise its likely accessibility by a choice of means of transport. Such developments should wherever possible be genuinely accessible by other modes, so that a significant proportion of customers will be able to get to the development by means other than the car. This will mean ensuring that:

    . sufficiently frequent public transport comes, or is capable of coming, directly into or past the development; and

    . the development is easily accessible for pedestrians, disabled people and cyclists from the surrounding area (Paragraph 3.16).

1.4 The discussion about the practicality, or even the desirability of this approach to sustainable transport policy has been nowhere more focused than in the debate about the location of food superstores. Many recent planning applications have been turned down on appeal over the debate that the scheme does not go far enough to reduce the reliance on the use of the private car. The justification for those decisions are however varied with some Inspectors preferring sites within town centres due to the potential for customers to arrive by public transport while some Inspectors have favoured out-of-centre sites where customers live close to the site and there is the potential for walk and cycle trips. The argument set out by the Department of the Environment that the key to sustainable transport policy is the improvement in the vitality of town centre shopping centres has tended to lead Inspectors to favour town centre sites. However all of this debate has largely been based on subjective views of what might occur rather than any reasoned argument based on reliable data.

1.5 The other issue that has come to the fore in the new post PPG13 era is the recommendation set out by the Secretary of State that developers should not be required to provide more car parking spaces than they would themselves require, except if there were to be traffic safety issues. This now puts the onus for developing parking standards with the developer.

1.6 In the light of these debates, Safeway set out to provide an up to date independent data base relating to the traffic implications of a range of current stores. The survey was carried out, and part financed, by TRICS, and cooperation was obtained from a number of the highway authorities in the areas where the stores were located.

The Surveyed Stores

1.7 A total of 9 stores were selected such that they formed a matrix of sites by size and location. Three stores were chosen from each of Safeway's three main categories of store size, namely 25k sq ft , 30k sq ft, and 35k sq ft retail floor area and were categorised by town centre or out-of-centre location of store. Safeway does not have a policy of building 'out-of-town stores' and hence none are included within the sampling frame. The number of edge-of-town-centre stores is also very small and hence were not included either. The matrix of sites was as set out below

Store Location	25k sq ft RFA	30k sq ft RFA	35k sq ft RFA
Town Centre	Reigate	Southport	St Helens
Out of Centre	Harwood (Gtr. Manchester) Tewkesbury	Up Hatherley (Cheltenham) Malvern	Willerby (Hull) Reading

Figure 1.1 indicates the location of these sites (by type) in a national context.

1.8 A brief description of each store is provided below:

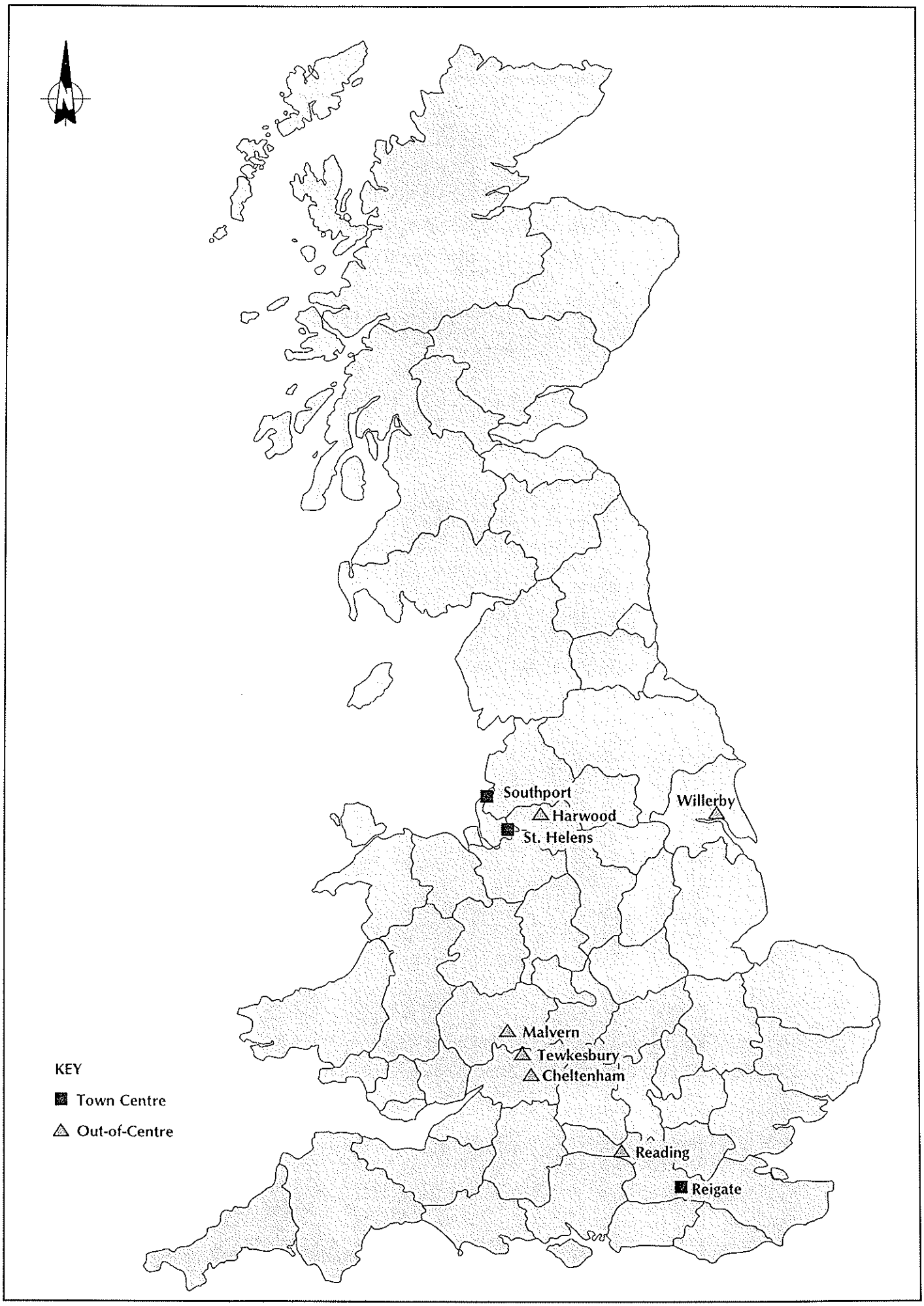
- *Reigate* was opened in 1993 and was constructed within the core of the town centre fronting onto part of the main street. No similar town centre facility existed in the area and the site attracted customers from a range of out of town sites.

- *Southport* was opened in 1994 at the southern end of the main shopping street in the town. Car parking lies on the outside of the built frontage. Southport has a similar sized superstore at the northern end of the High Street.

- *St Helens* was opened in 1994 and is linked directly to the inside of the Inner Ring Road. The store's car parking lies between the store and the main shopping area of the centre.

- *Harwood* is an old village centre on the north eastern outskirts of Bolton which has now been incorporated into the continuous built up area of the town. The main road through the area contains a small range of shops, post office, food outlets and public houses. The new store also provides two additional retail outlets, one now taken by a bank, and a library.

- *Up Hatherley* is a large new residential development around the southern outskirts of Cheltenham. The radial road through the area contains a very limited range of retail outlets. The store was built as part of a new local centre that contains six shops, a pub and a community hall.



LOCATION OF SURVEYED SITES

Figure 1.1

- *Willerby* is a residential neighbourhood on the outskirts of Hull where the Safeway store was constructed as one of a number of large retail outlets. Together they provide a wide range of retail opportunities that attract from a wide catchment area.

- The *Tewkesbury* store lies adjacent to a new residential development. While being within a kilometre of the town centre, it currently lies on the edge of the built up area but expansion plans for the town will place the store in the centre of the development. There is no comparable facility in the town and customers tended to travel to Cheltenham prior to its opening in 1993.

- *Malvern* is a series of 'villages' strung along the edge of the Malvern Hills. The new store was constructed adjacent to the residential area of one of the centres. With no comparable store in the area many customers used to go to Worcester.

- The *Reading* store is located adjacent to one of the main radial routes into the centre and serves a major residential quarter of the town.

The Survey Approach

1.9 The survey took the form of traffic counts, interviews with shoppers and automatic traffic counts. Surveys were undertaken over a Friday, Saturday and Sunday in late November / early December 1994. Manual traffic counts were undertaken over the opening hours on each of the three days. The occupancy of the car park at the beginning and end of the day was recorded such that parking occupancy throughout the day could be determined. In most places separate traffic counts into and out of the petrol station were collected so that the effect of this additional service could be directly identified. Registration numbers of the cars were also recorded so that the average length of stay of vehicles could be deduced.

1.10 At many of the stores an automatic traffic counter was installed for the period between the end of November and Christmas. This was designed to plot the increase in traffic that arose in the pre-Christmas period and the increase in parking demand. As is the way with traffic counters much of the installed equipment failed to work continuously and the volume of data that exists is somewhat patchy.

1.11 The third element of the survey approach was a simple interview that was held with a random selection of shoppers to the stores. About 1000 interviews were held in each store with about 300 on a Friday and a further 200 in the Friday evening peak period from 16.30 - 19.00, 300 on a Saturday and 200 on a Sunday. The survey lasted no more that two minutes and obtained information relating to the origin and destination of the customer's trip, the travel mode used, and whether they had used other adjacent facilities in the town or local area.

1.12 At stores that had opened recently, customers were asked where they had previously shopped.

1.13 The data for all the stores have been analysed with the results presented in a series of Appendices. A number of the key parameters have been brought together into this Summary Report.

2 Summary Results

Trip Generation

2.1 The number of customers using each of the stores was available from the checkout customer records provided by Safeway. This data is tabluated in Table 2.1 in terms of customer numbers and in Table 2.2 in terms of customer trip rates per Gross Floor Area (GFA) and Retail Floor Area (RFA).

Table 2.1 Customer Visits per Day

Store Location	Gross Floor Area (GFA) sq m	Retail Floor Area (RFA) sq m	Customer Trips per day		
			Friday	Saturday	Sunday
Town Centre					
Reigate	4782	2279	4351	4338	2320
Southport	5338	2834	2747	3580	1782
St. Helens	5687	3800	3618	3777	1524
Average	**5269**	**2971**	**3572**	**3898**	**1875**
Out-of-Centre					
Harwood	3717	2323	2310	2665	1279
Cheltenham	4349	2954	3835	4197	2316
Willerby	5697	3595	3326	3487	1826
Tewkesbury	3707	2323	2053	2075	1355
Malvern	5217	2852	3156	3596	1805
Reading	5296	3261	3084	3364	2316
Average	**4664**	**2885**	**2961**	**3231**	**1816**

Table 2.2 Customer Trip Rates

Store Location	Customer Trip Rates per 100 sq m GFA		
	Friday	Saturday	Sunday
Town Centre			
Reigate	91	91	49
Southport	51	67	33
St. Helens	64	66	27
Average	**69**	**75**	**36**
Out-of-Centre			
Harwood	62	72	34
Cheltenham	88	97	53
Willerby	58	61	32
Tewkesbury	55	56	37
Malvern	60	69	35
Reading	58	64	44
Average	**64**	**70**	**39**

Store Location	Customer Trip Rates per 100 sq m RFA		
	Friday	Saturday	Sunday
Town Centre			
Reigate	191	190	102
Southport	97	126	63
St. Helens	95	99	40
Average	**128**	**138**	**68**
Out-of-Centre			
Harwood	99	115	55
Cheltenham	130	142	78
Willerby	93	97	51
Tewkesbury	88	89	58
Malvern	111	126	63
Reading	95	103	71
Average	**103**	**112**	**63**

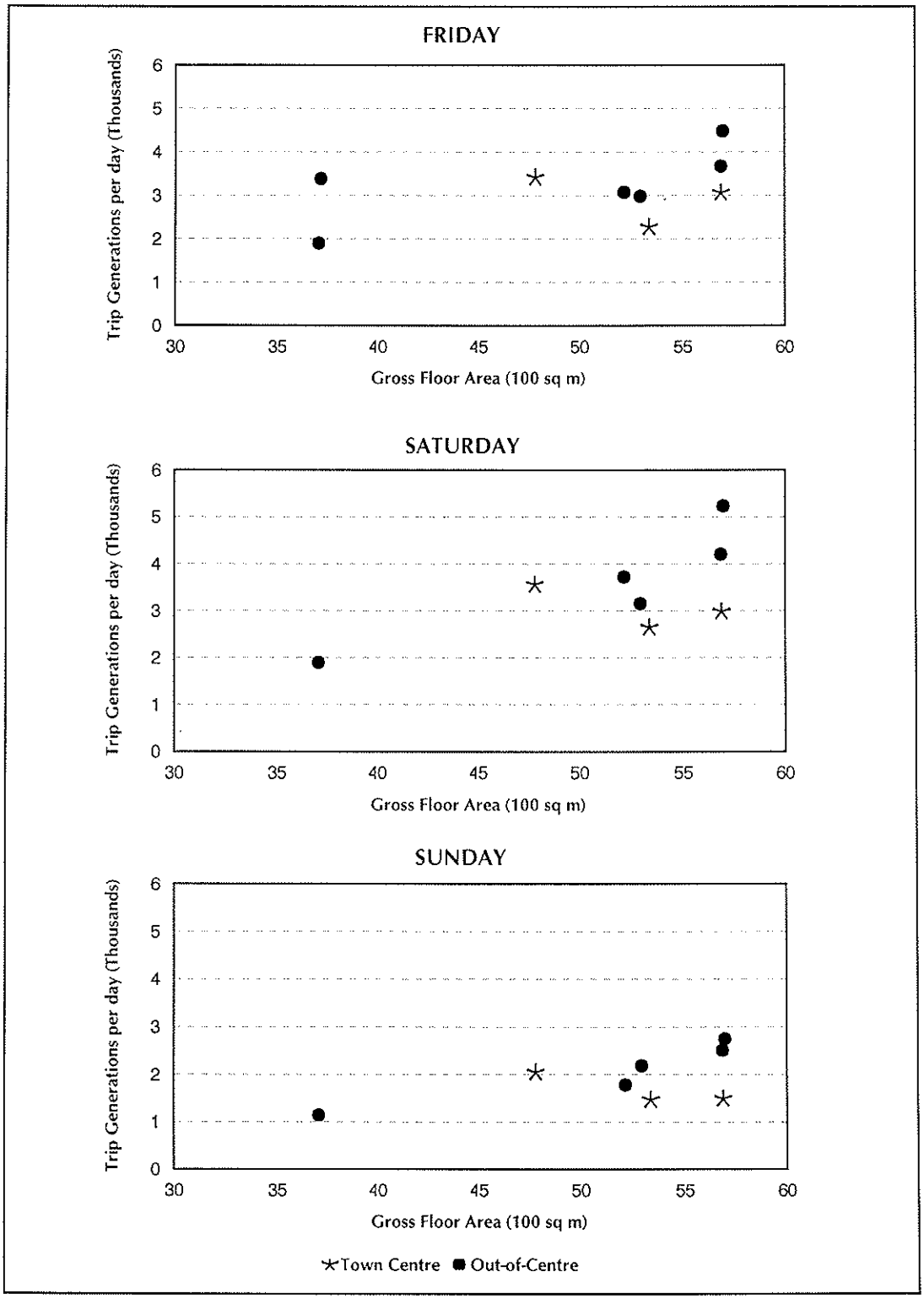
2.2 The figures illustrate that the Reigate and Cheltenham stores are trading significantly heavier than all of the other surveyed stores. The Tewksbury store is currently undertrading as the store has been designed to serve a neighbourhood of the town which is as yet unbuilt.

2.3 The traffic generation (generally the private car) was counted for each store and is tabulated below (Table 2.3) whilst the same data is presented in terms of trip generation rates per sqm of Gross Floor Area (GFA) and Retail Floor Area (RFA) in Table 2.4. (It should be noted that due to the inaccuracy of the results obtained for the Harwood store caused by 'through' traffic passing through the car park, they have been omitted from the analysis). Figure 2.1 shows the relationship between trip generations per day and the size of stores in terms of GFA.

Table 2.3 Trip Generations per Day (by Car)

Store Location	Gross Floor Area (GFA) sq m	Retail Floor Area (RFA) sq m	Trips per day		
			Friday	Saturday	Sunday
Town Centre					
Reigate	4782	2279	3430	3567	2056
Southport	5338	2834	2280	2655	1479
St. Helens	5687	3800	3074	2992	1498
Average	**5269**	**2971**	**2928**	**3071**	**1678**
Out-of-Centre					
Harwood	3717	2323	N/A (1)	N/A (1)	N/A (1)
Cheltenham	4349	2954	3671	4204	2510
Willerby	5697	3595	4480 (2)	5232 (2)	2749 (2)
Tewkesbury	3707	2323	1892	1894	1141
Malvern	5217	2852	3073	3720	1784
Reading	5296	3261	2980	3151	2185
Average	**4664**	**2885**	**3219**	**3640**	**2074**

(1) Figures unreliable due to 'through traffic'.
(2) Figure likely to be high due to the existence of other activities on the site (e.g. DIY store).
(3) Insufficient data.



TRIP GENERATION BY SIZE OF STORE (100 SQ M GFA)

Figure 2.1

Table 2.4 Trip Generation Rates (by Car)

Store Location	Trip Generation rates per 100 sq m GFA		
	Friday	Saturday	Sunday
Town Centre			
Reigate	72	75	43
Southport	43	50	28
St. Helens	54	53	26
Average	**56**	**59**	**32**
Out-of-Centre			
Harwood	N/A (1)	N/A (1)	N/A (1)
Cheltenham	84	97	58
Willerby	79 (2)	92 (2)	48 (2)
Tewkesbury	51	51	31
Malvern	59	71	34
Reading	56	59	41
Average	**66**	**74**	**42**

Store Location	Trip Generation rates per 100 sq m RFA		
	Friday	Saturday	Sunday
Town Centre			
Reigate	151	157	90
Southport	80	94	52
St. Helens	81	79	39
Average	**104**	**110**	**60**
Out-of-Centre			
Harwood	N/A (1)	N/A (1)	N/A (1)
Cheltenham	124	142	85
Willerby	125 (2)	146 (2)	76 (2)
Tewkesbury	81	82	49
Malvern	108	130	63
Reading	91	97	67
Average	**106**	**119**	**68**

(1) Figures unreliable due to 'through traffic'.
(2) Figure likely to be high due to the existence of other activities on the site (e.g. DIY store).

2.4 Figure 2.2 graphically represents the percentage of customers by day of week. The town centre sites exhibit a flatter profile with some 13-14% of weekly traffic occurring on each of the weekdays and a Saturday peak of 17%. The out-of-centre sites grow gradually through the week from 15% on Monday to 18% on Friday and 19% on a Sunday. Some 11 - 12% of trips now occur on a Sunday.

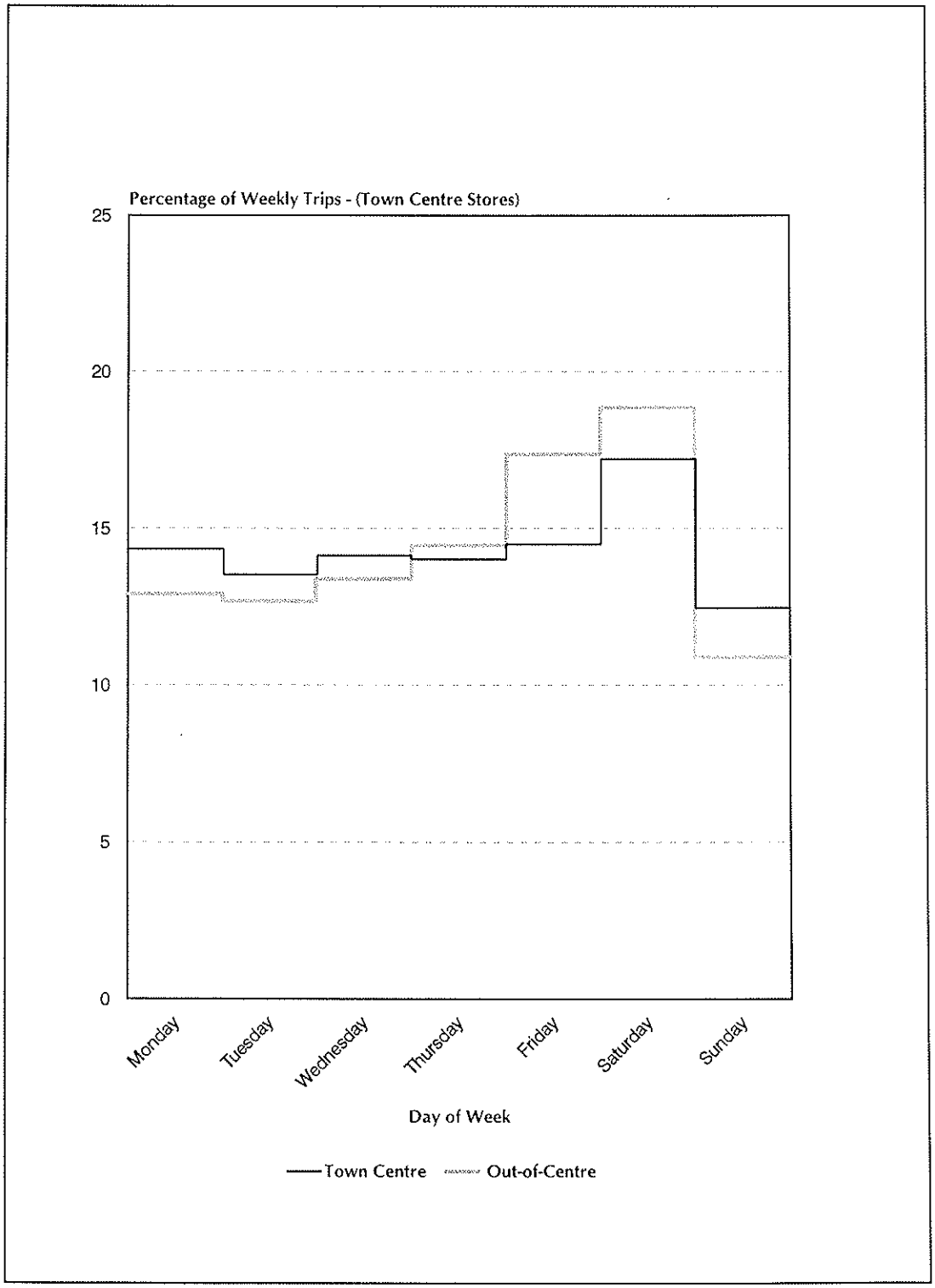
2.5 The relationship between the number of customer visits per day as provided by the store counts and trip generations arising from the traffic counts for each site is summarised in Table 2.5. The table shows the ratio of visits against trips. Generally the ratio should not fall below 1 as one would expect that all trips generated will also result in a purchase being made. The results for Willerby, therefore suggest that a significant proportion of trips are made for alternative purposes such as visiting other stores on the site. On the assumption that each vehicle arrival generates one sale, the ratio provides a crude estimate of modal choice.

Table 2.5 Relationship between Customer Visits and Trip Generation

Store Location	Gross Floor Area (GFA) sq m	Retail Floor Area (RFA) sq m	Trip Generation/ Customer Visits		
			Friday	Saturday	Sunday
Town Centre					
Reigate	4782	2279	0.79	0.82	0.89
Southport	5338	2834	0.83	0.74	0.83
St. Helens	5687	3800	0.85	0.79	0.98
Average	**5269**	**2971**	**0.82**	**0.78**	**0.90**
Out-of-Centre					
Harwood	3717	2323	N/A (1)	N/A (1)	N/A (1)
Cheltenham	4349	2954	0.96	N/A (1)	N/A (1)
Willerby	(5697)	(3595)	(1.34 (2))	(1.50 (2))	(1.50 (2))
Tewkesbury	3707	2323	0.93	0.91	0.84
Malvern	5217	2852	0.97	N/A (1)	0.99
Reading	5296	3261	0.97	0.94	0.94
Average	**4457**	**2743**	**0.96**	**0.93**	**0.92**

(1) Figures unreliable.
(2) High value due to other stores on site.

2.6 The percentage of arrivals that occur in the peak hour (Friday 17.00 - 18.00) and on the busiest hours of each day is given in Table 2.6.



DISTRIBUTION OF CUSTOMERS BY DAY OF WEEK
TYPICAL WEEK

Figure 2.2

Table 2.6 Percentage of Vehicle Arrivals in the Peak Hours

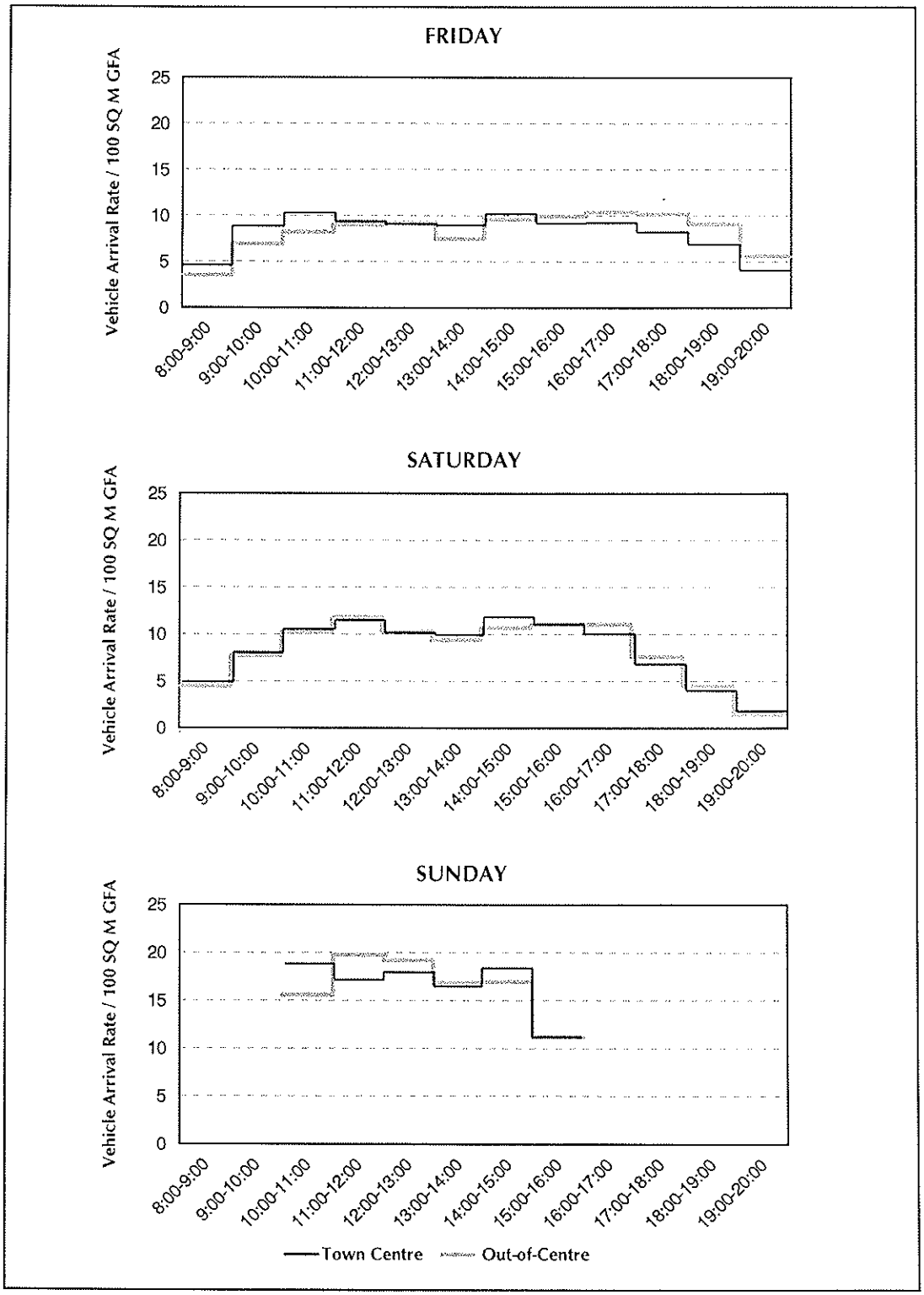
Store Location	Friday		Saturday	Sunday
	Peak (1700 hours)	Busiest	Busiest	Busiest
Town Centre				
Reigate	8.4	11.0	11.0	18.4
Southport	9.1	10.6	12.7	21.4
St. Helens	7.0	11.8	12.1	25.0
Average	**8.2**	**11.1**	**11.9**	**21.6**
Out-of-Centre				
Harwood	12.6	12.6	11.2	22.5
Cheltenham	8.1	10.6	11.5	21.1
Willerby	9.0	10.5	12.1	19.5
Tewkesbury	11.0	11.2	12.0	19.4
Malvern	11.3	11.3	11.9	18.7
Reading	10.6	10.6	11.1	17.7
Average	**10.4**	**11.1**	**11.6**	**19.8**

2.7 For a number of stores the heaviest traffic flows per hour now occur on a Sunday. At all stores the hourly Sunday flows are significant. For example, the store at Up Hatherley, Cheltenham has a peak hourly arrival flow of 388 vehicles on a Friday, 485 vehicles on a Saturday and 530 vehicles on a Sunday.

2.8 The distribution of traffic throughout the week was obtained from the automatic traffic count (ATC) records. This was not available for all sites due to the non availability of the ATC data. Figure 2.3 graphically represents the distribution of traffic by time of day for days of the week. (Although traffic flows in the pre-Christmas week are higher than for a typical week, the distribution by day of week is similar. Consequently, it was not felt necessary to illustrate both sets of data graphically).

Modal Choice

2.9 The mode of travel that customers used to reach the stores is presented in Tables 2.7 and 2.8. The tabulations are presented separately for the Friday evening peak periods as well as for each of the three survey days.



TRIP GENERATION RATE, BY TIME OF DAY

Figure 2.3

Table 2.7 Percentage of Customers Travelling by Car

Store Location	Friday	Friday Peak	Saturday	Sunday
Town Centre				
Reigate	78	96	86	92
Southport	83	87	83	84
St. Helens	83	90	85	92
Average	**81**	**91**	**85**	**89**
Out-of-Centre				
Harwood	80	93	90	87
Cheltenham	93	95	94	88
Willerby	94	99	98	98
Tewkesbury	94	93	96	87
Malvern	98	96	96	99
Reading	80	91	89	87
Average	**90**	**95**	**94**	**91**

Table 2.8 Percentage of Customers Arriving by Foot

Store Location	Friday	Friday Peak	Saturday	Sunday
Town Centre				
Reigate	20	3	10	7
Southport	9	8	10	12
St. Helens	2	4	3	5
Average	**10**	**5**	**8**	**8**
Out-of-Centre				
Harwood	18	5	9	12
Cheltenham	7	3	5	10
Willerby	3	1	1	2
Tewkesbury	4	4	3	9
Malvern	1	1	4	1
Reading	15	5	6	11
Average	**8**	**3**	**5**	**8**

2.10 The percentage of customers arriving by bus or cycle were in the most cases too small to be significant. Even at the town centre stores the level of public transport patronage was only recorded at around 5% in Southport, 10% in St Helens and about 1% in Reigate. At the other sites the level of public transport usage was insignificant.

Associated Activities

2.11 The analysis of the interviews were used to identify the percentage of customers that were making 'primary' journeys, (that is, the number of trips that left and returned to the same location, before and after the shopping trip). These trips were therefore made solely for the purpose of shopping and were not related to the journey home from work or other activity. Some of these primary trips may have included joint shopping trips where the customers did not move their car. The percentage of 'primary' trips is given in Table 2.9

Table 2.9 Percentage of 'Primary Trips'

Store Location	Friday	Friday Peak	Saturday	Sunday
Town Centre				
Reigate	77	65	91	94
Southport	86	69	96	91
St. Helens	78	58	89	90
Average	**80**	**64**	**92**	**92**
Out-of-Centre				
Harwood	77	65	84	88
Cheltenham	71	63	79	79
Willerby	72	58	71	77
Tewkesbury	68	62	84	84
Malvern	70	63	76	86
Reading	75	54	88	95
Average	**72**	**61**	**80**	**85**

2.12 Whilst making the shopping trip a number of customers visited other local facilities. This was particularly true in Town Centres where many shoppers also visited the town centre. For many of the out of centre stores this is a difficult figure to calculate as the definition of adjacent facilities is difficult to define. For instance, in Harwood a bank has been built as an adjacent retail unit and this is heavily frequented by customers, whereas in Tewkesbury a range of cash dispensing units are located within the store. Whilst recognising the inaccuracy this table is based on visits to other retail units in the immediate vicinity which do not involve moving a parked car. For many of these visitors the activity in the town centre included visits to banks and post offices. The percentage of shoppers that used other local facilities is given in Table 2.10.

Table 2.10 Percentage of Customers who used other Local Facilities

Store Location	Friday	Friday Peak	Saturday	Sunday
Town Centre				
Reigate	47	62	47	12
Southport	52	43	50	20
St. Helens	38	39	70	43
Average	**46**	**48**	**56**	**25**
Out-of-Centre				
Harwood	60	37	50	15
Cheltenham	25	19	18	28
Willerby	25	16	27	33
Tewkesbury	0	0	0	0
Malvern	22	14	12	11
Reading	11	8	17	17
Average	**24**	**16**	**21**	**17**

Parking

2.13 The maximum level of parking that was observed to occur at each site is tabulated in Table 2.11 and the data is represented in Table 2.12 in terms of parking demand per sq m of Gross Floor Area (GFA). In addition, Table 2.13 summarises the relationship between the number of customer visits (Table 2.1) and the maximum parking demand (Table 2.11) throughout the day. Figures 2.4a and 2.4b graphically represent the parking demand for individual store categories by time of day, in terms of GFA's.

Table 2.11 Maximum Parking Demand

Store Location	Gross Floor Area (GFA) sq m	Retail Floor Area (RFA) sq m	Maximum Parking Demand		
			Friday	Saturday	Sunday
Town Centre					
Reigate	4782	2279	303	387	281
Southport	5338	2834	279	460	230
St. Helens	5687	3800	395	383	228
Average	**5269**	**2971**	**326**	**410**	**246**
Out-of-Centre					
Harwood	3717	2323	375	281	166
Cheltenham	4349	2954	358	369	298
Willerby	5697	3595	356	460	330
Tewkesbury	3707	2323	154	154	115
Malvern	5217	2852	222	281	166
Reading	5296	3261	358	290	256
Average	**4664**	**2885**	**304**	**306**	**222**

Table 2.12 Parking Rates per 100 sq m GFA

Store Location	Maximum Parking Demand (No of vehicles/100sq m GFA)		
	Friday	Saturday	Sunday
Town Centre			
Reigate	6.3	8.1	5.9
Southport	5.2	8.6	4.3
St. Helens	6.9	6.7	4.0
Average	**6.1**	**7.8**	**4.7**
Out-of-Centre			
Harwood	(10.0 (1))	(7.6 (1))	(4.5 (1))
Cheltenham	8.2	8.5	6.9
Willerby	(6.2 (2))	(8.1 (2))	(5.8 (2))
Tewkesbury	4.2	4.2	2.0
Malvern	4.3	4.9	2.9
Reading	6.8	5.5	4.8
Average	**5.9**	**5.8**	**4.2**

(1) Figures unreliable due to 'through traffic'.
(2) Figure likely to be high due to the existence of other activities on the site (e.g. DIY store).

Table 2.13 Relationship between Customer Visits and Maximum Parking Demand

Store Location	Gross Floor Area (GFA) sq m	Retail Floor Area (RFA) sq m	Number of Customers per Space (1)		
			Friday	Saturday	Sunday
Town Centre					
Reigate	4782	2279	14.4	11.2	8.3
Southport	5338	2834	9.8	7.8	7.7
St. Helens	5687	3800	9.2	9.9	6.7
Average	**5269**	**2971**	**11.1**	**9.6**	**7.6**
Out-of-Centre					
Harwood	3717	2323	(6.2 (2))	(9.5 (2))	(7.7 (2))
Cheltenham	4349	2954	10.7	11.4	7.8
Willerby	5697	3595	(9.3 (3))	(7.6 (3))	(5.5 (3))
Tewkesbury	3707	2323	13.3	13.5	11.8
Malvern	5217	2852	14.2	12.8	10.9
Reading	5296	3261	8.6	11.6	9.0
Average			**11.7**	**12.3**	**9.9**

(1) Number of customers divided by maximum number of spaces used that day.
(2) Figure unreliable due to 'through traffic'.
(3) Figure likely to be high due to existence of other activities on the site.

2.14 The average duration of parking was measured by matching the number plates of the vehicles when arriving and leaving the car park. The durations are given in Table 2.14. In addition, Figure 2.5 graphically represents the duration of stay of parked vehicles for individual store categories by time of day.

Table 2.14 Average Duration of Parking (mins)

Store Location	Average duration of parking (mins)		
	Friday	Saturday	Sunday
Town Centre			
Reigate	56	45	32
Southport	53	58	45
St. Helens	66	68	68
Average	**58**	**57**	**48**
Out-of-Centre			
Harwood	37	38	29
Cheltenham	43	36	28
Willerby	35	37	28
Tewkesbury	37	35	27
Malvern	41	35	32
Reading	39	37	28
Average	**39**	**36**	**29**

Note: Values calculated on vehicles parking for less than four hours on the assumption that those parking longer were assumed to be staff.

2.15 Analysis of the checkout customer records, which were provided by Safeway, was undertaken to examine the change in customer numbers from a 'typical' week in late November / early December to the peak period immediately before Christmas. Similar analysis was undertaken from automatic traffic counters and surveyed parking demand values where these were available. The records showed that on Fridays both town centre and out-of-centre stores experienced numbers approximately 20% higher in the pre-Christmas period compared to the typical week in late November / early December. Out-of-centre stores also experienced a peak approximately 20% higher than normal (on Saturdays) in the pre-Christmas period, whilst for town centre stores the increase was of the order of 10%. The analysis suggests, therefore, that parking activity is of the order of 20% higher at the peak pre-Christmas period than at other time.

Catchment Area

2.16 The average trip length to each store was obtained by plotting the post codes of each visitor. The median of the trip lengths are tabulated for the complete data set in Table 2.15. No attempt was made to separate the analysis for each of the days.

Table 2.15 Average Trip Length

Store Location	Median Trip Length (kilometres)	
	Car	All Modes
Town Centre		
Reigate	3.2	1.9
Southport	3.2	2.9
St. Helens	4.6	4.2
Average	**3.7**	**3.0**
Out-of-Centre		
Harwood	0.9	0.9
Cheltenham	2.4	2.1
Willerby	4.7	4.6
Tewkesbury	2.9	2.8
Malvern	5.1	5.1
Reading	3.3	2.8
Average	**3.2**	**3.1**

Note: The median trip length represents the 50th percentile of visitors to the store. (In other words 50% of the time, visitors are likely to come from nearer the store, and vice-versa).

Note: The Willerby store is part of a larger retailing complex which attracts traffic from a wide catchment area. The Malvern store is at one end of a string of small communities that make up the Malverns.

3 Impact of New Stores

Introduction

3.1 Of the 9 stores which were studied, six had opened recently. They were as follows:

Town Centre	-	Reigate	(opened 1993)
	-	Southport	(opened 1993)
Neighbourhood	-	Harwood	(opened 1994)
Free Standing	-	Tewkesbury	(opened 1993)
	-	Malvern	(opened 1993)
	-	Reading	(opened 1994)

Using information derived from the questionnaire surveys it was possible to determine where store customers had shopped before the new Stores opened. By relating store choice to postcode origins it was possible to calculate average distances travelled by customers before and after the stores opened.

Methodology

3.2 The analysis was confined to primary trips only, in order to make the analysis as robust as possible. By eliminating diverted and pass-by trips from the analysis it means that the analysis concentrates on how far shoppers are willing to travel from their own homes to undertake their shopping. In addition, it prevents the inclusion of work based shopping trips, whereby people travel to work some distance from home and undertake their shopping on the way home from work, for example.

3.3 For each store in turn a matrix was set up which included postcode origins and previous store choice. It was therefore possible to determine how many shoppers from a particular postcode previously shopped at a particular competing store. It should be noted that in most cases any shopping trips of greater than 15 kilometres were discounted because this represents the maximum distance most people are likely to be willing to travel to undertake their food shopping. For the stores at Southport and Tewkesbury longer shopping trips were included due to the lack of choice available in the surrounding areas.

3.4 Distances were estimated from zone centroids to individuals stores, where applicable. Distances were measured in a straight line from the zone centroids to the individual stores, to the nearest 0.5 kilometres.

Table 3.1 **Average Distances Travelled BEFORE and AFTER the Opening of New Stores**

Store Location		Sample (PRIMARY)	Distance BEFORE (kms)	Distance AFTER (kms)	Percentage Saving
Town Centre	Reigate	645	4.8	2.8	+ 42
	Southport	650	4.3	4.4	- 2
Out of Centre	Harwood	834	3.7	1.7	+ 54
	Tewkesbury	840	6.7	3.9	+ 42
	Malvern	796	5.5	3.9	+ 29
	Reading	372	3.6	2.4	+ 33

3.5 The Southport store differs from the others as it is the only location where there was a store of similar standing already located in the same catchment area.